PROYECTO DE OBRAS DE REHABILITACIÓN SOSTENIBLE DE LA FACHADA Y MEJORA DE LA EFICIENCIA ENERGETICA DEL PABELLÓN DE CRISTAL DEL RECINTO FERIAL DE LA CASA DE CAMPO DE MADRID. RECUPERACIÓN DEL PATRIMONIO CULTURAL

PABELLÓN DE CRISTAL

PROYECTO BÁSICO Y EJECUCIÓN

MADRID DESTINO

Madrid, marzo de 2025

Subdirección de Control de la Edificación y Obras
Dirección de Infraestructuras

Madrid Destino. Cultura, Turismo y Negocio S.A.

ANEXO 6 IMÁGENES DE FACHADA

IMÁGENES FACHADAS DE DISTINTAS FECHAS

Fachada acceso





Mayo 1965





Años 1960s



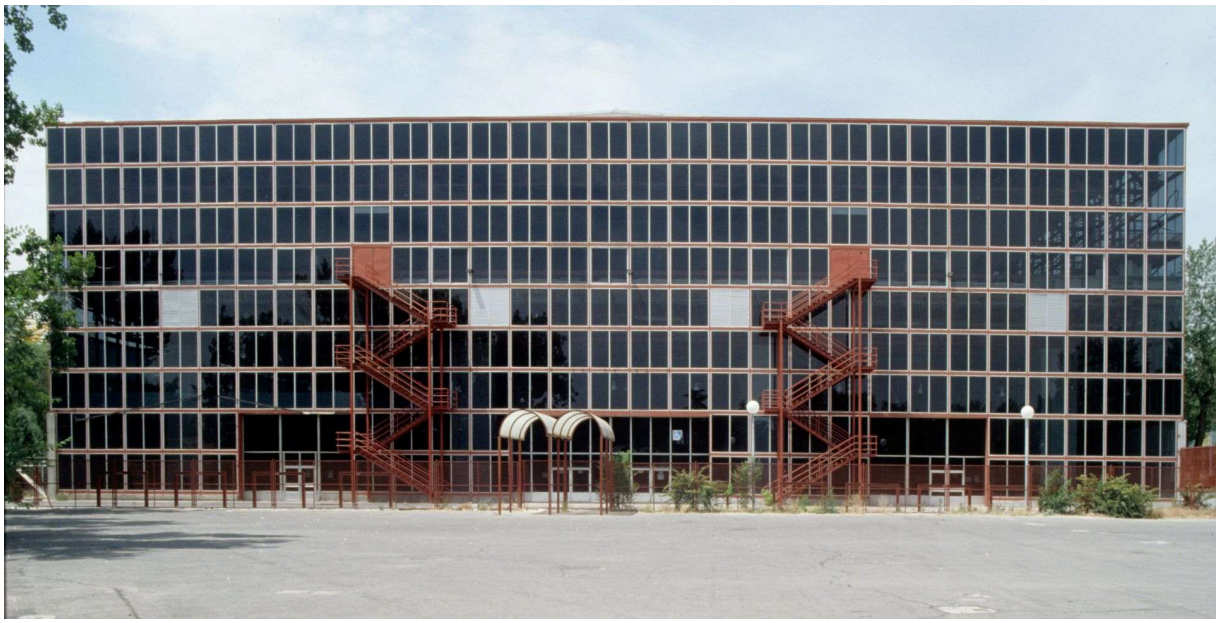


Luis Arguelles-Fundación DOCOMOMO Ibérico

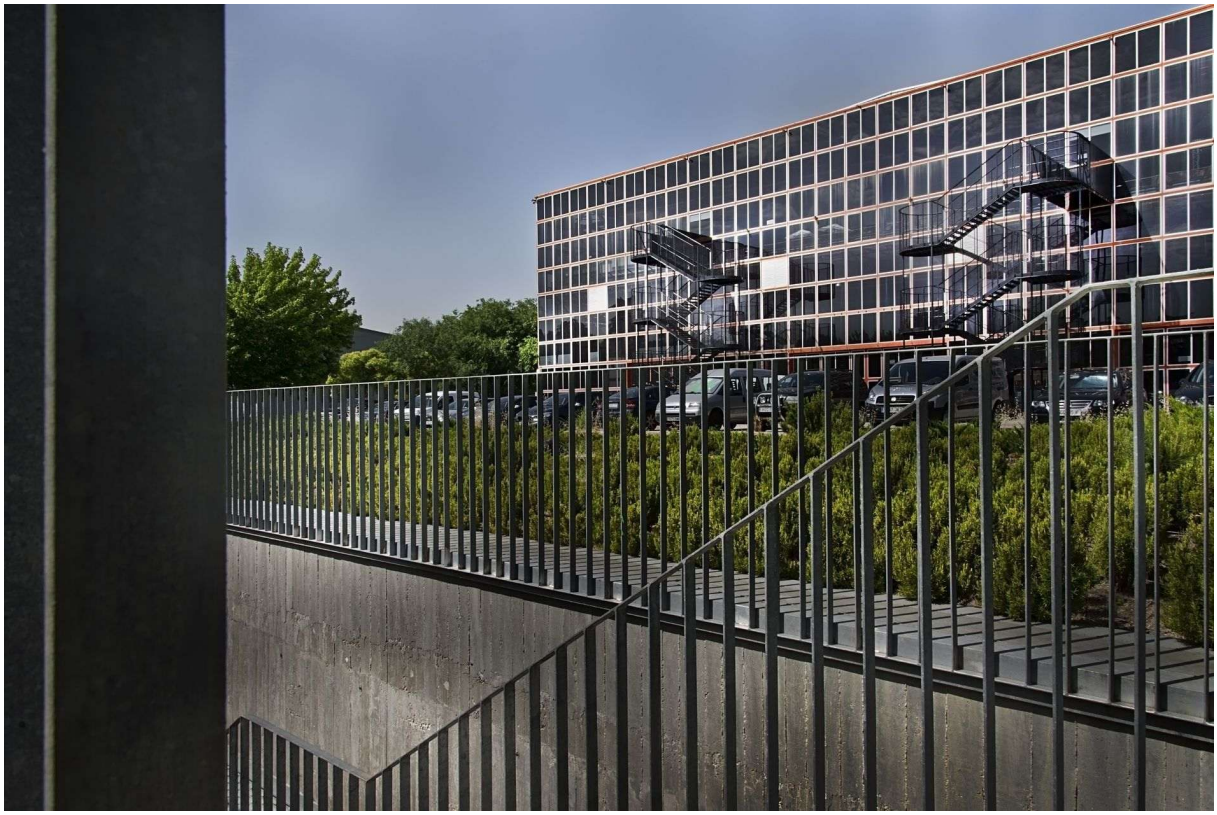




Luis Argüelles-Fundación DOCOMOMO Ibérico

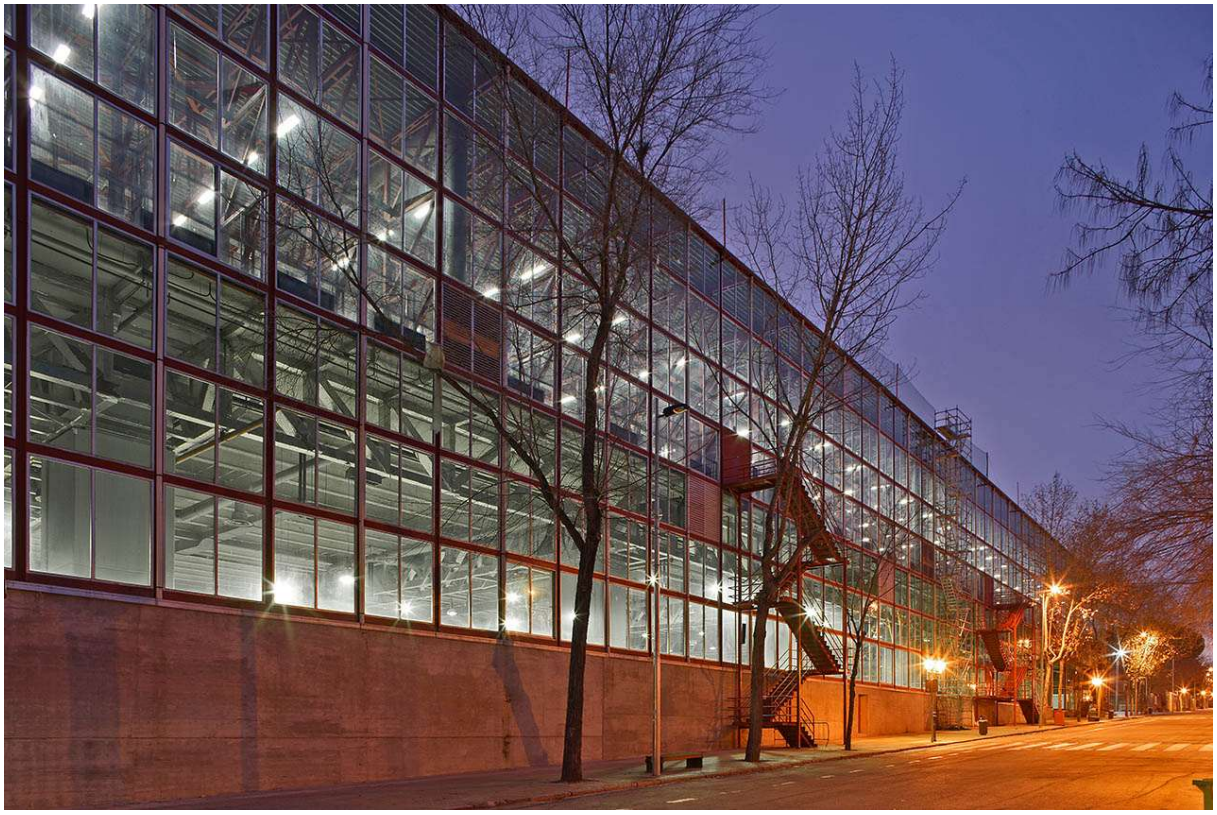


Escaleras de evacuación modificadas, después de 2007

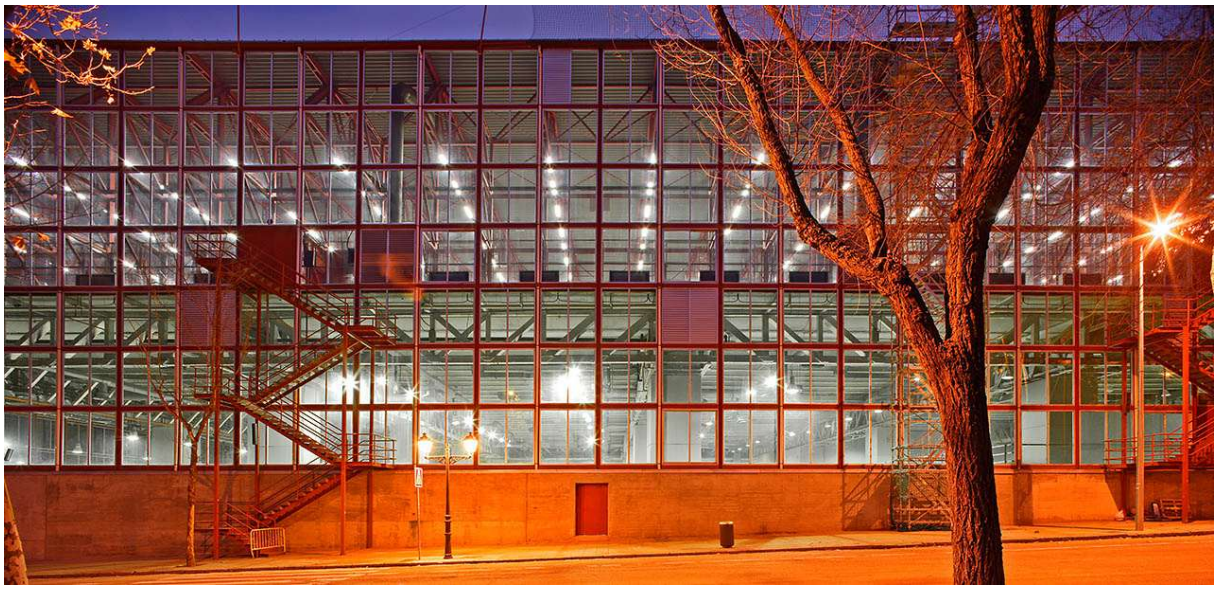


Panorámicas, enero 2007. Miguel de Guzmán.

















PROYECTO DE OBRAS DE REHABILITACIÓN SOSTENIBLE DE LA FACHADA Y MEJORA DE LA EFICIENCIA ENERGETICA DEL PABELLÓN DE CRISTAL DEL RECINTO FERIAL DE LA CASA DE CAMPO DE MADRID. RECUPERACIÓN DEL PATRIMONIO CULTURAL

PABELLÓN DE CRISTAL

PROYECTO BÁSICO Y EJECUCIÓN

MADRID DESTINO

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Madrid Destino. Cultura, Turismo y Negocio S.A.

ANEXO 7 CÁLCULO PERFILERÍA A CARGA DE VIENTO SEGÚN NORMA UNE-EN 13830:2016

Financiado por la Unión Europea NextGenerationEU

MINISTERIO DE INDUSTRIA Y TURISMO

Plan de Recuperación, Transformación y Resiliencia

Comunidad de Madrid

MADRID

CALCULO A CARGA DE VIENTO SEGÚN NORMA UNE-EN 13830:2016

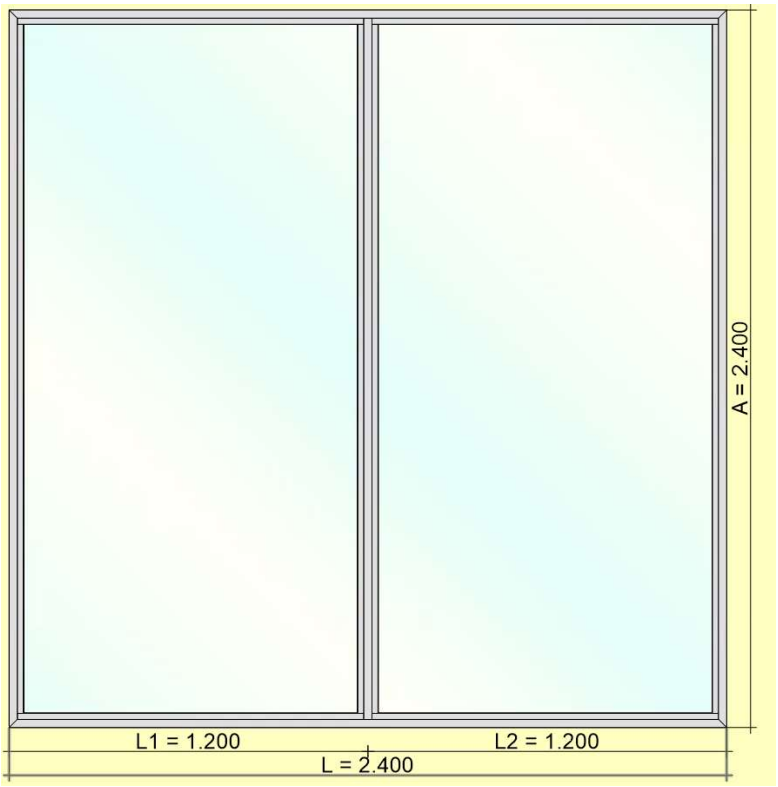
CONTROL DE EDIFICACION Y OBRAS
AREA DE INFRAESTRUCTURAS

REFERENCIA	PABELLON DE CRISTAL	FECHA	23.11.2024
CÓDIGO PROYECTO	23-0312		
OBJECTIVO	CÁLCULO PERFILERÍA A CARGA DE VIENTO SEGÚN NORMA UNE-EN 13830:2016		
SISTEMA	PERFILERÍA 68X54 mm AD-HOC.		

1 OBJETO DEL ESTUDIO.

El presente informe pretende servir de base para la justificación de las prestaciones mecánicas de la carpintería en cuanto a su resistencia y estabilidad frente a la carga de viento.

El cálculo mecánico se realiza para la justificación del travesaño vertical intermedio, en los módulos de proyecto fijos de dimensiones 2400x2400 mm. bajo la carga de viento calculada a partir de DB SE-AE del CTE.



2 DATOS DEL PROYECTO.

- Ubicación: Avenida Principal 16, Madrid
- Grado de aspereza: IV (zona urbana en general, industrial o forestal)
- Zona eólica: A
- Propiedad: Madrid Destino

Rehabilitación de edificio existente. Imágenes de referencia del proyecto:




pabellón de cristal



3 CALCULO DE LA CARGA DE VIENTO SEGÚN DB SE-AE DEL CTE.

Según el capítulo 3.3 del DB SE-AE, la acción del viento (presión estática q_e) puede expresarse como:

$$q_e = q_b * Ce * C_p$$

q_b - Presión dinámica del viento en función de la zona eólica

C_e - Coeficiente de exposición

C_p- Coeficiente de presión

Presión dinámica, q_b

La presión dinámica del viento viene determinada por la fórmula

$$q_b = 0{,}5 \cdot \rho \cdot v_b^2$$

ρ – densidad del aire (en general puede adoptarse el valor de 1,25 kg/m3)

v_b - valor básico de la velocidad de viento

Este último factor, viene determinado por el mapa D.1 del Anejo D del DB-SE-AE. Al estar en zona eólica A, el valor de velocidad básica del viento es de 26 m/s y tenemos una presión dinámica: q_b = 422,5 (N/m2).



Figura 1. Mapa eólico

Coeficiente de exposición, C_e

El coeficiente de exposición tiene en cuenta los efectos de las turbulencias originadas por el relieve y la topografía del terreno. Su valor se obtiene de la tabla 3.4 del DB-SE-AE, siendo la altura del punto considerado la medida respecto a la rasante media de la fachada a barlovento.

Los valores proporcionados por la tabla corresponden a edificios menores de 30 m de altura. A efectos del grado de aspereza, el entorno del edificio se clasificará en el primero de los tipos de la tabla 3.4 del DB-SE-AE al que pertenezca, para la dirección de viento analizada.

Tabla 3.4. Valores del coeficiente de exposición c_e

	Grado de aspereza del entorno	Altura del punto considerado (m)							
		3	6	9	12	15	18	24	30
I	Borde del mar o de un lago, con una superficie de agua en la dirección del viento de al menos 5 km de longitud	2,2	2,5	2,7	2,9	3,0	3,1	3,3	3,5
II	Terreno rural llano sin obstáculos ni arbolado de importancia	2,1	2,5	2,7	2,9	3,0	3,1	3,3	3,5
III	Zona rural accidentada o llana con algunos obstáculos aislados, como árboles o construcciones pequeñas	1,6	2,0	2,3	2,5	2,6	2,7	2,9	3,1
IV	Zona urbana en general, industrial o forestal	1,3	1,4	1,7	1,9	2,1	2,2	2,4	2,6
V	Centro de negocio de grandes ciudades, con profusión de edificios en altura	1,2	1,2	1,2	1,4	1,5	1,6	1,9	2,0

En el caso que nos ocupa, se ha considerado el grado de aspereza IV. La altura del punto considerado, se aplicará al punto medio del elemento de cálculo sobre rasante. Se han establecido 10 niveles en altura, siendo la altura del punto medio de cada uno de ellos la siguiente (los niveles se denominan de arriba abajo empezando por el 0 como más alto y el 9 el más bajo según la documentación recibida):

- Nivel 0 – 24 m.
- Nivel 1 – 22 m.
- Nivel 2 – 19.5 m.
- Nivel 3 – 17 m.
- Nivel 4 – 14.5 m.
- Nivel 5 – 12 m.
- Nivel 6 – 9.5 m.
- Nivel 7 – 7 m.
- Nivel 8 – 4.5 m.
- Nivel 9 – 2 m.

Coeficiente eólico o de presión, C_p

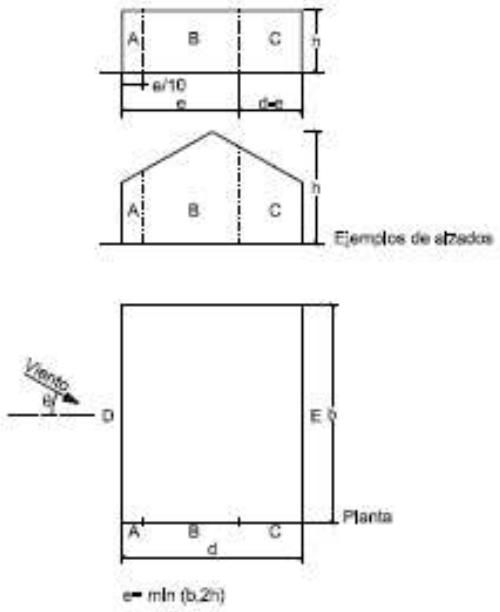
Su valor depende de la forma y orientación de la superficie respecto al viento de cada fachada y, en el caso de los estudios de elementos de cerramiento, de la superficie del elemento. El coeficiente de presión se obtiene de la fórmula:

$$C_p = C_{pi} + C_{pe}$$

C_{pi} - coeficiente de presión interna

C_{pe} - coeficiente de presión externa

Se ha supuesto un coeficiente de presión interna igual a 0, al tratarse de un edificio que no presenta grandes huecos predominantes en fachada que puedan provocar presiones internas. Dado que los módulos a estudio son todos fijos, se considera una permeabilidad baja. El coeficiente de presión externa se ha realizado teniendo según el Anejo D.3 del DB-SE-AE. Se diferencian entre zonas de esquina A, y zonas centrales B.



A (m^2)	h/d	Zona (según figura), $-45° < \theta < 45°$				
		A	B	C	D	E
≥ 10	5	-1,2	-0,8	-0,5	0,8	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"		0,7	-0,3
5	5	-1,3	-0,9	-0,5	0,9	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"	"	0,8	-0,3
2	5	-1,3	-1,0	-0,5	0,9	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"	"	0,7	-0,3
≤ 1	5	-1,4	-1,1	-0,5	1,0	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"	"	"	-0,3

- Coeficiente de presión en zona de esquina A: -1.32
- Coeficiente de presión en zona central B: -0.98

TABLA RESULTADO DE CARGAS DE VIENTO POR NIVEL:

NIVEL	ALTURA (m)	Qv zona A (kg/m2)	Qv zona B (kg/m2)
9	2	74,51	55,31

8	4.5	74,51	55,31
7	7	86,28	64,04
6	9.5	97,49	72,36
5	12	106,41	78,98
4	14.5	113,85	84,51
3	17	120,25	89,26
2	19.5	125,88	93,44
1	22	130,92	97,18
0*	24	136,79	103,19

* El nivel 0, o planta superior, solo presenta módulos de altura máxima 2.00 m.

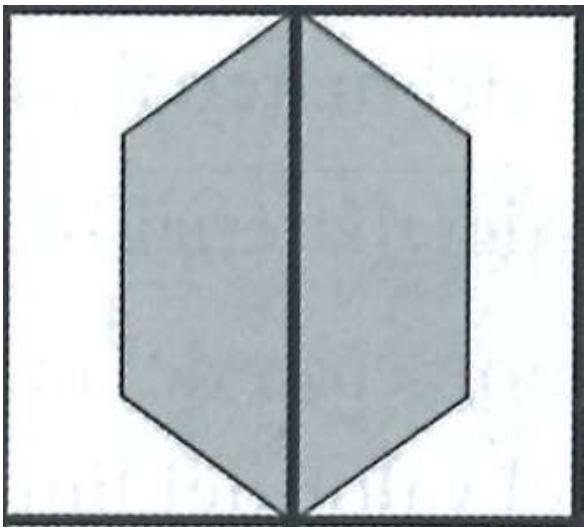
4 COMPROBACIÓN DE ESTADO LÍMITE DE SERVICIO Y ESTADO LÍMITE ÚLTIMO

A efectos de garantizar la resistencia mecánica de los travesaños verticales de la fachada se ha verificado:

1- Comprobación del estado límite de servicio

2- Comprobación del estado límite último

Al tratarse de un módulo que perimetralmente está fijado a la estructura del edificio, el área de incidencia de carga de viento se calcula con una geometría trapezoidal:



En cuanto al estudio de los estados límite de servicio, según la norma europea UNE-EN 13830:2016, la flecha frontal máxima admisible de los travesaños debidos a la acción del viento es de L/200 para longitudes entre apoyos inferiores a 3 m. En el caso de estudio se tiene una altura de travesaño de 2400 mm → flecha máxima de 1.2 cm.

La comprobación del estado límite último, se realiza con la mayoración de las cargas según la tabla siguiente, y considerando los valores del aluminio aleación 6063T5 con módulo de elasticidad de 700.000 kg/cm2 y una tensión admisible de 110 N/mm2.

Tabla 4.1 Coeficientes parciales de seguridad (γ) para las acciones

Tipo de verificación (1)	Tipo de acción	Situación persistente o transitoria	
		desfavorable	favorable
Resistencia	Permanente		
	Peso propio, peso del terreno	1,35	0,80
	Empuje del terreno	1,35	0,70
	Presión del agua	1,20	0,90
	Variable	1,50	0
		desestabilizadora	estabilizadora
Estabilidad	Permanente		
	Peso propio, peso del terreno	1,10	0,90
	Empuje del terreno	1,35	0,80
	Presión del agua	1,05	0,95
	Variable	1,50	0

(1) Los coeficientes correspondientes a la verificación de la resistencia del terreno se establecen en el DB-SE-C

El cálculo del momento de inercia mínimo a cumplir en el ELS para una flecha máxima de 1,2 cm nos establece una serie de valores dependiendo del nivel del módulo y de la zona del edificio (esquina o central de fachada).

Momento de Inercia solicitado para *fachada panel*:

$$Iz = Iz_1 + Iz_2$$

$$Iz_1 = \frac{qv \cdot (b/2) \cdot a^4}{1920 \cdot E \cdot F_{max}} \cdot \left[5 - 4 \cdot \left(\frac{c_1^2}{a^2}\right)\right]^2$$

$$Iz_2 = \frac{qv * (c/2) * a^4}{1920 * E * F_{max}} * \left[5 - 4 * \left(\frac{c_2^2}{a^2}\right)\right]^2$$

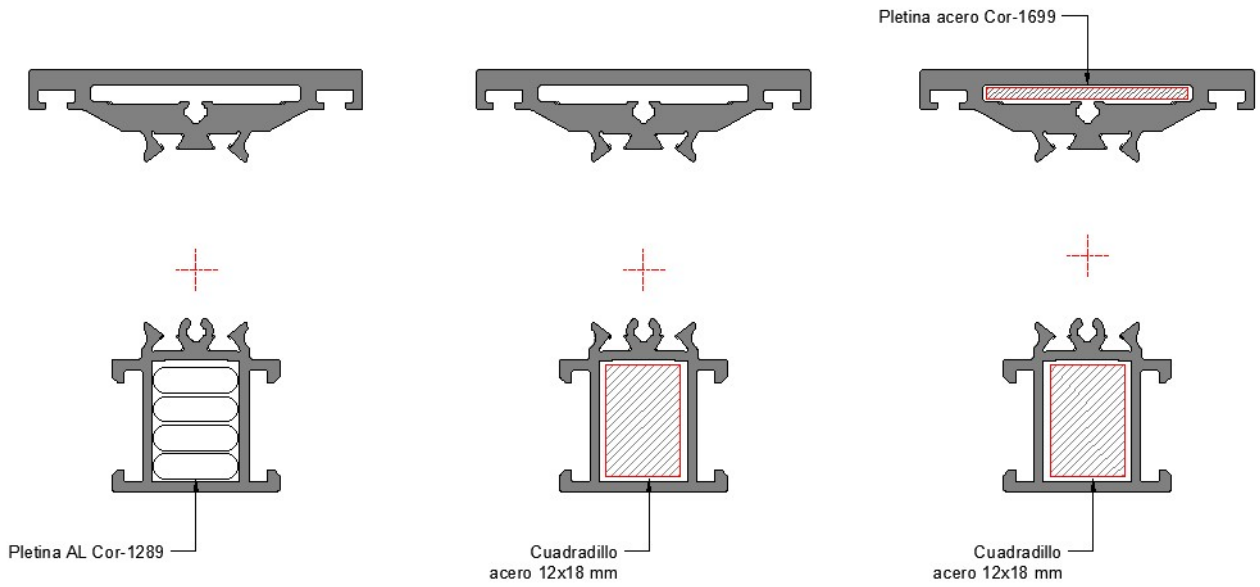
Si a > b:	Si a ≤ b:
$C_1 = 2 * \left[\frac{\left(\frac{b}{2}\right)^2}{a}\right]$	$C_1 = \frac{a}{2}$
Si a > c:	**Si a ≤ c:**
$C_2 = 2 * \left[\frac{\left(\frac{c}{2}\right)^2}{a}\right]$	$C_2 = \frac{a}{2}$

NIVEL	Qv zona A (kg/m2)	Ix (cm4)	Wx (cm4)	Qv zona B (kg/m2)	Ix (cm4)	Wx (cm4)
9	74,51	**44,84**	**6,25**	55,31	**33,28**	**4,64**
8	74,51	**44,84**	**6,25**	55,31	**33,28**	**4,64**
7	86,28	**51,92**	**7,24**	64,04	**38,54**	**5,37**
6	97,49	**58,67**	**8,18**	72,36	**43,55**	**6,07**
5	106,41	**64,04**	**8,92**	78,98	**47,53**	**6,62**
4	113,85	**68,52**	**9,55**	84,51	**50,86**	**7,09**
3	120,25	**72,37**	**10,08**	89,26	**53,72**	**7,49**
2	125,88	**75,76**	**10,56**	93,44	**56,23**	**7,84**
1	130,92	**78,79**	**10,98**	97,18	**58,48**	**8,15**
0*	136,79	**46,35**	**7,97**	103,19	**34,97**	**6,01**

* El nivel 0, o planta superior, solo presenta módulos de altura máxima 2.00 m.

5 RESULTADOS POR MÓDULOS

En el desarrollo del proyecto se tienen 3 opciones de travesaño vertical, dependiendo de sus características mecánicas:



TRAVESAÑO + REF. COR-1289 – TRAV1

- *Ix: 50,93 cm4*
- *Wx: 14,22 cm3*

TRAVESAÑO + REF. AC 12X18 mm – TRAV2

- *Ix: 77,82 cm4**
- *Wx: 21,73 cm3*

TRAVESAÑO + REF. AC COR-1699 + AC 12X18 mm – TRAV3

- *Ix: 96,51 cm4**
- *Wx: 25,39 cm3*

** Valores de inercia equivalente en aluminio.*

Según los siguientes valores, y la tabla de necesidades mecánicas del capítulo anterior, se podría realizar la siguiente optimización de uso de travesaños cumpliendo tanto el Estado Límite de Servicio (inercia mínima) y el Estado Límite Último (módulo resistente mínimo).

Cualquiera de las opciones cumpliría en todos los módulos del proyecto respecto al Estado Límite Último, dado que el módulo resistente más desfavorable es de 10,98 cm3, inferior a los valores de las 3 opciones.

Por lo tanto, la limitación viene marcada por el cumplimiento del Estado Límite de Servicio.

NIVEL	Qv zona A (kg/m2)	Ix (cm4)	Travesaño	Qv zona B (kg/m2)	Ix (cm4)	Travesaño
9	74,51	**44,84**	**TRAV1**	55,31	**33,28**	**TRAV1**
8	74,51	**44,84**	**TRAV1**	55,31	**33,28**	**TRAV1**
7	86,28	**51,92**	**TRAV2**	64,04	**38,54**	**TRAV1**
6	97,49	**58,67**	**TRAV2**	72,36	**43,55**	**TRAV1**
5	106,41	**64,04**	**TRAV2**	78,98	**47,53**	**TRAV1**

4	113,85	**68,52**	**TRAV2**	84,51	**50,86**	**TRAV1**
3	120,25	**72,37**	**TRAV2**	89,26	**53,72**	**TRAV2**
2	125,88	**75,76**	**TRAV2**	93,44	**56,23**	**TRAV2**
1	130,92	**78,79**	**TRAV3**	97,18	**58,48**	**TRAV2**
0*	136,79	**46,35**	**TRAV1**	103,19	**34,97**	**TRAV1**

* El nivel 0, o planta superior, solo presenta módulos de altura máxima 2.00 m.

6 CONCLUSIONES

El objeto del presente informe es exponer las comprobaciones de la perfilería a utilizar en el proyecto, en concreto los travesaños verticales de la solución ad-hoc desarrollada según las necesidades estéticas y dimensionales solicitadas.

Para conseguir la mayor optimización de material posible, se han desarrollado 3 opciones de refuerzo de travesaño, para cumplir en todas las situaciones del proyecto.

Las dimensiones del edificio son:

- Alzado Este/Oeste: 72,5 m.
- Alzado Norte/Sur: 127,5 m.
- Altura: 25 m.

Por lo tanto la zona de esquina A, afectará a 5 m. desde la esquina, o lo que es lo mismo a los 2 módulos de cada extremo en cada alzado.

Todas las hipótesis de carga deberán ser verificadas y aceptadas por la Dirección Facultativa (grado de aspereza, alturas entre apoyos, pesos de vidrios etc…). Así como cualquier comprobación de cálculo de carga de viento y de los resultados obtenidos.

Control de la Edificación y Obras del Área de Infraestructuras

MADRID DESTINO.

Las indicaciones e información acerca del proceso de ejecución e instalación que figuran en el presente estudio, en todo caso deben entenderse a título de simples recomendaciones que deberán ser validadas y completadas con las instrucciones de la empresa instaladores y ejecutora del proyecto, así como de la Dirección Facultativa y demás intervinientes en la obra y redacción del Proyecto, siendo Aluminios Cortizo ajeno a las posibles responsabilidades que se deriven de la ejecución e instalación del proyecto.

PROYECTO DE OBRAS DE REHABILITACIÓN SOSTENIBLE DE LA FACHADA Y MEJORA DE LA EFICIENCIA ENERGETICA DEL PABELLÓN DE CRISTAL DEL RECINTO FERIAL DE LA CASA DE CAMPO DE MADRID. RECUPERACIÓN DEL PATRIMONIO CULTURAL

PABELLÓN DE CRISTAL

PROYECTO BÁSICO Y EJECUCIÓN

MADRID DESTINO

Madrid, marzo de 2025

Subdirección de Control de la Edificación y Obras
Dirección de Infraestructuras

Madrid Destino. Cultura, Turismo y Negocio S.A.

ANEXO 8 INFORME DE EVALUACIÓN ESTRUCTURAL

INFORME EVALUACION ESTRUCTURAL

EXPTE. Nº SP23-00586 LOTE 2: SERVICIOS DE ASISTENCIA TÉCNICA ESPECIALIZADA EN MATERIA DE CONSULTORÍA DE DESARROLLO DE EVALUACIONES DE IMPACTO AMBIENTAL, CERTIFICACIONES ENERGÉTICAS, REDACCIÓN DE PROYECTO Y ESTUDIOS DE ESTRUCTURA DE FACHADA PARA EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

PROMOTOR: MERCANTIL MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

EXPEDIENTE: O/2309277/1/01/02

INFORME DE EVALUACIÓN ESTRUCTURAL



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Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

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1. Antecedentes e información previa

La mercantil Madrid Destino, Cultura, Turismo y Negocio, S.A., traslada a CEMOSA el encargo para la **EVALUACION ESTRUCTURAL DE LOTE 2. ASISTENCIAS TECNICAS PABELLON DE CRISTAL**

El encargo se realiza bajo el contrato de SERVICIOS DE ASISTENCIA TÉCNICA ESPECIALIZADA EN MATERIA DE CONSULTORÍA DE DESARROLLO DE EVALUACIONES DE IMPACTO AMBIENTAL, CERTIFICACIONES ENERGÉTICAS, REDACCIÓN DE PROYECTO Y ESTUDIOS DE ESTRUCTURA DE FACHADA PARA EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO (Eje 2 PSTD 2022 "Actuaciones de mejora de la eficiencia energética"), con número de expediente **Nº SP23-00586.**

1.1. Documentación de referencia

Para la redacción del presente documento se ha tomado como referencia la documentación aportada por el peticionario.

Esta documentación se compone de planos "as build", planos actualizados, pliegos, documentación técnica y fotografías de la edificación.

En concreto, se ha utilizado el proyecto de ACTUACIONES DE REHABILITACIÓN DE LA FACHADA, DEL PABELLÓN DE CRISTAL (CARPINTERÍAS Y VIDRIOS), suscrito por Dª Maria Oslé Aizpuru, y fecha septiembre 2023. En este proyecto se detallan las actuaciones de renovación de la envolvente (fachadas) del edificio.

1.2. Objeto del encargo

Tal y como se especifica en la documentación contractual del encargo recibido, el objeto del mismo consiste en *la consultoría técnica referente a la rehabilitación de la fachada del Pabellón de Cristal, valorando el impacto del cambio de elementos constructivos (carpinterías, vidrios) en la estructura del edificio determinando justificando técnicamente la viabilidad de la solución propuesta en proyecto.*

1.3. Objetivo del documento

El objeto del presente documento es evaluar la factibilidad de un cambio de la carpintería de ventanas de la edificación sin que se vea afectada la integridad estructural de la misma y manteniendo su aptitud al servicio.

Para ello se definirían las cargas permanentes y variables que afectan la estructura en su estado actual, y posteriormente se introducirán las cargas correspondientes a la nueva carpintería para realizar la evaluación estructural.

Se inicia estableciendo la normativa a aplicar para la evaluación de la estructura.

2. Normativa aplicable

Si se proyectara en la actualidad una estructura metálica-hormigón como la del edificio, estaría sujeta a las siguientes normativas:

- CTE "Código Técnico de la Edificación".
- DB SA-AE "Documento básico de Seguridad Estructural - Acciones en la Edificación".
- EHE "Instrucción de Hormigón Estructural".

Para la definición y evaluación de carga actuantes (combinaciones y coeficientes), estados límites ultimo de resistencia y estado límite de servicio se utilizarán las normativas anteriormente mencionadas.

2.1. Código Técnico de la Edificación

El Código Técnico de la Edificación (CTE) en España es una normativa que establece los requisitos básicos de seguridad y habitabilidad que deben cumplir los edificios. Su objetivo principal es garantizar la calidad y sostenibilidad de las construcciones, asegurando la protección de las personas y el medio ambiente. A continuación, se detallan algunas de las funciones clave del CTE en este proyecto.

2.2. Documento básico de Seguridad Estructural

Este documento recopila todos los principios y requisitos relacionados con la resistencia mecánica y la estabilidad de los edificios, así como su aptitud para el servicio y durabilidad. Describe las bases y principios para el cálculo de estos aspectos. También aborda la ejecución, uso, inspección y mantenimiento en cuanto afectan al diseño del proyecto.

Los parámetros del DB-SE son aplicables a todos los tipos de edificios, incluidos los provisionales.

La capacidad de garantizar el funcionamiento adecuado de la construcción, el confort de los usuarios y el mantenimiento de su aspecto visual se denomina aptitud al servicio. El CTE, en ausencia de indicaciones específicas, establece un periodo de servicio de 50 años.

El DB-SE introduce un procedimiento innovador para la Evaluación Estructural de edificios existentes. Este anejo describe cómo se evaluará la aptitud al servicio de estos edificios.

2.2.1. Procedimiento de evaluación estructural de edificios existentes

En las siguientes líneas indicamos los contenidos prescritos por el CTE para la evaluación de edificios existentes:

Se realizará una verificación cuantitativa de la capacidad portante y la aptitud al servicio del edificio, considerando posibles procesos de deterioro. El procedimiento de evaluación será por fases y tendrá en cuenta:

- Condiciones actuales del edificio.
- Disponibilidad del proyecto original.
- Observación de daños estructurales.
- Uso del edificio.
- Objetivos de la evaluación.

El proceso finalizará cuando se llegue a una conclusión clara sobre la seguridad estructural o las medidas a adoptar. Si no se puede verificar la capacidad portante o la aptitud al servicio, se deberá elaborar un informe final con recomendaciones y medidas a tomar para el edificio.

El CTE establece con carácter general las siguientes fases:

1ª Fase: EVALUACION PRELIMINAR:

- Recopilación y estudio de la documentación disponible.

- Inspección preliminar y visita al edificio.
- Elaboración de bases para la evaluación.
- Verificación preliminar de la capacidad portante y aptitud al servicio de los elementos estructurales principales.

2ª Fase: EVALUACION DETALLADA:

- Determinación del estado del edificio mediante inspección detallada, incluida cuantificación de daños.
- Actualización de las acciones.
- Actualización de las bases para la evaluación.
- Análisis estructural.
- Verificación de la capacidad portante y de la aptitud al servicio.

3ª Fase: EVALUACION AVANZADA:

- Determinación de situaciones de dimensionamiento determinantes.
- Adquisición de más datos sobre características de estructura, materiales o acciones.
- Determinación de nuevas acciones actuantes.
- Análisis estructural.
- Verificación con métodos de seguridad.

2.2.2. Análisis estructural

Tendrá en cuenta la situación del edificio y sus mecanismos de deterioro. Deberá contemplar los estados límites últimos y los estados de servicio. Se deberán determinar las siguientes variables básicas para el análisis:

- Acciones permanentes y variables.
- Dimensiones de estructura y sus elementos.
- Condiciones geotécnicas y características del terreno.
- Propiedades de los materiales.

2.2.3. Verificación de capacidad portantes (E.L.U)

La verificación de Estados Límite Últimos (E.L.U) es un proceso crucial que garantiza la seguridad y la estabilidad estructural de una construcción. E.L.U se refiere a los estados en los que la estructura podría fallar debido a cargas extremas o condiciones adversas. Esta verificación implica el análisis y cálculo de las fuerzas mayoradas y tensiones máximas que la estructura puede soportar sin alcanzar su punto de falla, asegurando que los materiales y componentes puedan resistir estas condiciones extremas durante su vida útil prevista.

La importancia de la verificación de E.L.U radica en su capacidad para prevenir desastres y asegurar la integridad estructural bajo condiciones críticas. Al identificar y evaluar los posibles modos de falla, se puede asegurar que la estructura no solo cumpla con los requisitos de resistencia, sino que también exista un margen de seguridad adecuado. Esto es esencial para proteger vidas humanas, minimizar daños materiales y asegurar la funcionalidad continua de las infraestructuras, especialmente en situaciones de carga máxima como: vientos extremos y otras condiciones severas.

2.2.4. Verificación de la aptitud al servicio (E.L.S)

La verificación de Estados Límite de Servicio (E.L.S) es un proceso de evaluación que asegura que una estructura funcione adecuadamente bajo condiciones de uso normales, sin presentar deformaciones excesivas, vibraciones, grietas o daños que puedan afectar su rendimiento o la comodidad de los usuarios.

Las combinaciones de carga utilizados para evaluar los E.L.S se centran en mantener la funcionalidad y el confort durante la vida útil del edificio o infraestructura. Este análisis incluye la consideración de factores como, la deflexión,

la vibración, etc. asegurando que la estructura se mantenga dentro de los límites aceptables de rendimiento y apariencia, y comodidad.

Una estructura que cumple con los requisitos de E.L.S proporciona un entorno confortable y seguro para los ocupantes, evitando problemas que puedan afectar su uso diario, como puertas y ventanas que no cierran correctamente, superficies irregulares, ruidos y vibraciones molestas o percepción de inseguridad. Además, la verificación de E.L.S contribuye a la durabilidad y sostenibilidad de la estructura, previniendo daños a largo plazo y reduciendo la necesidad de reparaciones costosas y disruptivas.

En este caso concreto, una estructura dimensionada y construida de acuerdo con las reglas de normas antiguas, se podrá considerar apta para el servicio siempre y cuando se cumpla:

- La estructura se haya comportado satisfactoriamente durante un período de tiempo largo sin daños ni anomalías ni deformaciones o vibraciones excesivas.
- Una inspección detallada no revela desplazamientos o vibraciones excesivas.
- Durante el período de servicio restante no se prevén cambios que alteren a su durabilidad.

3. Caracterización del modelo estructural

Para la creación del modelo estructural se tomó en consideración la documentación aportada por el promotor y se contrasto con la observada en visitas a la edificación y fotos.

Las acciones consideradas para el cálculo del modelo fueron calculadas aplicando la normativa pertinente (DB SE-AE).

3.1. Acciones consideradas

Para la comprobación de capacidad portante de la edificación se han tenido en cuenta acciones permanentes y variables, entre las cuales se encuentran las siguientes:

3.1.1. Carga muerta estructural (Peso propio)

El peso propio de los elementos estructurales es tenido en cuenta directamente por el software de cálculo al introducir los mismos, este depende del área de las secciones utilizadas y el tipo de acero.

En este caso particular no se modelar directamente la cubierta, optando alternativamente por reemplazar las acciones producidas por esta con una carga uniformemente distribuida de 0.39 KN/m^2, teniendo en cuenta la memoria de cálculo realizada al intervenir la misma para su cambio en 2006.

1. Chapa base

Chapa perfilada de acero galvanizado, pretratada y lacada con poliester de alta durabilidad en color RAL 9006, de largo teórico 10,10 metros, para salvar dos vanos de 5 metros cada uno entre cerchas con tres puntos de apoyo.

Formación de cubierta Pabellón de Cristal Material Peso (kg/m2)

Chapa base grecada (acero perfilado lacada)	15,00
Barrera de Vapor (lámina autoadhesiva bituminosa reforzada con poliester)	1,50
Lana de Roca alta densidad 150kg/m3 (espesor 100mm)	15,00
Lana de Roca comprimible 30kg/m3 (espesor 80mm-60mm)	2,40
Perfiles soporte clips	1,50
Bandejas de aluminio espesor 1mm	4,00

Peso Total /m2 39,4 kg

3.1.2. Carga muerta no estructural

La carga muerta no estructural a tener en cuenta corresponde a los cerramientos y elementos separadores, tabiquería, revestimientos, rellenos, elementos fijos y todo tipo de carpintería.

Generalmente el valor característico de estos elementos constructivos se determina como su valor medio obtenido a partir de sus dimensiones nominales y pesos específicos. Estos últimos pueden encontrarse en el anejo C del documento básico de SE-AE, donde se incluyen pesos de materiales, elementos constructivos típicos y productos.

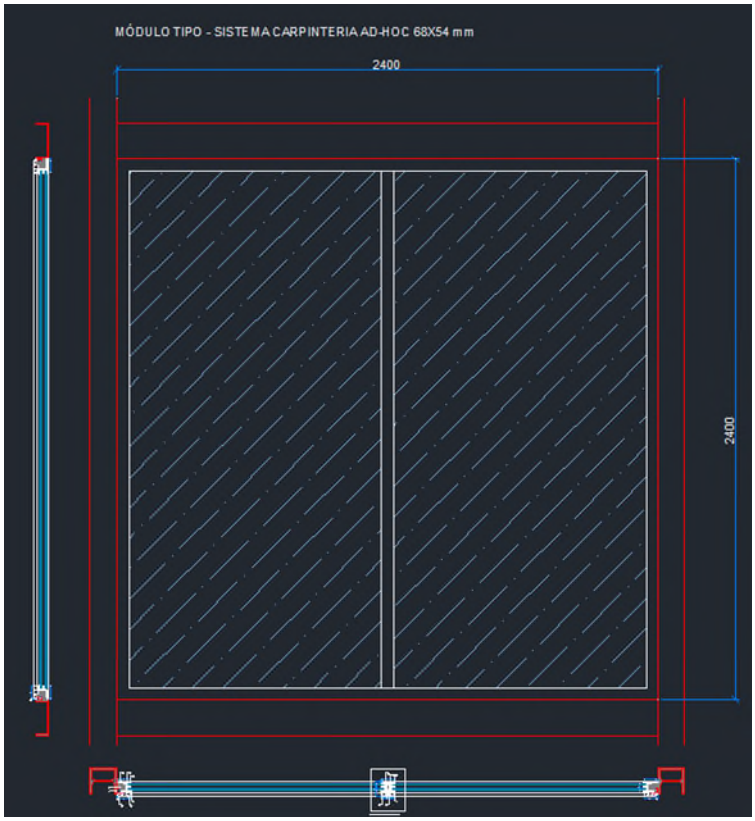
A partir de la tabla C.1 del Anejo C, tomamos el valor del vidrio: 25 KN/m^3

Tabla C.1 Peso específico aparente de materiales de construcción

Materiales y elementos	Peso específico aparente kN/m³	Materiales y elementos	Peso específico aparente kN/m³
Materiales de albañilería		**Madera**	
Arenisca	21,0 a 27,0	Aserrada, tipos C14 a C40	3,5 a 5,0
Basalto	27,0 a 31,0	Laminada encolada	3,7 a 4,4
Calizas compactas, mármoles	28,0	Tablero contrachapado	5,0
Diorita, gneis	30,0	Tablero cartón gris	8,0
Granito	27,0 a 30,0	Aglomerado con cemento	12,0
Sienita, diorita, pórfido	28,0	Tablero de fibras	8,0 a 10,0
Terracota compacta	21,0 a 27,0	Tablero ligero	4,0
Fábricas		**Metales**	
Bloque hueco de cemento	13,o a 16,0	Acero	77,0 a 78,5
Bloque hueco de yeso	10,0	Aluminio	27,0
Ladrillo cerámico macizo	18,0	Bronce	83,0 a 85,0
Ladrillo cerámico perforado	15,0	Cobre	87,0 a 89,0
Ladrillo cerámico hueco	12,0	Estaño	74,0
Ladrillo silicocalcáreo	20,0	Hierro colado	71,0 a 72,5
Mampostería con mortero		Hierro forjado	76,0
de arenisca	24,0	Latón	83,0 a 85,0
de basalto	27,0	Plomo	112,0 a 114,0
de caliza compacta	26,0	Zinc	71,0 a 72,0
de granito	26,0	**Plásticos y orgánicos**	
Sillería		Caucho en plancha	17,0
de arenisca	26,0	Lámina acrílica	12,0
de arenisca o caliza porosas	24,0	Linóleo en plancha	12,0
de basalto	30,0	Mástico en plancha	21,0
de caliza compacta o mármol	28,0	Poliestireno expandido	0,3
de granito	28,0	**Otros**	
Hormigones y morteros		Adobe	16,0
Hormigón ligero	9,0 a 20,0	Asfalto	24,0
Hormigón normal [1]	24,0	Baldosa cerámica	18,0
Hormigón pesado	> 28,0	Baldosa de gres	19,0
Mortero de cemento	19,0 a 23,0	Papel	11,0
Mortero de yeso	12,0 a 28,0	Pizarra	29,0
Mortero de cemento y cal	18,0 a 20,0	Vidrio	25,0
Mortero de cal	12,0 a 18,0		

[1] En hormigón armado con armados usuales o fresco aumenta 1 kN/m³

Y teniendo en cuenta la altura y espesor de la carpintería de ventanas se calcula el área vertical por metro.



Características de carpintería:

Altura: 2.4 m

Espesor: 60 mm

Calculo carga muerta:

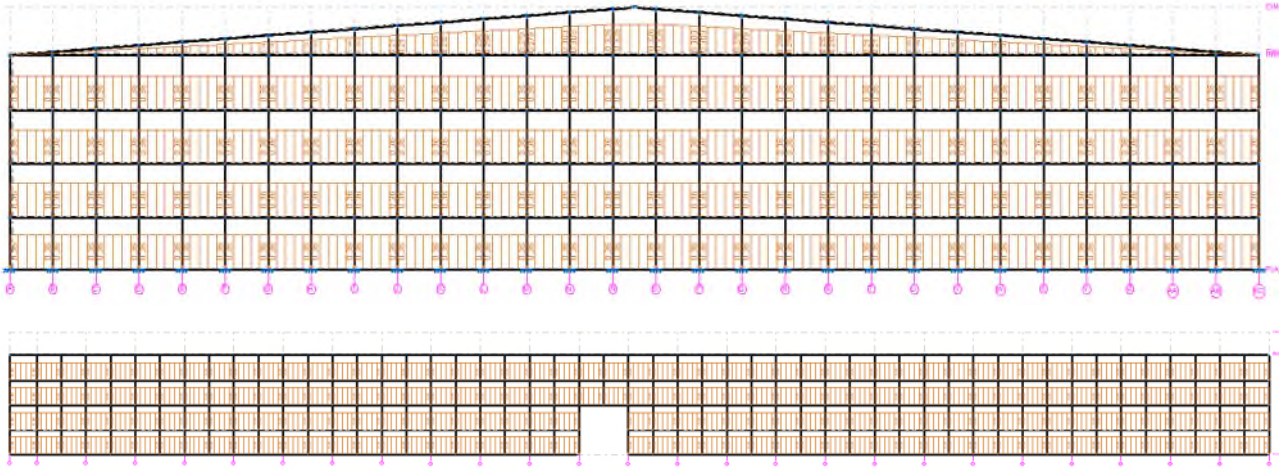
Área vertical de carpintería

$$2.4\ m * 0.06\ m = 0.144\ m^2$$

Peso por metro lineal

$$0.144\ m^2 * 2500 \frac{Kg}{m^3} = 360\ Kg/m$$

Esta carga es aplicada* sobre las vigas perimetrales que sostienen la carpintería en la edificación.



*La carga es aplicada en unidades de Ton/m

3.1.3. Sobrecarga de uso

La sobrecarga de uso corresponde al peso de todo lo que pueda cargar el edificio por razón de su uso, para su definición se puede apoyar de la tabla 3.1 de valores característicos del documento básico de SE-AE. En este caso, se utiliza para considerar la carga sobre la cubierta del edificio, la cual al tener una inclinación menor a 20° es tomada como G1 y su carga uniforme corresponde a 1 KN/m^2.

Tabla 3.1. Valores característicos de las sobrecargas de uso

Categoría de uso		Subcategorías de uso		Carga uniforme [kN/m^2]	Carga concentrada [kN]
A	Zonas residenciales	A1	Viviendas y zonas de habitaciones en, hospitales y hoteles	2	2
		A2	Trasteros	3	2
B	Zonas administrativas			2	2
C	Zonas de acceso al público (con la excepción de las superficies pertenecientes a las categorías A, B, y D)	C1	Zonas con mesas y sillas	3	4
		C2	Zonas con asientos fijos	4	4
		C3	Zonas sin obstáculos que impidan el libre movimiento de las personas como vestíbulos de edificios públicos, administrativos, hoteles; salas de exposición en museos; etc.	5	4
		C4	Zonas destinadas a gimnasio u actividades físicas	5	7
		C5	Zonas de aglomeración (salas de conciertos, estadios, etc)	5	4
D	Zonas comerciales	D1	Locales comerciales	5	4
		D2	Supermercados, hipermercados o grandes superficies	5	7
E	Zonas de tráfico y de aparcamiento para vehículos ligeros (peso total < 30 kN)			2	20 [1]
F	Cubiertas transitables accesibles sólo privadamente [2]			1	2
G	Cubiertas accesibles únicamente para conservación [3]	G1 [7]	Cubiertas con inclinación inferior a 20°	1 [4] [6]	2
			Cubiertas ligeras sobre correas (sin forjado) [5]	0,4 [4]	1
		G2	Cubiertas con inclinación superior a 40°	0	2

3.1.4. Carga de nieve

La distribución y la intensidad de la carga de nieve en un edificio, particularmente en su cubierta, están influenciadas por el clima de la zona, el tipo de precipitación, la topografía del entorno, la forma del edificio o la cubierta, los efectos del viento y los intercambios térmicos en las superficies exteriores.

Según el Documento básico de SE-AE el valor de carga de nieve por unidad de superficie en proyección horizontal puede expresarse como:

$$q_n = \mu * s_k$$

Donde:

s_k es el valor característico de la carga de nieve según el terreno horizontal (Tabla 3.8 de DB SE-AE)

μ es el coeficiente de forma de la cubierta (3.5.3 de DB SE-AE)

Valor característico carga de nieve (s_k)

Teniendo en cuenta la ubicación del proyecto se define s_k = 0.6 KN/m^2.

Tabla 3.8 Sobrecarga de nieve en capitales de provincia y ciudades autónomas

Capital	Altitud m	s_k kN/m^2	Capital	Altitud m	s_k kN/m^2	Capital	Altitud m	s_k kN/m^2
Albacete	690	0,6	Guadalajara	680	0,6	Pontevedra	0	0,3
Alicante / *Alacant*	0	0,2	Huelva	0	0,2	Salamanca	780	0,5
Almería	0	0,2	Huesca	470	0,7	SanSebas-	0	0,3
Ávila	1.130	1,0	Jaén	570	0,4	tián/*Donostia*	0	0,3
Badajoz	180	0,2	León	820	1,2	Santander	1.000	0,7
Barcelona	0	0,4	Lérida / *Lleida*	150	0,5	Segovia	10	0,2
Bilbao / *Bilbo*	0	0,3	Logroño	380	0,6	Sevilla	1.090	0,9
Burgos	860	0,6	Lugo	470	0,7	Soria	0	0,4
Cáceres	440	0,4	Madrid	660	0,6	Tarragona	0	0,2
Cádiz	0	0,2	Málaga	0	0,2	Tenerife	950	0,9
Castellón	0	0,2	Murcia	40	0,2	Teruel	550	0,5
Ciudad Real	640	0,6	Orense / *Ourense*	130	0,4	Toledo	0	0,2
Córdoba	100	0,2	Oviedo	230	0,5	Valencia/*València*	690	0,4
Coruña / *A Coruña*	0	0,3	Palencia	740	0,4	Valladolid	520	0,7
Cuenca	1.010	1,0	Palma de Mallorca	0	0,2	Vitoria / *Gasteiz*	650	0,4
Gerona / *Girona*	70	0,4	Palmas, Las	0	0,2	Zamora	210	0,5
Granada	690	0,5	Pamplona/*Iruña*	450	0,7	Zaragoza	0	0,2
						Ceuta y Melilla		

Coeficiente de forma de la cubierta (μ)

Debido a las características de la cubierta y su inclinación menor a 30º, teniendo en cuenta la sección 3.5.3 de DB SE-AE se define μ = 1.

Finalmente aplicando la ecuación inicial obtenemos una carga de nieve q_n = 0.6 KN/m^2.

3.1.5. Carga de viento

La distribución y la magnitud de las presiones ejercidas por el viento sobre un edificio, así como las fuerzas resultantes, dependen de la forma y dimensiones de la construcción, de las características y permeabilidad de su superficie, y de la dirección, intensidad y ráfagas del viento.

Según capítulo 3.3 del Documento básico de SE-AE la acción de viento o presión estática, puede expresarse como:

$$q_e = q_b * c_e * c_p$$

Donde:

q_b es la presión dinámica del viento.

c_e es el coeficiente de exposición.

c_p es el coeficiente eólico o de presión.

Presión dinámica del viento (q_b)

El valor básico de la presión dinámica del viento puede obtenerse con la expresión:

$$q_b = 0.5 * \delta * {v_b}^2$$

Donde:

δ es la densidad del aire.

v_b es el valor básico de la velocidad del viento

En el anejo D.1 de DB SE-AE se establece que puede adoptarse como valor general la densidad del aire como δ=1.25 Kg/m^3 y utilizando la figura D.1 establecemos a Madrid en la Zona A con una velocidad básica del viento v_b=26 m/s.



Esto da como resultado una presión dinámica q_b = 0.42 KN/m^2.

Coeficiente de exposición (c_e)

El coeficiente de exposición tiene en cuenta los efectos de las turbulencias originadas por el relieve y la topografía del terreno. Se obtiene su valor a partir de la siguiente expresión que se encuentra en el anejo D.2

$$c_e = F * (F + 7 * k)$$

$$F = k \ln(\max(z, Z)/L)$$

Donde k, L, Z son parámetros característicos de cada tipo de entorno, según la tabla D.2.

Y z es la altura a evaluar.

Tabla D.2 Coeficientes para tipo de entorno

	Grado de aspereza del entorno	Parámetro k	L (m)	Z (m)
I	Borde del mar o de un lago, con una superficie de agua en la dirección del viento de al menos 5 km de longitud	0,156	0,003	1,0
II	Terreno rural llano sin obstáculos ni arbolado de importancia	0,17	0,01	1,0
III	Zona rural accidentada o llana con algunos obstáculos aislados, como árboles o construcciones pequeñas	0,19	0,05	2,0
IV	Zona urbana en general, industrial o forestal	0,22	0,3	5,0
V	Centro de negocios de grandes ciudades, con profusión de edificios en altura	0,24	1,0	10,0

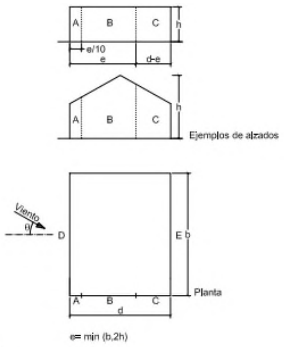
Para este caso particular se ha establecido un grado de aspereza del entorno tipo IV.

Coeficiente eólico o de presión (c_p)

Este coeficiente depende de la forma del edificio y la orientación de la superficie respecto al viento, la posición del elemento considerado, y su área de influencia.

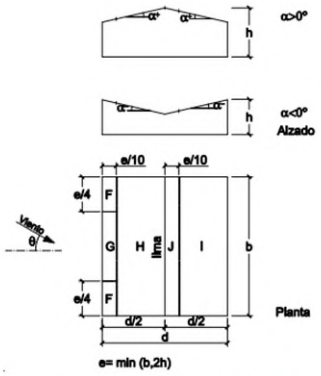
Se utiliza la tabla D.3 del anejo D de DB SE-AE para definir estos coeficientes según los parámetros a considerar.

En el caso de los parámetros verticales se deberá tener en cuenta la siguiente tabla:

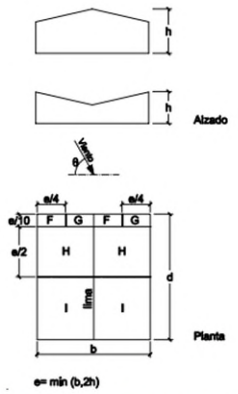


A (m^2)	h/d	Zona (según figura), $-45° < \theta < 45°$ A	B	C	D	E
≥ 10	5	-1,2	-0,8	-0,5	0,8	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"		0,7	-0,3
5	5	-1,3	-0,9	-0,5	0,9	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"	"	0,8	-0,3
2	5	-1,3	-1,0	-0,5	0,9	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"	"	0,7	-0,3
≤ 1	5	-1,4	-1,1	-0,5	1,0	-0,7
	1	"	"	"	"	-0,5
	≤ 0,25	"	"	"	"	-0,3

Las acciones de viento en cubierta se definen a partir de las siguientes tablas:



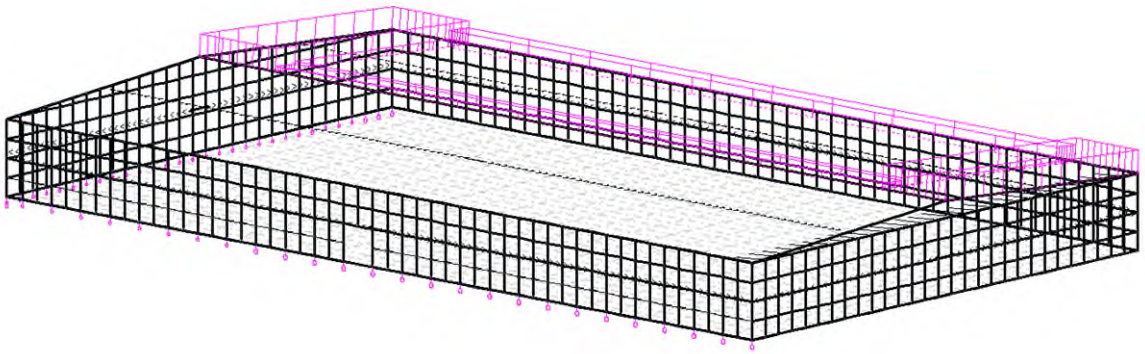
Pendiente de la cubierta α	A (m^2)	Zona (según figura) F	G	H	I	J
-45°	≥ 10	-0,6	-0,6	-0,8	-0,7	-1
	≤ 1	-0,6	-0,6	-0,8	-0,7	-1,5
-30°	≥ 10	-1,1	-0,8	-0,8	-0,6	-0,8
	≤ 1	-2	-1,5	-0,8	-0,6	-1,4
-15°	≥ 10	-2,5	-1,3	-0,9	-0,5	-0,7
	≤ 1	-2,8	-2	-1,2	-0,5	-1,2
-5°	≥ 10	-2,3	-1,2	-0,8	0,2 -0,6	0,2 -0,6
	≤ 1	-2,5	-2	-1,2	0,2 -0,6	0,2 -0,6
5°	≥ 10	-1,7 +0,0	-1,2 +0,0	-0,6 +0,0	-0,6	0,2 -0,6
	≤ 1	-2,5 +0,0	-2 +0,0	-1,2 +0,0	-0,6	0,2 -0,6
15°	≥ 10	-0,9 0,2	-0,8 0,2	-0,3 0,2	-0,4 +0,0	-1 +0,0
	≤ 1	-2 0,2	-1,5 0,2	-0,3 0,2	-0,4 +0,0	-1,5 +0,0
30°	≥ 10	-0,5 0,7	-0,5 0,7	-0,2 0,4	-0,4 0	-0,5 0
	≤ 1	-1,5 0,7	-1,5 0,7	-0,2 0,4	-0,4 0	-0,5 0
45°	≥ 10	-0,0 0,7	-0,0 0,7	-0,0 0,6	-0,2 +0,0	-0,3 +0,0
	≤ 1	-0,0 0,7	-0,0 0,7	-0,0 0,6	-0,2 +0,0	-0,3 +0,0
60°	≥ 10	0,7	0,7	0,7	-0,2	-0,3
	≤ 1	0,7	0,7	0,7	-0,2	-0,3
75°	≥ 10	0,8	0,8	0,8	-0,2	-0,3
	≤ 1	0,8	0,8	0,8	-0,2	-0,3

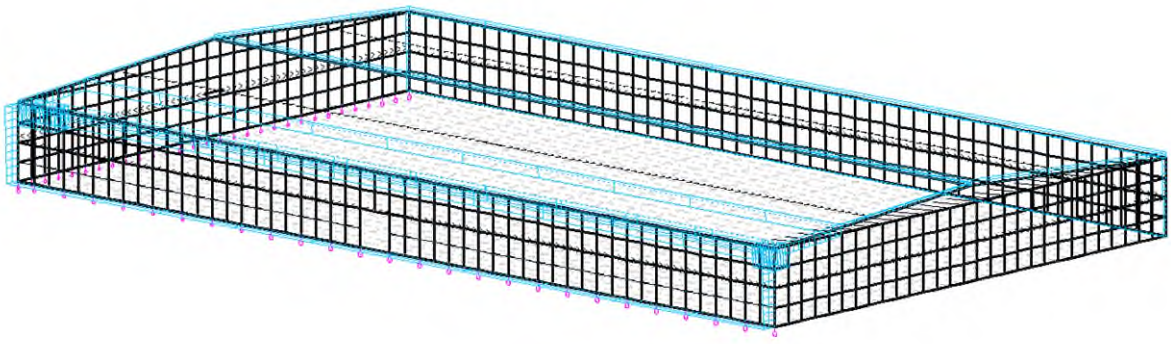


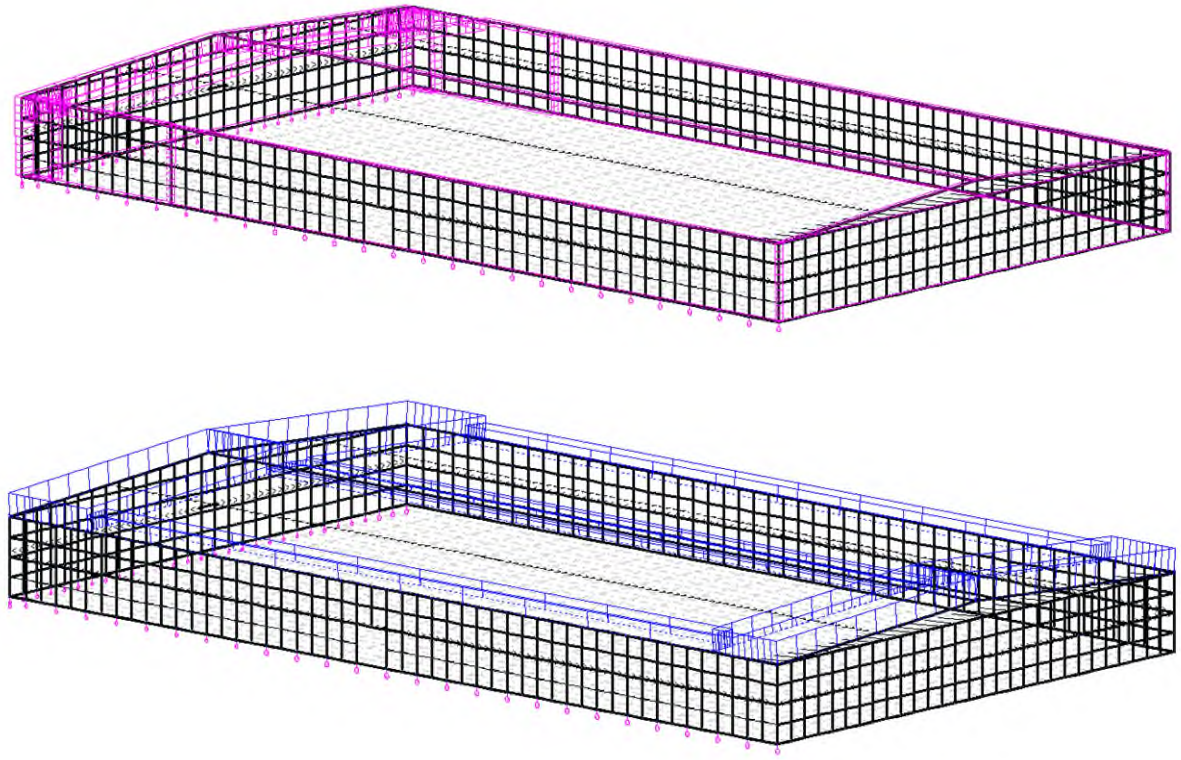
e= min (b,2h)

Pendiente de la cubierta α	A (m²)	Zona (según figura), -45° ≤ θ ≤ 45°			
		F	G	H	I
-45°	≥ 10	-1,4	-1,2	-1,0	-0,9
	≤ 1	-2,0	-2,0	-1,3	-1,2
-30°	≥ 10	-1,5	-1,2	-1,0	-0,9
	≤ 1	-2,1	-2,0	-1,3	-1,2
-15°	≥ 10	-1,9	-1,2	-0,8	-0,8
	≤ 1	-2,5	-2,0	-1,2	-1,2
-5°	≥ 10	-1,8	-1,2	-0,7	-0,6
	≤ 1	-2,5	-2,0	-1,2	-1,2
5°	≥ 10	-1,6	-1,3	-0,7	-0,6
	≤ 1	-2,2	-2,0	-1,2	-0,6
15°	≥ 10	-1,3	-1,3	-0,6	-0,5
	≤ 1	-2,0	-2,0	-1,2	-0,5
30°	≥ 10	-1,1	-1,4	-0,8	-0,5
	≤ 1	-1,5	-2,0	-1,2	-0,5
45°	≥ 10	-1,1	-1,4	-0,9	-0,5
	≤ 1	-1,5	-2,0	-1,2	-0,5
60°	≥ 10	-1,1	-1,2	-0,8	-0,5
	≤ 1	-1,5	-2,0	-1,0	-0,5
75°	≥ 10	-1,1	-1,2	-0,8	-0,5
	≤ 1	-1,5	-2,0	-1,0	-0,5

Teniendo en cuenta estos parámetros base, se utilizó el software portal frame generator de CYPE para crear las cargas de viento e introducirlas en el modelo.







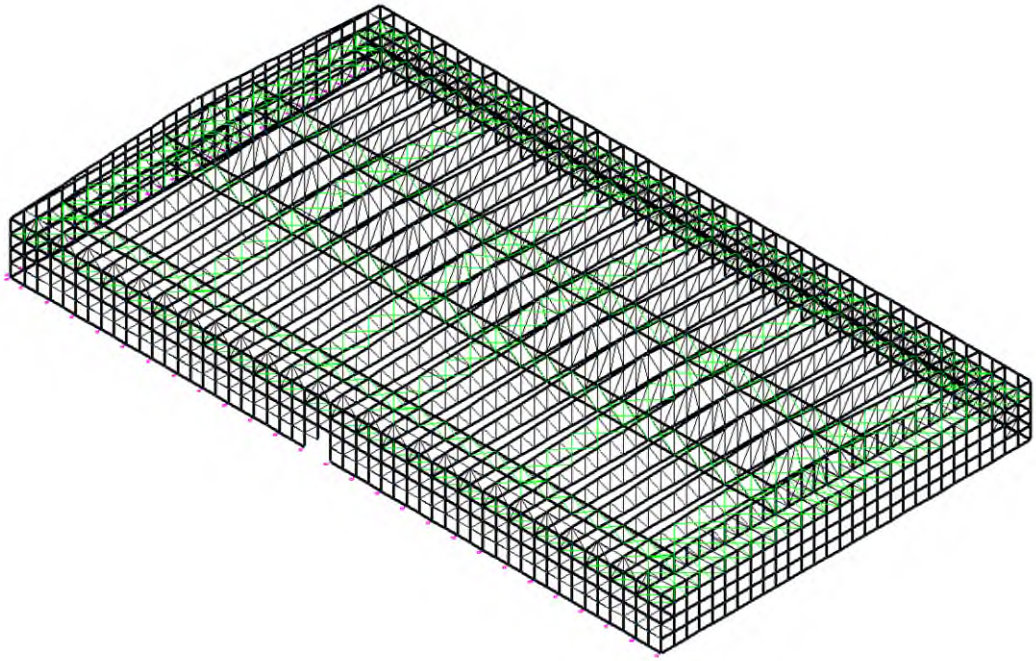
3.2. Modelado de la estructura

Con el objetivo de recrear lo más fielmente posible el comportamiento estructural de la edificación, se modela toda la estructura interna de cerchas con sus tensores correspondiente, ya que estos aportan rigidez a la estructura perimetral externa que será evaluada.

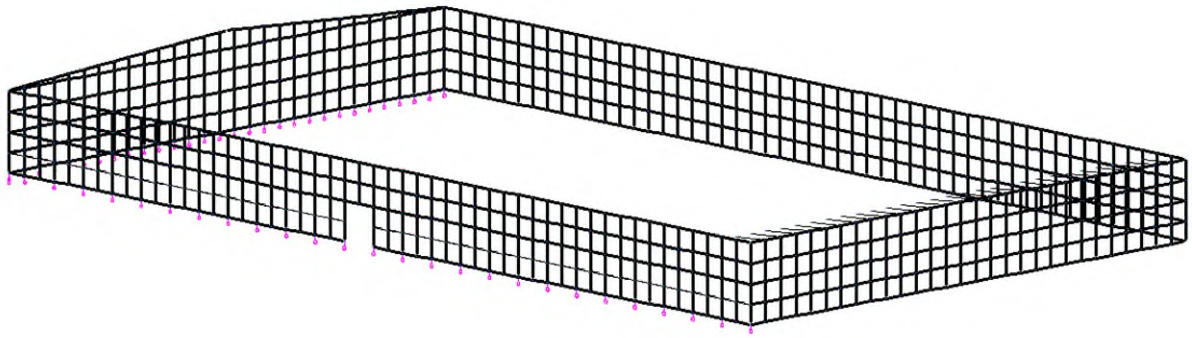
Para el modelado de la estructura se utilizó el programa CYPE v.2024.

3.2.1. Geometría del modelo

Teniendo en cuenta la documentación aportada que consistía en memorias de rehabilitación, planos, etc. Se modela la estructura general.

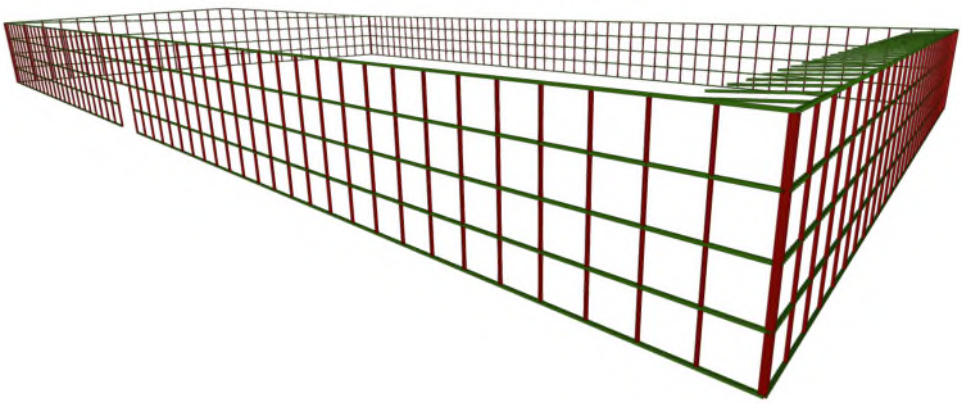


Una vez modelada se puede discretizar los elementos de la estructura externa e interna para tener una mejor vista de los elementos a evaluar.



3.2.2. Definición de secciones

Vista 3D de la estructura interna y sus secciones.

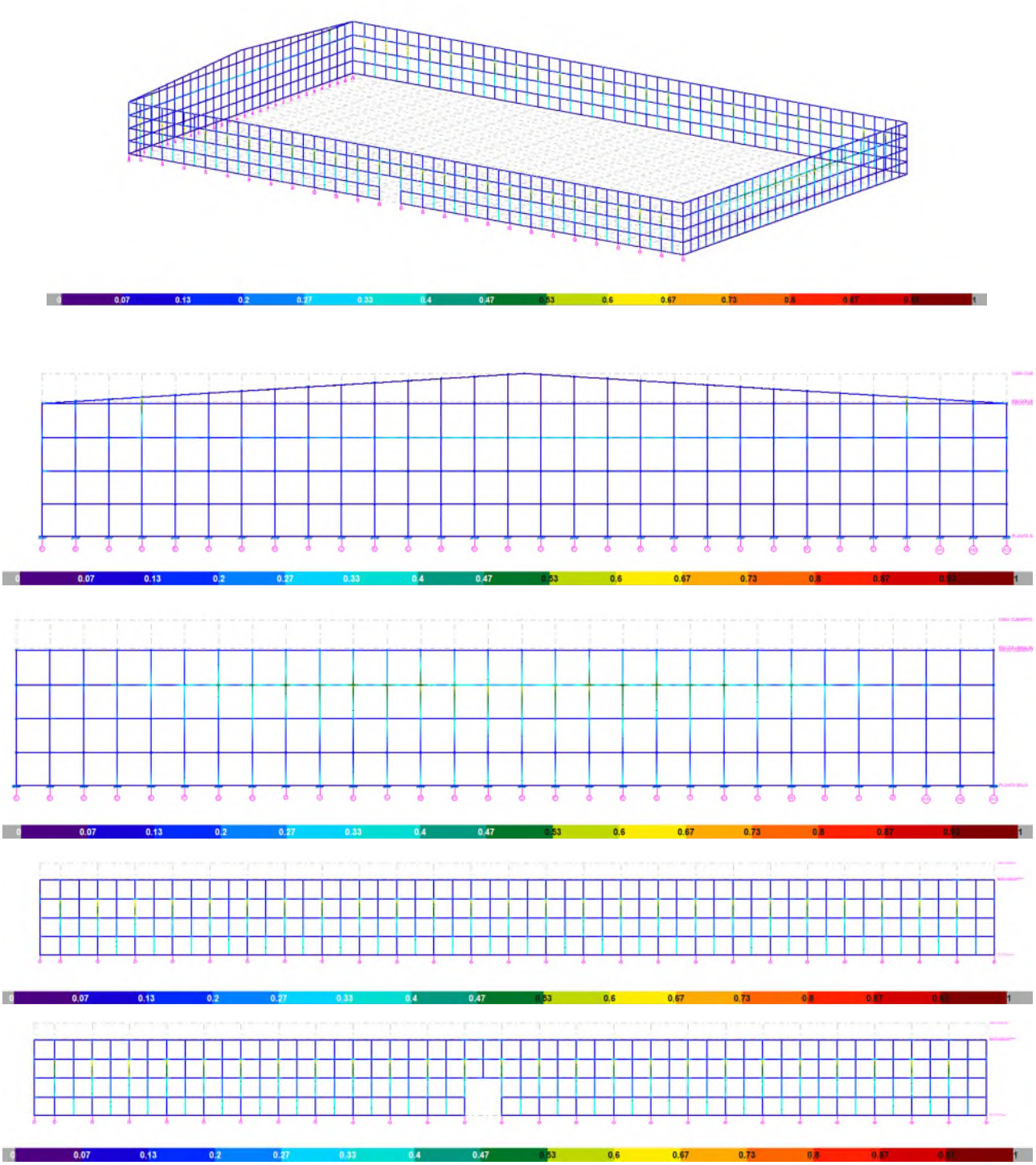


3.3. Resultados de calculo

Una vez introducidas las secciones y cargas a considerar se ejecuta el modelo y evalúa la capacidad portante del mismo (E.L.U) y su capacidad de servicio. (E.L.S)

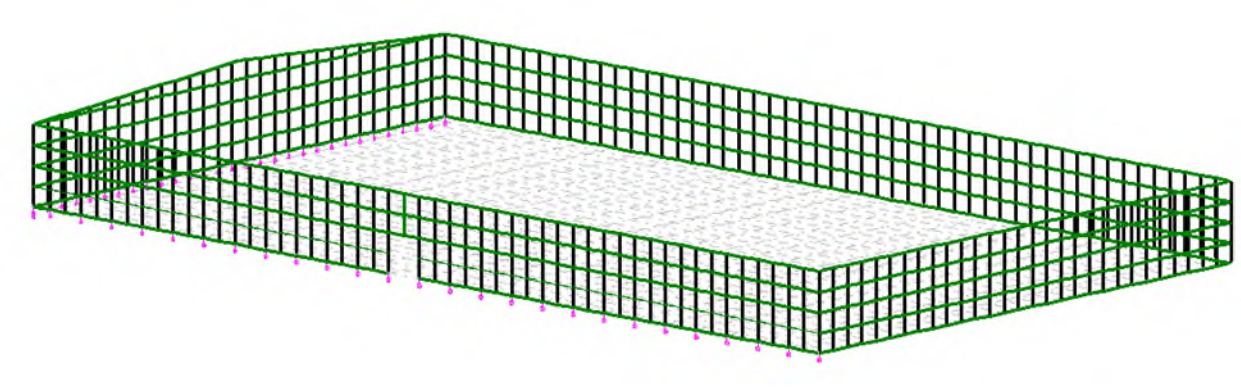
3.3.1. Comprobación de elementos E.L.U (tensión/aprovechamiento)

En las siguientes figuras se aprecia una escala de 0 a 1.0 donde se indica el aprovechamiento de cada elemento estructural, es decir, a que porcentaje de su capacidad máxima está trabajando.



3.3.2. Comprobación de elementos (E.L.S)

Se estableció una flecha máxima de L/300 para todos los elementos de la estructura, en la siguiente figura se presenta como todos cumplen este parámetro al estar iluminados de verde.



3.3.3. Tablas de resultados de análisis

En el Anejo 1 se presenta la memoria de calculo generada por el software utilizado, en esta se evidencian las combinaciones de carga utilizadas en el modelo y las comprobaciones por estados limites de cada elemento estructural del edificio analizado.

4. Conclusiones del estudio

Al realizar un análisis de resultados del modelo estructural se puede apreciar que los elementos perimetrales de la estructura se encuentran trabajando en promedio a un 38% de su capacidad portante, es decir, no presentan problemas para soportar las acciones que afectan la estructura ni la carga adicional que representa la nueva carpintería de ventanas.

Sumado a esto, las deformaciones máximas no superan el 45% en toda la estructura, indicando así que tiene un buen comportamiento y no presentara incomodidades para presentar el servicio al que fueron diseñados los elementos.

Teniendo en cuenta lo anterior, se establece que la estructura externa del Pabellón de Cristal presenta un correcto comportamiento frente a las cargas adicionales incurridas por el cambio de carpintería.

En Madrid, julio de 2024

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

Fdo:



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Arquitecto
Director Técnico
Departamento de Edificación

ANEJO 01.- RESULTADOS DE CÁLCULO

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1.- DATOS DE OBRA
- **1.1 Normas consideradas**
- **1.2 Estados límite**
  - **1.2.1.- Combinaciones**
- **E.L.U. de rotura. Acero laminado**
- **1.3 Resultados**
  - **1.3.1 Barras**
  - **1.3.2. Pilares**

Listados

1. DATOS DE OBRA

1.1. Normas consideradas

Aceros laminados y armados: Código Estructural

Categoría de uso: G1. Cubiertas accesibles únicamente para mantenimiento. No concomitante con el resto de acciones variables

1.2. Estados límite

E.L.U. de rotura. Acero laminado	CTE Cota de nieve: Altitud inferior o igual a 1000 m
Desplazamientos	Acciones características

1.2.1. Combinaciones

- **Nombres de las hipótesis**

PP	Peso propio
CM 1	CM 1
Q	Sobrecarga de uso
V H1	Cubiertas aisladas
V H2	Cubiertas aisladas
V H3	Cubiertas aisladas
V H4	Cubiertas aisladas
V H5	Cubiertas aisladas
V H6	Cubiertas aisladas
V(0°) H1	Viento a 0°, presión exterior tipo 1 Succión interior
V(0°) H2	Viento a 0°, presión exterior tipo 2 Succión interior
V(90°) H1	Viento a 90°, presión exterior tipo 1 Presión interior
V(90°) H2	Viento a 90°, presión exterior tipo 2 Presión interior
V(180°) H1	Viento a 180°, presión exterior tipo 1 Succión interior
V(180°) H2	Viento a 180°, presión exterior tipo 2 Succión interior
V(270°) H1	Viento a 270°, presión exterior tipo 1 Presión interior
V(270°) H2	Viento a 270°, presión exterior tipo 2 Presión interior
N(EI)	Nieve (estado inicial)
N(R) 1	Nieve (redistribución) 1
N(R) 2	Nieve (redistribución) 2

- **E.L.U. de rotura. Acero laminado**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
1	0.800	0.800																		
2	1.350	0.800																		
3	0.800	1.350																		
4	1.350	1.350																		
5	0.800	0.800		1.500																
6	1.350	0.800		1.500																
7	0.800	1.350		1.500																
8	1.350	1.350		1.500																
9	0.800	0.800			1.500															
10	1.350	0.800			1.500															
11	0.800	1.350			1.500															
12	1.350	1.350			1.500															
13	0.800	0.800				1.500														
14	1.350	0.800				1.500														
15	0.800	1.350				1.500														
16	1.350	1.350				1.500														
17	0.800	0.800					1.500													
18	1.350	0.800					1.500													
19	0.800	1.350					1.500													
20	1.350	1.350					1.500													
21	0.800	0.800						1.500												
22	1.350	0.800						1.500												
23	0.800	1.350						1.500												
24	1.350	1.350						1.500												
25	0.800	0.800							1.500											
26	1.350	0.800							1.500											
27	0.800	1.350							1.500											
28	1.350	1.350							1.500											
29	0.800	0.800								1.500										
30	1.350	0.800								1.500										
31	0.800	1.350								1.500										
32	1.350	1.350								1.500										
33	0.800	0.800									1.500									
34	1.350	0.800									1.500									
35	0.800	1.350									1.500									
36	1.350	1.350									1.500									
37	0.800	0.800										1.500								
38	1.350	0.800										1.500								
39	0.800	1.350										1.500								
40	1.350	1.350										1.500								
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43	0.800	1.350											1.500							
44	1.350	1.350											1.500							
45	0.800	0.800												1.500						
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63	0.800	1.350																1.500		
64	1.350	1.350																1.500		
65	0.800	0.800		0.900														1.500		
66	1.350	0.800		0.900														1.500		
67	0.800	1.350		0.900														1.500		
68	1.350	1.350		0.900														1.500		
69	0.800	0.800			0.900													1.500		
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71	0.800	1.350			0.900													1.500		
72	1.350	1.350			0.900													1.500		
73	0.800	0.800				0.900												1.500		
74	1.350	0.800				0.900												1.500		
75	0.800	1.350				0.900												1.500		
76	1.350	1.350				0.900												1.500		
77	0.800	0.800					0.900											1.500		
78	1.350	0.800					0.900											1.500		
79	0.800	1.350					0.900											1.500		
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81	0.800	0.800						0.900										1.500		
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83	0.800	1.350						0.900										1.500		
84	1.350	1.350						0.900										1.500		
85	0.800	0.800							0.900									1.500		
86	1.350	0.800							0.900									1.500		
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88	1.350	1.350							0.900									1.500		
89	0.800	0.800								0.900								1.500		
90	1.350	0.800								0.900								1.500		
91	0.800	1.350								0.900								1.500		
92	1.350	1.350								0.900								1.500		
93	0.800	0.800									0.900							1.500		
94	1.350	0.800									0.900							1.500		
95	0.800	1.350									0.900							1.500		
96	1.350	1.350									0.900							1.500		
97	0.800	0.800										0.900						1.500		
98	1.350	0.800										0.900						1.500		

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
99	0.800	1.350										0.900						1.500		
100	1.350	1.350										0.900						1.500		
101	0.800	0.800											0.900					1.500		
102	1.350	0.800											0.900					1.500		
103	0.800	1.350											0.900					1.500		
104	1.350	1.350											0.900					1.500		
105	0.800	0.800												0.900				1.500		
106	1.350	0.800												0.900				1.500		
107	0.800	1.350												0.900				1.500		
108	1.350	1.350												0.900				1.500		
109	0.800	0.800													0.900			1.500		
110	1.350	0.800													0.900			1.500		
111	0.800	1.350													0.900			1.500		
112	1.350	1.350													0.900			1.500		
113	0.800	0.800														0.900		1.500		
114	1.350	0.800														0.900		1.500		
115	0.800	1.350														0.900		1.500		
116	1.350	1.350														0.900		1.500		
117	0.800	0.800															0.900	1.500		
118	1.350	0.800															0.900	1.500		
119	0.800	1.350															0.900	1.500		
120	1.350	1.350															0.900	1.500		
121	0.800	0.800		1.500														0.750		
122	1.350	0.800		1.500														0.750		
123	0.800	1.350		1.500														0.750		
124	1.350	1.350		1.500														0.750		
125	0.800	0.800			1.500													0.750		
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127	0.800	1.350			1.500													0.750		
128	1.350	1.350			1.500													0.750		
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133	0.800	0.800					1.500											0.750		
134	1.350	0.800					1.500											0.750		
135	0.800	1.350					1.500											0.750		
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137	0.800	0.800						1.500										0.750		
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139	0.800	1.350						1.500										0.750		
140	1.350	1.350						1.500										0.750		
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142	1.350	0.800							1.500									0.750		
143	0.800	1.350							1.500									0.750		
144	1.350	1.350							1.500									0.750		
145	0.800	0.800								1.500								0.750		
146	1.350	0.800								1.500								0.750		
147	0.800	1.350								1.500								0.750		
148	1.350	1.350								1.500								0.750		
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150	1.350	0.800									1.500							0.750		
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152	1.350	1.350									1.500							0.750		
153	0.800	0.800										1.500						0.750		
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161	0.800	0.800												1.500				0.750		
162	1.350	0.800												1.500				0.750		
163	0.800	1.350												1.500				0.750		
164	1.350	1.350												1.500				0.750		
165	0.800	0.800													1.500			0.750		
166	1.350	0.800													1.500			0.750		
167	0.800	1.350													1.500			0.750		
168	1.350	1.350													1.500			0.750		
169	0.800	0.800														1.500		0.750		
170	1.350	0.800														1.500		0.750		
171	0.800	1.350														1.500		0.750		
172	1.350	1.350														1.500		0.750		
173	0.800	0.800															1.500	0.750		
174	1.350	0.800															1.500	0.750		
175	0.800	1.350															1.500	0.750		
176	1.350	1.350															1.500	0.750		
177	0.800	0.800																	1.500	
178	1.350	0.800																	1.500	
179	0.800	1.350																	1.500	
180	1.350	1.350																	1.500	
181	0.800	0.800		0.900															1.500	
182	1.350	0.800		0.900															1.500	
183	0.800	1.350		0.900															1.500	
184	1.350	1.350		0.900															1.500	
185	0.800	0.800			0.900														1.500	
186	1.350	0.800			0.900														1.500	
187	0.800	1.350			0.900														1.500	
188	1.350	1.350			0.900														1.500	
189	0.800	0.800				0.900													1.500	
190	1.350	0.800				0.900													1.500	
191	0.800	1.350				0.900													1.500	
192	1.350	1.350				0.900													1.500	
193	0.800	0.800					0.900												1.500	
194	1.350	0.800					0.900												1.500	
195	0.800	1.350					0.900												1.500	
196	1.350	1.350					0.900												1.500	
197	0.800	0.800						0.900											1.500	

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
198	1.350	0.800						0.900											1.500	
199	0.800	1.350						0.900											1.500	
200	1.350	1.350						0.900											1.500	
201	0.800	0.800							0.900										1.500	
202	1.350	0.800							0.900										1.500	
203	0.800	1.350							0.900										1.500	
204	1.350	1.350							0.900										1.500	
205	0.800	0.800								0.900									1.500	
206	1.350	0.800								0.900									1.500	
207	0.800	1.350								0.900									1.500	
208	1.350	1.350								0.900									1.500	
209	0.800	0.800									0.900								1.500	
210	1.350	0.800									0.900								1.500	
211	0.800	1.350									0.900								1.500	
212	1.350	1.350									0.900								1.500	
213	0.800	0.800										0.900							1.500	
214	1.350	0.800										0.900							1.500	
215	0.800	1.350										0.900							1.500	
216	1.350	1.350										0.900							1.500	
217	0.800	0.800											0.900						1.500	
218	1.350	0.800											0.900						1.500	
219	0.800	1.350											0.900						1.500	
220	1.350	1.350											0.900						1.500	
221	0.800	0.800												0.900					1.500	
222	1.350	0.800												0.900					1.500	
223	0.800	1.350												0.900					1.500	
224	1.350	1.350												0.900					1.500	
225	0.800	0.800													0.900				1.500	
226	1.350	0.800													0.900				1.500	
227	0.800	1.350													0.900				1.500	
228	1.350	1.350													0.900				1.500	
229	0.800	0.800														0.900			1.500	
230	1.350	0.800														0.900			1.500	
231	0.800	1.350														0.900			1.500	
232	1.350	1.350														0.900			1.500	
233	0.800	0.800															0.900		1.500	
234	1.350	0.800															0.900		1.500	
235	0.800	1.350															0.900		1.500	
236	1.350	1.350															0.900		1.500	
237	0.800	0.800		1.500															0.750	
238	1.350	0.800		1.500															0.750	
239	0.800	1.350		1.500															0.750	
240	1.350	1.350		1.500															0.750	
241	0.800	0.800			1.500														0.750	
242	1.350	0.800			1.500														0.750	
243	0.800	1.350			1.500														0.750	
244	1.350	1.350			1.500														0.750	
245	0.800	0.800				1.500													0.750	
246	1.350	0.800				1.500													0.750	
247	0.800	1.350				1.500													0.750	
248	1.350	1.350				1.500													0.750	
249	0.800	0.800					1.500												0.750	
250	1.350	0.800					1.500												0.750	
251	0.800	1.350					1.500												0.750	
252	1.350	1.350					1.500												0.750	
253	0.800	0.800						1.500											0.750	
254	1.350	0.800						1.500											0.750	
255	0.800	1.350						1.500											0.750	
256	1.350	1.350						1.500											0.750	
257	0.800	0.800							1.500										0.750	
258	1.350	0.800							1.500										0.750	
259	0.800	1.350							1.500										0.750	
260	1.350	1.350							1.500										0.750	
261	0.800	0.800								1.500									0.750	
262	1.350	0.800								1.500									0.750	
263	0.800	1.350								1.500									0.750	
264	1.350	1.350								1.500									0.750	
265	0.800	0.800									1.500								0.750	
266	1.350	0.800									1.500								0.750	
267	0.800	1.350									1.500								0.750	
268	1.350	1.350									1.500								0.750	
269	0.800	0.800										1.500							0.750	
270	1.350	0.800										1.500							0.750	
271	0.800	1.350										1.500							0.750	
272	1.350	1.350										1.500							0.750	
273	0.800	0.800											1.500						0.750	
274	1.350	0.800											1.500						0.750	
275	0.800	1.350											1.500						0.750	
276	1.350	1.350											1.500						0.750	
277	0.800	0.800												1.500					0.750	
278	1.350	0.800												1.500					0.750	
279	0.800	1.350												1.500					0.750	
280	1.350	1.350												1.500					0.750	
281	0.800	0.800													1.500				0.750	
282	1.350	0.800													1.500				0.750	
283	0.800	1.350													1.500				0.750	
284	1.350	1.350													1.500				0.750	
285	0.800	0.800														1.500			0.750	
286	1.350	0.800														1.500			0.750	
287	0.800	1.350														1.500			0.750	
288	1.350	1.350														1.500			0.750	
289	0.800	0.800															1.500		0.750	
290	1.350	0.800															1.500		0.750	
291	0.800	1.350															1.500		0.750	
292	1.350	1.350															1.500		0.750	
293	0.800	0.800																		1.500
294	1.350	0.800																		1.500
295	0.800	1.350																		1.500
296	1.350	1.350																		1.500

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
297	0.800	0.800		0.900																1.500
298	1.350	0.800		0.900																1.500
299	0.800	1.350		0.900																1.500
300	1.350	1.350		0.900																1.500
301	0.800	0.800			0.900															1.500
302	1.350	0.800			0.900															1.500
303	0.800	1.350			0.900															1.500
304	1.350	1.350			0.900															1.500
305	0.800	0.800				0.900														1.500
306	1.350	0.800				0.900														1.500
307	0.800	1.350				0.900														1.500
308	1.350	1.350				0.900														1.500
309	0.800	0.800					0.900													1.500
310	1.350	0.800					0.900													1.500
311	0.800	1.350					0.900													1.500
312	1.350	1.350					0.900													1.500
313	0.800	0.800						0.900												1.500
314	1.350	0.800						0.900												1.500
315	0.800	1.350						0.900												1.500
316	1.350	1.350						0.900												1.500
317	0.800	0.800							0.900											1.500
318	1.350	0.800							0.900											1.500
319	0.800	1.350							0.900											1.500
320	1.350	1.350							0.900											1.500
321	0.800	0.800								0.900										1.500
322	1.350	0.800								0.900										1.500
323	0.800	1.350								0.900										1.500
324	1.350	1.350								0.900										1.500
325	0.800	0.800									0.900									1.500
326	1.350	0.800									0.900									1.500
327	0.800	1.350									0.900									1.500
328	1.350	1.350									0.900									1.500
329	0.800	0.800										0.900								1.500
330	1.350	0.800										0.900								1.500
331	0.800	1.350										0.900								1.500
332	1.350	1.350										0.900								1.500
333	0.800	0.800											0.900							1.500
334	1.350	0.800											0.900							1.500
335	0.800	1.350											0.900							1.500
336	1.350	1.350											0.900							1.500
337	0.800	0.800												0.900						1.500
338	1.350	0.800												0.900						1.500
339	0.800	1.350												0.900						1.500
340	1.350	1.350												0.900						1.500
341	0.800	0.800													0.900					1.500
342	1.350	0.800													0.900					1.500
343	0.800	1.350													0.900					1.500
344	1.350	1.350													0.900					1.500
345	0.800	0.800														0.900				1.500
346	1.350	0.800														0.900				1.500
347	0.800	1.350														0.900				1.500
348	1.350	1.350														0.900				1.500
349	0.800	0.800															0.900			1.500
350	1.350	0.800															0.900			1.500
351	0.800	1.350															0.900			1.500
352	1.350	1.350															0.900			1.500
353	0.800	0.800		1.500																0.750
354	1.350	0.800		1.500																0.750
355	0.800	1.350		1.500																0.750
356	1.350	1.350		1.500																0.750
357	0.800	0.800			1.500															0.750
358	1.350	0.800			1.500															0.750
359	0.800	1.350			1.500															0.750
360	1.350	1.350			1.500															0.750
361	0.800	0.800				1.500														0.750
362	1.350	0.800				1.500														0.750
363	0.800	1.350				1.500														0.750
364	1.350	1.350				1.500														0.750
365	0.800	0.800					1.500													0.750
366	1.350	0.800					1.500													0.750
367	0.800	1.350					1.500													0.750
368	1.350	1.350					1.500													0.750
369	0.800	0.800						1.500												0.750
370	1.350	0.800						1.500												0.750
371	0.800	1.350						1.500												0.750
372	1.350	1.350						1.500												0.750
373	0.800	0.800							1.500											0.750
374	1.350	0.800							1.500											0.750
375	0.800	1.350							1.500											0.750
376	1.350	1.350							1.500											0.750
377	0.800	0.800								1.500										0.750
378	1.350	0.800								1.500										0.750
379	0.800	1.350								1.500										0.750
380	1.350	1.350								1.500										0.750
381	0.800	0.800									1.500									0.750
382	1.350	0.800									1.500									0.750
383	0.800	1.350									1.500									0.750
384	1.350	1.350									1.500									0.750
385	0.800	0.800										1.500								0.750
386	1.350	0.800										1.500								0.750
387	0.800	1.350										1.500								0.750
388	1.350	1.350										1.500								0.750
389	0.800	0.800											1.500							0.750
390	1.350	0.800											1.500							0.750
391	0.800	1.350											1.500							0.750
392	1.350	1.350											1.500							0.750
393	0.800	0.800												1.500						0.750
394	1.350	0.800												1.500						0.750
395	0.800	1.350												1.500						0.750

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
396	1.350	1.350												1.500						0.750
397	0.800	0.800													1.500					0.750
398	1.350	0.800													1.500					0.750
399	0.800	1.350													1.500					0.750
400	1.350	1.350													1.500					0.750
401	0.800	0.800														1.500				0.750
402	1.350	0.800														1.500				0.750
403	0.800	1.350														1.500				0.750
404	1.350	1.350														1.500				0.750
405	0.800	0.800															1.500			0.750
406	1.350	0.800															1.500			0.750
407	0.800	1.350															1.500			0.750
408	1.350	1.350															1.500			0.750
409	0.800	0.800	1.500																	
410	1.350	0.800	1.500																	
411	0.800	1.350	1.500																	
412	1.350	1.350	1.500																	

Listados

- **Desplazamientos**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
1	1.000	1.000																		
2	1.000	1.000		1.000																
3	1.000	1.000			1.000															
4	1.000	1.000				1.000														
5	1.000	1.000					1.000													
6	1.000	1.000						1.000												
7	1.000	1.000							1.000											
8	1.000	1.000								1.000										
9	1.000	1.000									1.000									
10	1.000	1.000										1.000								
11	1.000	1.000											1.000							
12	1.000	1.000												1.000						
13	1.000	1.000													1.000					
14	1.000	1.000														1.000				
15	1.000	1.000															1.000			
16	1.000	1.000																1.000		
17	1.000	1.000		1.000														1.000		
18	1.000	1.000			1.000													1.000		
19	1.000	1.000				1.000												1.000		
20	1.000	1.000					1.000											1.000		
21	1.000	1.000						1.000										1.000		
22	1.000	1.000							1.000									1.000		
23	1.000	1.000								1.000								1.000		
24	1.000	1.000									1.000							1.000		
25	1.000	1.000										1.000						1.000		
26	1.000	1.000											1.000					1.000		
27	1.000	1.000												1.000				1.000		
28	1.000	1.000													1.000			1.000		
29	1.000	1.000														1.000		1.000		
30	1.000	1.000															1.000	1.000		
31	1.000	1.000																	1.000	
32	1.000	1.000		1.000															1.000	
33	1.000	1.000			1.000														1.000	
34	1.000	1.000				1.000													1.000	
35	1.000	1.000					1.000												1.000	
36	1.000	1.000						1.000											1.000	
37	1.000	1.000							1.000										1.000	
38	1.000	1.000								1.000									1.000	
39	1.000	1.000									1.000								1.000	
40	1.000	1.000										1.000							1.000	
41	1.000	1.000											1.000						1.000	
42	1.000	1.000												1.000					1.000	
43	1.000	1.000													1.000				1.000	
44	1.000	1.000														1.000			1.000	
45	1.000	1.000															1.000		1.000	
46	1.000	1.000																		1.000
47	1.000	1.000		1.000																1.000
48	1.000	1.000			1.000															1.000
49	1.000	1.000				1.000														1.000
50	1.000	1.000					1.000													1.000
51	1.000	1.000						1.000												1.000
52	1.000	1.000							1.000											1.000
53	1.000	1.000								1.000										1.000
54	1.000	1.000									1.000									1.000
55	1.000	1.000										1.000								1.000
56	1.000	1.000											1.000							1.000
57	1.000	1.000												1.000						1.000
58	1.000	1.000													1.000					1.000
59	1.000	1.000														1.000				1.000
60	1.000	1.000															1.000			1.000
61	1.000	1.000	1.000																	
62	1.000	1.000	1.000	1.000																
63	1.000	1.000	1.000		1.000															
64	1.000	1.000	1.000			1.000														
65	1.000	1.000	1.000				1.000													
66	1.000	1.000	1.000					1.000												
67	1.000	1.000	1.000						1.000											
68	1.000	1.000	1.000							1.000										
69	1.000	1.000	1.000								1.000									
70	1.000	1.000	1.000									1.000								
71	1.000	1.000	1.000										1.000							
72	1.000	1.000	1.000											1.000						
73	1.000	1.000	1.000												1.000					
74	1.000	1.000	1.000													1.000				
75	1.000	1.000	1.000														1.000			
76	1.000	1.000	1.000															1.000		
77	1.000	1.000	1.000	1.000														1.000		
78	1.000	1.000	1.000		1.000													1.000		
79	1.000	1.000	1.000			1.000												1.000		
80	1.000	1.000	1.000				1.000											1.000		
81	1.000	1.000	1.000					1.000										1.000		
82	1.000	1.000	1.000						1.000									1.000		
83	1.000	1.000	1.000							1.000								1.000		
84	1.000	1.000	1.000								1.000							1.000		
85	1.000	1.000	1.000									1.000						1.000		
86	1.000	1.000	1.000										1.000					1.000		
87	1.000	1.000	1.000											1.000				1.000		
88	1.000	1.000	1.000												1.000			1.000		
89	1.000	1.000	1.000													1.000		1.000		
90	1.000	1.000	1.000														1.000	1.000		
91	1.000	1.000	1.000																1.000	
92	1.000	1.000	1.000	1.000															1.000	
93	1.000	1.000	1.000		1.000														1.000	
94	1.000	1.000	1.000			1.000													1.000	
95	1.000	1.000	1.000				1.000												1.000	
96	1.000	1.000	1.000					1.000											1.000	
97	1.000	1.000	1.000						1.000										1.000	
98	1.000	1.000	1.000							1.000									1.000	

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Comb.	PP	CM 1	Q	V H1	V H2	V H3	V H4	V H5	V H6	V(0°) H1	V(0°) H2	V(90°) H1	V(90°) H2	V(180°) H1	V(180°) H2	V(270°) H1	V(270°) H2	N(EI)	N(R) 1	N(R) 2
99	1.000	1.000	1.000								1.000								1.000	
100	1.000	1.000	1.000									1.000							1.000	
101	1.000	1.000	1.000										1.000						1.000	
102	1.000	1.000	1.000											1.000					1.000	
103	1.000	1.000	1.000												1.000				1.000	
104	1.000	1.000	1.000													1.000			1.000	
105	1.000	1.000	1.000														1.000		1.000	
106	1.000	1.000	1.000																	1.000
107	1.000	1.000	1.000	1.000																1.000
108	1.000	1.000	1.000		1.000															1.000
109	1.000	1.000	1.000			1.000														1.000
110	1.000	1.000	1.000				1.000													1.000
111	1.000	1.000	1.000					1.000												1.000
112	1.000	1.000	1.000						1.000											1.000
113	1.000	1.000	1.000							1.000										1.000
114	1.000	1.000	1.000								1.000									1.000
115	1.000	1.000	1.000									1.000								1.000
116	1.000	1.000	1.000										1.000							1.000
117	1.000	1.000	1.000											1.000						1.000
118	1.000	1.000	1.000												1.000					1.000
119	1.000	1.000	1.000													1.000				1.000
120	1.000	1.000	1.000														1.000			1.000

1.3. Resultados

1.3.1. Barras

1.3.1.1. Flechas

Referencias:

Pos.: Valor de la coordenada sobre el eje 'X' local del grupo de flecha en el punto donde se produce el valor pésimo de la flecha.
L.: Distancia entre dos puntos de corte consecutivos de la deformada con la recta que une los nudos extremos del grupo de flecha.

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N15/N16	6.795 6.795	10.38 L/963.3	6.795 6.795	1.26 L/(>1000)	6.795 6.795	11.09 L/(>1000)	6.795 6.587	1.46 L/(>1000)
N17/N18	6.795 6.795	9.70 L/(>1000)	7.003 7.003	1.19 L/(>1000)	6.795 6.795	10.33 L/(>1000)	7.003 7.003	1.41 L/(>1000)
N16/N19	18.369 18.577	5.37 L/(>1000)	21.708 21.708	39.91 L/800.5	18.160 19.830	6.94 L/(>1000)	21.708 21.917	42.67 L/815.4
N18/N19	18.369 18.577	5.71 L/(>1000)	21.708 21.708	39.79 L/801.9	18.160 18.577	7.34 L/(>1000)	21.708 22.126	42.53 L/816.6
N37/N34	54.375 54.375	17.61 L/(>1000)	36.250 36.250	175.80 L/412.4	54.375 54.375	21.66 L/(>1000)	36.250 36.250	187.63 L/442.2
N37/N66	1.158 1.158	0.09 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.158 1.158	0.06 L/(>1000)	1.853 1.853	1.36 L/(>1000)
N51/N66	0.977 0.977	0.54 L/(>1000)	1.172 1.172	0.16 L/(>1000)	0.977 0.977	0.57 L/(>1000)	1.172 0.977	0.16 L/(>1000)
N50/N66	2.084 2.084	0.08 L/(>1000)	1.390 1.390	1.57 L/(>1000)	2.084 2.084	0.09 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N50/N67	1.239 1.239	0.07 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.445	0.08 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N49/N67	1.672 1.672	0.22 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.28 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N49/N68	1.523 1.523	0.16 L/(>1000)	0.571 0.571	0.56 L/(>1000)	1.523 1.523	0.19 L/(>1000)	0.571 0.571	0.60 L/(>1000)
N48/N68	2.216 2.216	0.46 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.216 2.216	0.56 L/(>1000)	0.739 2.955	0.57 L/(>1000)
N48/N69	1.600 1.600	0.55 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	0.69 L/(>1000)	0.600 0.600	0.61 L/(>1000)
N47/N69	2.284 2.284	0.19 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.538 2.538	0.17 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N47/N70	1.468 1.468	0.53 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.468 1.468	0.71 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N46/N70	2.092 2.092	0.10 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.10 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N46/N71	1.756 1.756	0.29 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.38 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N45/N71	1.616 1.616	0.39 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.616 1.616	0.56 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N45/N72	0.917 0.917	0.21 L/(>1000)	0.917 0.917	0.44 L/(>1000)	1.146 0.917	0.33 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N44/N72	2.219 2.219	0.23 L/(>1000)	3.051 3.051	0.66 L/(>1000)	2.219 2.219	0.30 L/(>1000)	3.328 3.051	0.66 L/(>1000)
N44/N73	1.911 1.911	0.43 L/(>1000)	0.955 0.955	0.39 L/(>1000)	1.911 1.911	0.50 L/(>1000)	0.955 0.955	0.42 L/(>1000)
N43/N73	1.998 1.998	0.54 L/(>1000)	3.139 3.139	0.65 L/(>1000)	1.998 1.998	0.76 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N43/N74	2.237 2.237	0.49 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.485 2.485	0.54 L/(>1000)	0.994 0.994	0.36 L/(>1000)
N42/N74	2.349 2.349	0.31 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.349 2.349	0.40 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N42/N75	1.808 1.808	0.56 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.808 1.808	0.69 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N41/N75	2.113 2.113	0.19 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.113 2.113	0.24 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N41/N76	1.608 2.947	0.06 L/(>1000)	1.072 1.072	0.22 L/(>1000)	1.608 2.947	0.07 L/(>1000)	1.072 1.072	0.25 L/(>1000)
N40/N76	2.171 2.171	0.21 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.171 2.481	0.29 L/(>1000)	2.791 2.791	0.65 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N40/N77	1.943 1.943	0.03 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.05 L/(>1000)	1.111 1.111	0.23 L/(>1000)
N40/N78	2.289 2.289	0.23 L/(>1000)	2.617 2.617	0.74 L/(>1000)	2.289 2.289	0.32 L/(>1000)	2.617 2.617	0.69 L/(>1000)
N39/N78	2.011 2.011	0.28 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.011 2.299	0.25 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N39/N79	2.349 2.349	0.12 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 2.685	0.11 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N38/N79	2.970 2.970	0.12 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.970 2.673	0.12 L/(>1000)	3.564 3.564	0.76 L/(>1000)
N38/N19	3.430 3.430	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	3.118 3.430	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N34/N80	2.084 2.084	0.03 L/(>1000)	1.853 1.853	1.23 L/(>1000)	1.621 1.853	0.05 L/(>1000)	1.853 1.853	1.33 L/(>1000)
N65/N80	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.55 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N64/N80	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.54 L/(>1000)	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.68 L/(>1000)
N64/N81	1.239 1.239	0.03 L/(>1000)	0.619 0.619	0.73 L/(>1000)	1.239 1.239	0.04 L/(>1000)	0.619 2.271	0.78 L/(>1000)
N63/N81	1.672 1.672	0.21 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.27 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N63/N82	1.713 1.713	0.14 L/(>1000)	0.571 0.571	0.56 L/(>1000)	1.713 1.713	0.18 L/(>1000)	0.571 0.571	0.60 L/(>1000)
N62/N82	2.216 2.216	0.42 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.216 2.216	0.52 L/(>1000)	0.739 2.955	0.57 L/(>1000)
N62/N83	1.600 1.600	0.54 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	0.69 L/(>1000)	0.600 0.600	0.61 L/(>1000)
N61/N83	2.284 2.284	0.19 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.284 2.538	0.18 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N61/N84	1.468 1.468	0.52 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.468 1.468	0.70 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N60/N84	2.092 2.092	0.10 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.10 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N60/N85	1.756 1.756	0.29 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.38 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N59/N85	1.616 1.616	0.38 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.616 1.616	0.55 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N59/N86	0.917 0.917	0.20 L/(>1000)	0.917 0.917	0.44 L/(>1000)	1.146 0.917	0.32 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N58/N86	2.219 2.219	0.23 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.30 L/(>1000)	3.328 3.051	0.66 L/(>1000)
N58/N87	1.911 1.911	0.43 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.50 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N57/N87	1.998 1.998	0.54 L/(>1000)	3.139 3.139	0.65 L/(>1000)	1.998 1.998	0.76 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N57/N88	2.237 2.237	0.49 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.485 2.485	0.54 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N56/N88	2.349 2.349	0.31 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.349 2.349	0.40 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N56/N89	1.808 1.808	0.57 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.808 1.808	0.69 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N55/N89	2.113 2.113	0.19 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.113 2.113	0.24 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N55/N90	1.608 1.608	0.06 L/(>1000)	1.072 1.072	0.23 L/(>1000)	1.608 1.608	0.08 L/(>1000)	1.072 1.072	0.25 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N54/N90	2.171 2.171	0.21 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.171 2.171	0.29 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N54/N91	1.943 1.943	0.03 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.05 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N54/N92	2.289 2.289	0.23 L/(>1000)	2.617 2.617	0.74 L/(>1000)	2.289 2.289	0.31 L/(>1000)	2.617 2.617	0.69 L/(>1000)
N53/N92	2.011 2.011	0.28 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.011 2.299	0.25 L/(>1000)	1.149 1.149	0.40 L/(>1000)
N53/N93	2.349 2.349	0.12 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 2.685	0.11 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N52/N93	2.970 2.970	0.12 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.970 2.673	0.12 L/(>1000)	3.564 3.564	0.76 L/(>1000)
N52/N19	3.742 3.742	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	3.118 3.742	0.01 L/(>1000)	3.430 3.430	0.74 L/(>1000)
N94/N65	6.170 6.170	2.38 L/(>1000)	1.412 1.412	0.36 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.412	0.44 L/(>1000)
N96/N34	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.60 L/(>1000)	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.62 L/(>1000)
N96/N35	1.875 1.875	0.02 L/(>1000)	0.833 0.833	0.70 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.72 L/(>1000)
N97/N35	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.89 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.86 L/(>1000)
N97/N36	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.50 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.51 L/(>1000)
N94/N36	1.305 1.305	0.17 L/(>1000)	1.087 0.870	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 0.870	0.27 L/(>1000)
N98/N37	1.105 0.884	0.26 L/(>1000)	1.547 1.547	1.72 L/(>1000)	1.105 0.884	0.39 L/(>1000)	1.547 1.547	1.74 L/(>1000)
N100/N98	0.625 0.625	0.24 L/(>1000)	1.875 1.875	0.75 L/(>1000)	1.875 0.625	0.33 L/(>1000)	1.875 1.667	0.77 L/(>1000)
N99/N100	2.431 2.652	0.22 L/(>1000)	1.326 1.326	0.96 L/(>1000)	2.652 2.652	0.41 L/(>1000)	1.326 1.326	0.95 L/(>1000)
N101/N99	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.60 L/(>1000)	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.62 L/(>1000)
N95/N101	2.175 2.175	0.23 L/(>1000)	1.087 1.087	0.31 L/(>1000)	1.522 2.175	0.27 L/(>1000)	1.305 1.305	0.39 L/(>1000)
N95/N51	6.170 6.170	2.57 L/(>1000)	1.613 1.613	0.43 L/(>1000)	5.962 5.962	2.77 L/(>1000)	1.412 1.613	0.48 L/(>1000)
N20/N105	6.795 6.795	9.80 L/(>1000)	7.003 7.003	1.22 L/(>1000)	6.795 6.795	10.44 L/(>1000)	7.003 7.003	1.45 L/(>1000)
N106/N110	6.795 6.795	9.81 L/(>1000)	7.003 7.003	1.15 L/(>1000)	6.795 6.795	10.46 L/(>1000)	7.003 7.003	1.40 L/(>1000)
N105/N125	21.708 32.980	3.36 L/(>1000)	21.708 21.708	39.91 L/798.7	21.708 32.771	3.60 L/(>1000)	21.708 22.126	42.65 L/813.4
N110/N125	21.708 21.708	3.44 L/(>1000)	21.708 21.708	39.78 L/800.8	21.708 21.708	3.70 L/(>1000)	21.708 22.126	42.51 L/815.8
N104/N109	54.167 54.167	17.85 L/(>1000)	36.250 36.250	176.17 L/411.5	54.167 18.125	21.93 L/(>1000)	36.250 36.250	188.05 L/441.3
N104/N111	1.853 1.853	0.07 L/(>1000)	1.853 1.853	1.25 L/(>1000)	1.621 1.621	0.08 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N153/N111	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.09 L/(>1000)
N152/N111	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.58 L/(>1000)	2.084 2.084	0.08 L/(>1000)	1.390 1.390	1.72 L/(>1000)
N152/N112	1.445 1.445	0.05 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.445	0.05 L/(>1000)	0.619 0.619	0.80 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N151/N112	1.672 1.672	0.19 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 1.672	0.24 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N151/N113	1.903 1.903	0.79 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.01 L/(>1000)	2.474 2.474	0.66 L/(>1000)
N150/N113	2.463 2.463	0.35 L/(>1000)	2.955 2.955	0.60 L/(>1000)	2.463 2.463	0.44 L/(>1000)	3.201 2.955	0.63 L/(>1000)
N150/N114	1.600 1.600	1.08 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	1.37 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N149/N114	1.523 1.523	0.56 L/(>1000)	3.046 3.046	0.62 L/(>1000)	1.523 1.523	0.63 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N149/N115	2.097 2.097	4.71 L/712.8	0.629 0.629	0.54 L/(>1000)	2.097 2.097	5.93 L/736.7	0.629 0.629	0.58 L/(>1000)
N148/N115	2.615 2.615	4.36 L/959.8	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.51 L/996.6	3.139 3.139	0.70 L/(>1000)
N148/N116	1.536 1.536	2.05 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.536 1.536	2.58 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N147/N116	1.886 1.886	1.49 L/(>1000)	3.233 3.233	0.67 L/(>1000)	1.886 1.886	1.82 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N147/N117	2.291 2.291	4.59 L/798.1	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.80 L/823.7	0.917 0.917	0.49 L/(>1000)
N146/N117	2.773 2.773	5.41 L/820.2	3.328 3.328	0.67 L/(>1000)	2.773 2.773	6.84 L/849.7	3.328 3.051	0.67 L/(>1000)
N146/N118	1.433 1.433	1.30 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.433 1.433	1.68 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N145/N118	1.998 1.998	1.81 L/(>1000)	3.139 3.139	0.65 L/(>1000)	1.998 1.998	2.22 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N145/N119	2.485 2.485	4.49 L/885.3	0.994 0.994	0.35 L/(>1000)	2.485 2.485	5.64 L/914.6	0.994 0.994	0.38 L/(>1000)
N144/N119	2.936 2.936	6.01 L/781.7	3.229 3.229	0.63 L/(>1000)	2.936 2.936	7.63 L/813.9	3.229 3.229	0.62 L/(>1000)
N144/N120	1.291 1.291	1.44 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.291 1.291	1.79 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N143/N120	2.716 2.716	0.61 L/(>1000)	3.018 3.320	0.58 L/(>1000)	2.716 2.415	0.83 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N143/N121	2.947 2.947	2.02 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.56 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N142/N121	2.791 2.791	3.05 L/(>1000)	2.791 2.791	0.67 L/(>1000)	2.791 2.791	3.86 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N142/N122	1.943 1.943	2.09 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.70 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N142/N123	3.271 3.271	5.80 L/901.8	2.944 2.944	0.80 L/(>1000)	3.271 3.271	7.58 L/968.7	2.944 2.944	0.77 L/(>1000)
N141/N123	2.873 2.873	5.41 L/849.5	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.04 L/908.0	1.149 1.149	0.40 L/(>1000)
N141/N124	2.349 2.349	1.14 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.40 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N140/N124	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.46 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N140/N125	2.806 2.806	3.13 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.16 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N109/N126	2.084 2.084	0.04 L/(>1000)	1.853 1.853	1.25 L/(>1000)	1.621 2.084	0.06 L/(>1000)	1.853 1.853	1.36 L/(>1000)
N167/N126	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N166/N126	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.57 L/(>1000)	2.084 2.084	0.07 L/(>1000)	1.390 1.390	1.71 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N166/N127	1.445 1.445	0.03 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.445	0.03 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N165/N127	1.672 1.672	0.18 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.23 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N165/N128	1.903 1.903	0.80 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.01 L/(>1000)	2.474 2.474	0.66 L/(>1000)
N164/N128	2.463 2.463	0.37 L/(>1000)	2.955 2.955	0.60 L/(>1000)	2.463 2.463	0.46 L/(>1000)	3.201 2.955	0.63 L/(>1000)
N164/N129	1.600 1.600	1.09 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	1.38 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N163/N129	1.523 1.523	0.54 L/(>1000)	3.046 3.046	0.62 L/(>1000)	1.523 1.523	0.62 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N163/N130	2.097 2.097	4.71 L/713.1	0.629 0.629	0.54 L/(>1000)	2.097 2.097	5.93 L/737.1	0.629 0.629	0.58 L/(>1000)
N162/N130	2.615 2.615	4.35 L/961.1	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.51 L/998.4	3.139 3.139	0.70 L/(>1000)
N162/N131	1.536 1.536	2.05 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.536 1.536	2.59 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N161/N131	1.886 1.886	1.48 L/(>1000)	3.233 3.233	0.67 L/(>1000)	1.886 1.886	1.81 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N161/N132	2.291 2.291	4.59 L/799.3	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.79 L/825.2	0.917 0.917	0.49 L/(>1000)
N160/N132	2.773 2.773	5.40 L/821.1	3.328 3.328	0.67 L/(>1000)	2.773 2.773	6.83 L/851.0	3.328 3.051	0.67 L/(>1000)
N160/N133	1.433 1.433	1.30 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.433 1.433	1.68 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N159/N133	1.998 1.998	1.81 L/(>1000)	3.139 3.139	0.65 L/(>1000)	1.998 1.998	2.22 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N159/N134	2.485 2.485	4.48 L/888.4	0.994 0.994	0.35 L/(>1000)	2.485 2.485	5.62 L/918.6	0.994 0.994	0.38 L/(>1000)
N158/N134	2.936 2.936	6.01 L/781.9	3.229 3.229	0.63 L/(>1000)	2.936 2.936	7.63 L/814.1	3.229 3.229	0.62 L/(>1000)
N158/N135	1.291 1.291	1.42 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.291 1.291	1.77 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N157/N135	2.716 2.716	0.62 L/(>1000)	3.018 3.320	0.58 L/(>1000)	2.716 2.415	0.84 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N157/N136	2.947 2.947	2.02 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.55 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N156/N136	2.791 2.791	3.06 L/(>1000)	2.791 2.791	0.67 L/(>1000)	2.791 2.791	3.87 L/(>1000)	2.791 2.791	0.63 L/(>1000)
N156/N137	1.943 1.943	2.09 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.70 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N156/N138	3.271 3.271	5.79 L/903.6	2.944 2.944	0.80 L/(>1000)	3.271 3.271	7.57 L/971.2	2.944 2.944	0.77 L/(>1000)
N155/N138	2.873 2.873	5.40 L/850.8	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.03 L/909.7	1.149 1.149	0.40 L/(>1000)
N155/N139	2.349 2.349	1.14 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.39 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N154/N139	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.45 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N154/N125	2.806 2.806	3.13 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.17 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N170/N167	6.170 6.170	2.38 L/(>1000)	1.412 1.412	0.34 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.412	0.43 L/(>1000)
N168/N109	2.210 2.210	0.15 L/(>1000)	1.547 1.547	1.64 L/(>1000)	2.210 2.210	0.18 L/(>1000)	1.547 1.547	1.66 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N168/N108	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.73 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.76 L/(>1000)
N169/N108	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N169/N107	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.53 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N170/N107	1.305 1.305	0.17 L/(>1000)	1.087 1.087	0.24 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N171/N104	1.989 1.989	0.15 L/(>1000)	1.547 1.547	1.64 L/(>1000)	1.989 1.989	0.18 L/(>1000)	1.547 1.547	1.66 L/(>1000)
N103/N171	0.625 0.625	0.03 L/(>1000)	1.667 1.667	0.73 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.875 1.667	0.76 L/(>1000)
N172/N103	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.431 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N102/N172	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N173/N102	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N173/N153	6.170 6.170	2.37 L/(>1000)	1.613 1.613	0.38 L/(>1000)	6.170 6.170	2.53 L/(>1000)	1.412 1.412	0.44 L/(>1000)
N21/N177	6.795 6.795	9.79 L/(>1000)	7.003 7.003	1.15 L/(>1000)	6.795 6.795	10.44 L/(>1000)	7.003 7.003	1.42 L/(>1000)
N178/N182	6.795 6.795	9.80 L/(>1000)	7.003 7.003	1.08 L/(>1000)	6.795 6.795	10.45 L/(>1000)	7.003 7.003	1.36 L/(>1000)
N177/N197	27.553 27.553	2.53 L/(>1000)	21.708 21.708	39.86 L/799.9	27.553 27.553	2.73 L/(>1000)	21.708 22.126	42.62 L/815.1
N182/N197	27.553 27.762	2.60 L/(>1000)	21.708 21.708	39.84 L/800.1	27.553 27.762	2.83 L/(>1000)	21.708 22.126	42.61 L/815.4
N176/N181	17.500 17.500	26.35 L/665.5	36.250 36.250	176.06 L/411.8	17.500 17.500	34.55 L/673.8	36.250 36.250	188.05 L/441.9
N176/N183	1.621 1.621	0.05 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.07 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N225/N183	0.977 0.977	0.53 L/(>1000)	1.368 1.368	0.11 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.368 1.368	0.12 L/(>1000)
N224/N183	2.084 2.084	0.15 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.19 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N224/N184	1.032 0.826	0.03 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.032 1.032	0.04 L/(>1000)	0.619 0.619	0.79 L/(>1000)
N223/N184	1.672 1.672	0.49 L/(>1000)	2.866 2.866	0.70 L/(>1000)	1.672 1.672	0.62 L/(>1000)	2.866 2.866	0.72 L/(>1000)
N223/N185	1.903 1.903	0.97 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.23 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N222/N185	1.970 1.970	0.44 L/(>1000)	2.955 2.955	0.59 L/(>1000)	1.724 1.970	0.53 L/(>1000)	3.201 2.955	0.62 L/(>1000)
N222/N186	1.600 1.600	1.89 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	2.42 L/(>1000)	0.600 0.600	0.61 L/(>1000)
N221/N186	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.61 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.62 L/(>1000)
N221/N187	2.097 2.097	5.38 L/624.1	0.629 0.629	0.53 L/(>1000)	2.097 2.097	6.83 L/648.7	0.629 0.629	0.57 L/(>1000)
N220/N187	2.615 2.615	4.06 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.15 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N220/N188	1.317 1.317	2.34 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.317 1.317	2.97 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N219/N188	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.886 1.886	1.29 L/(>1000)	3.233 2.963	0.67 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N219/N189	2.291 2.291	4.02 L/911.4	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.12 L/948.5	0.917 0.917	0.48 L/(>1000)
N218/N189	2.496 2.496	5.51 L/805.5	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.98 L/836.8	3.328 3.051	0.66 L/(>1000)
N218/N190	0.955 0.955	0.60 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.78 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N217/N190	2.283 2.283	1.85 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.33 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N217/N191	2.734 2.734	3.29 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.734 2.734	4.16 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N216/N191	2.642 2.642	6.35 L/739.9	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.08 L/771.3	3.229 3.229	0.61 L/(>1000)
N216/N192	1.033 1.033	0.68 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.033 1.033	0.82 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N215/N192	2.415 2.415	1.04 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.415 2.415	1.38 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N215/N193	2.947 2.947	2.01 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.55 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N214/N193	2.791 2.791	3.28 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.16 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N214/N194	1.943 1.943	2.17 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.81 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N214/N195	3.271 3.271	5.83 L/897.4	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.67 L/969.1	2.944 2.944	0.78 L/(>1000)
N213/N195	2.873 2.873	5.43 L/846.9	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.11 L/910.2	1.149 1.149	0.40 L/(>1000)
N213/N196	2.349 2.349	1.29 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.69 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N212/N196	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.54 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.73 L/(>1000)
N212/N197	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.79 L/(>1000)
N181/N198	1.853 1.853	0.05 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.621	0.07 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N239/N198	0.977 0.977	0.53 L/(>1000)	1.368 1.368	0.11 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.368 1.368	0.12 L/(>1000)
N238/N198	2.084 2.084	0.17 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.21 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N238/N199	1.032 0.826	0.03 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.032 0.826	0.04 L/(>1000)	0.619 0.619	0.79 L/(>1000)
N237/N199	1.672 1.672	0.50 L/(>1000)	2.866 2.866	0.70 L/(>1000)	1.672 1.672	0.63 L/(>1000)	2.866 2.866	0.72 L/(>1000)
N237/N200	1.903 1.903	0.97 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.23 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N236/N200	1.970 1.970	0.44 L/(>1000)	2.955 2.955	0.59 L/(>1000)	1.724 1.970	0.54 L/(>1000)	3.201 2.955	0.62 L/(>1000)
N236/N201	1.600 1.600	1.89 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	2.42 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N235/N201	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.61 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.62 L/(>1000)
N235/N202	2.097 2.097	5.38 L/624.0	0.629 0.629	0.53 L/(>1000)	2.097 2.097	6.83 L/648.6	0.629 0.629	0.57 L/(>1000)
N234/N202	2.615 2.615	4.06 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.15 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N234/N203	1.317 1.317	2.34 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.317 1.317	2.97 L/(>1000)	0.878 0.878	0.53 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N233/N203	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.886 1.886	1.29 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N233/N204	2.291 2.291	4.03 L/909.8	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.13 L/946.5	0.917 0.917	0.48 L/(>1000)
N232/N204	2.496 2.496	5.51 L/805.0	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.98 L/836.1	3.328 3.051	0.66 L/(>1000)
N232/N205	0.955 0.955	0.60 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.78 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N231/N205	2.283 2.283	1.85 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.33 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N231/N206	2.734 2.734	3.29 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.734 2.734	4.17 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N230/N206	2.642 2.642	6.35 L/739.3	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.08 L/770.6	3.229 3.229	0.61 L/(>1000)
N230/N207	1.033 1.033	0.69 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.033 1.033	0.83 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N229/N207	2.415 2.415	1.04 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.415 2.415	1.38 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N229/N208	2.947 2.947	2.01 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.56 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N228/N208	2.791 2.791	3.28 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.16 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N228/N209	1.943 1.943	2.18 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.82 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N228/N210	3.271 3.271	5.84 L/896.4	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.67 L/967.6	2.944 2.944	0.78 L/(>1000)
N227/N210	2.873 2.873	5.43 L/846.0	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.11 L/909.1	1.149 1.149	0.40 L/(>1000)
N227/N211	2.349 2.349	1.29 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.69 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N226/N211	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.54 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.73 L/(>1000)
N226/N197	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.79 L/(>1000)
N242/N239	6.170 6.170	2.39 L/(>1000)	1.412 1.412	0.32 L/(>1000)	6.170 6.170	2.55 L/(>1000)	1.412 1.412	0.42 L/(>1000)
N240/N181	2.210 2.210	0.11 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N240/N180	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N241/N180	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N241/N179	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N242/N179	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N243/N176	2.210 2.210	0.11 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N175/N243	0.625 0.625	0.02 L/(>1000)	1.667 1.667	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N244/N175	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N174/N244	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.53 L/(>1000)
N245/N174	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.29 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N245/N225	6.170 6.170	2.39 L/(>1000)	1.412 1.412	0.37 L/(>1000)	6.170 6.170	2.55 L/(>1000)	1.412 1.613	0.44 L/(>1000)
N22/N249	6.795 6.795	9.78 L/(>1000)	7.003 7.003	1.12 L/(>1000)	6.795 6.795	10.43 L/(>1000)	7.003 7.003	1.42 L/(>1000)
N250/N254	6.795 6.795	9.78 L/(>1000)	7.003 7.003	1.06 L/(>1000)	6.795 6.795	10.43 L/(>1000)	7.003 7.003	1.36 L/(>1000)
N249/N269	21.500 2.714	2.61 L/(>1000)	21.708 21.708	39.76 L/801.5	21.291 2.714	2.92 L/(>1000)	21.708 22.126	42.56 L/817.5
N254/N269	21.291 2.714	2.73 L/(>1000)	21.708 21.708	39.76 L/801.5	21.291 2.922	3.08 L/(>1000)	21.708 22.126	42.56 L/817.6
N248/N253	40.000 40.000	8.91 L/(>1000)	36.250 36.250	175.64 L/412.8	42.500 40.208	9.98 L/(>1000)	36.250 36.250	187.70 L/443.2
N248/N255	1.853 1.853	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.06 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N297/N255	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N296/N255	2.084 2.084	0.03 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N296/N256	1.445 1.445	0.02 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.445	0.03 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N295/N256	1.672 1.672	0.03 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.03 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N295/N257	1.903 1.903	0.18 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.903 1.903	0.22 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N294/N257	2.463 2.463	0.17 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.21 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N294/N258	1.200 1.200	0.08 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.200 1.200	0.10 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N293/N258	2.284 2.284	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.538 2.538	0.01 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N293/N259	1.258 1.258	0.01 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.468 1.258	0.02 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N292/N259	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N292/N260	1.756 1.756	0.02 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N291/N260	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.01 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N291/N261	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N290/N261	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.01 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N290/N262	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N289/N262	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N289/N263	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N288/N263	2.349 2.349	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.055 2.055	0.02 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N288/N264	2.324 2.324	0.06 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.324 2.066	0.07 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N287/N264	2.113 2.113	0.07 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.113 2.113	0.11 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N287/N265	2.947 2.947	0.34 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.42 L/(>1000)	1.072 1.072	0.26 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N286/N265	3.102 3.102	0.45 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.52 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N286/N266	1.943 1.943	0.13 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.15 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N286/N267	1.962 1.962	0.10 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.12 L/(>1000)	2.617 2.617	0.69 L/(>1000)
N285/N267	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N285/N268	2.014 2.014	0.01 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.014 2.014	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N284/N268	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.57 L/(>1000)	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N284/N269	3.118 3.118	0.00 L/(>1000)	3.430 3.430	0.44 L/(>1000)	3.118 3.118	0.00 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N253/N270	1.853 1.853	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.06 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N311/N270	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N310/N270	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N310/N271	1.445 1.445	0.02 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.445	0.03 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N309/N271	1.672 1.672	0.03 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.04 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N309/N272	1.903 1.903	0.17 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.903 1.903	0.22 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N308/N272	2.463 2.463	0.17 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.21 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N308/N273	1.200 1.200	0.08 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.200 1.200	0.10 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N307/N273	2.284 2.284	0.02 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.284 2.538	0.01 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N307/N274	1.678 1.678	0.01 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.468 1.888	0.02 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N306/N274	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N306/N275	1.756 1.756	0.02 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N305/N275	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.01 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N305/N276	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N304/N276	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.01 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N304/N277	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N303/N277	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N303/N278	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N302/N278	2.349 2.349	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.055 2.055	0.02 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N302/N279	2.324 2.324	0.05 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.324 2.066	0.07 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N301/N279	2.113 2.113	0.07 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.113 2.113	0.12 L/(>1000)	3.320 3.320	0.53 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N301/N280	2.947 2.947	0.34 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.42 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N300/N280	3.102 3.102	0.44 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.52 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N300/N281	1.943 1.943	0.13 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.15 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N300/N282	1.962 1.962	0.10 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.12 L/(>1000)	2.617 2.617	0.69 L/(>1000)
N299/N282	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N299/N283	2.014 2.014	0.01 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.014 2.014	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N298/N283	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.57 L/(>1000)	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N298/N269	3.118 3.118	0.00 L/(>1000)	3.430 3.430	0.44 L/(>1000)	3.118 3.118	0.00 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N314/N311	6.170 6.170	2.38 L/(>1000)	1.412 1.412	0.30 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.210	0.41 L/(>1000)
N312/N253	1.989 1.989	0.13 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 1.989	0.17 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N312/N252	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N313/N252	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N313/N251	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N314/N251	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N315/N248	1.989 1.989	0.14 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 1.989	0.18 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N247/N315	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N316/N247	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N246/N316	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N317/N246	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N317/N297	6.170 6.170	2.38 L/(>1000)	1.412 1.412	0.34 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.412	0.42 L/(>1000)
N23/N321	6.795 6.795	9.79 L/(>1000)	7.003 7.003	1.07 L/(>1000)	6.795 6.795	10.45 L/(>1000)	7.003 7.003	1.40 L/(>1000)
N322/N326	6.795 6.795	9.79 L/(>1000)	6.795 6.795	1.01 L/(>1000)	6.795 6.795	10.45 L/(>1000)	7.003 6.795	1.34 L/(>1000)
N321/N341	21.500 2.922	2.40 L/(>1000)	21.708 21.708	39.79 L/800.8	21.291 2.922	2.66 L/(>1000)	21.708 22.126	42.62 L/817.4
N326/N341	21.291 2.922	2.53 L/(>1000)	21.708 21.708	39.79 L/800.8	21.082 2.922	2.83 L/(>1000)	21.708 22.126	42.62 L/817.5
N320/N325	36.875 36.875	9.43 L/(>1000)	36.250 36.250	175.83 L/412.3	37.083 36.667	10.69 L/(>1000)	36.250 36.250	188.02 L/443.0
N320/N327	1.853 1.853	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.06 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N369/N327	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N368/N327	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.70 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N368/N328	1.652 1.652	0.02 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.858	0.03 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N367/N328	1.194 1.194	0.01 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.433 1.194	0.02 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N367/N329	0.761 0.761	0.03 L/(>1000)	0.571 0.571	0.57 L/(>1000)	0.761 0.761	0.03 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N366/N329	2.216 2.216	0.07 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.216 2.216	0.06 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N366/N330	2.200 2.200	0.01 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 2.401	0.01 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N365/N330	2.031 2.031	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.031	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N365/N331	1.678 1.678	0.02 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.03 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N364/N331	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N364/N332	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N363/N332	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.01 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N363/N333	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.49 L/(>1000)
N362/N333	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.01 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N362/N334	1.911 1.911	0.03 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.03 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N361/N334	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N361/N335	1.988 1.988	0.03 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N360/N335	3.523 3.523	0.00 L/(>1000)	3.229 3.229	0.63 L/(>1000)	1.468 3.523	0.00 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N360/N336	2.582 2.582	0.08 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.324	0.09 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N359/N336	1.811 1.811	0.14 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.18 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N359/N337	0.804 0.804	0.10 L/(>1000)	1.072 1.072	0.23 L/(>1000)	0.804 0.804	0.12 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N358/N337	3.102 3.102	0.17 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.22 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N358/N338	1.943 1.943	0.04 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.06 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N358/N339	1.962 1.962	0.04 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.05 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N357/N339	2.873 2.873	0.01 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.02 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N357/N340	2.685 2.685	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 2.685	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N356/N340	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.57 L/(>1000)	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N356/N341	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 3.118	0.01 L/(>1000)	3.742 3.430	0.75 L/(>1000)
N325/N342	1.853 1.853	0.05 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.07 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N383/N342	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N382/N342	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N382/N343	1.239 0.826	0.02 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 0.826	0.03 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N381/N343	2.388 2.388	0.01 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 2.388	0.02 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N381/N344	0.761 0.761	0.03 L/(>1000)	0.571 0.571	0.57 L/(>1000)	0.761 0.761	0.03 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N380/N344	2.216 2.216	0.06 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.216 2.216	0.06 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N380/N345	2.200 2.200	0.01 L/(>1000)	0.600 0.600	0.58 L/(>1000)	2.000 2.200	0.01 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N379/N345	2.031 2.031	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.284	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N379/N346	1.678 1.678	0.02 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.03 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N378/N346	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N378/N347	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N377/N347	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.01 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N377/N348	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.49 L/(>1000)
N376/N348	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.01 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N376/N349	1.911 1.911	0.03 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.03 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N375/N349	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N375/N350	1.988 1.988	0.03 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N374/N350	3.229 3.229	0.00 L/(>1000)	3.229 3.229	0.63 L/(>1000)	3.229 3.229	0.00 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N374/N351	2.324 2.324	0.08 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.324	0.09 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N373/N351	1.811 1.811	0.14 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.19 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N373/N352	0.804 0.804	0.10 L/(>1000)	1.072 1.072	0.23 L/(>1000)	0.804 1.072	0.12 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N372/N352	3.102 3.102	0.17 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.22 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N372/N353	1.943 1.943	0.04 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.06 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N372/N354	1.962 1.962	0.04 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.05 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N371/N354	2.873 2.873	0.01 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.02 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N371/N355	2.685 2.685	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 2.685	0.00 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N370/N355	2.376 2.376	0.01 L/(>1000)	3.564 3.564	0.57 L/(>1000)	2.673 2.376	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N370/N341	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.75 L/(>1000)
N386/N383	6.170 6.170	2.38 L/(>1000)	1.210 1.210	0.28 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.210	0.40 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N384/N325	1.989 1.989	0.12 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 1.989	0.16 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N384/N324	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N385/N324	2.431 2.431	0.06 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.431	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N385/N323	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N386/N323	1.087 1.087	0.16 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N387/N320	1.989 1.989	0.13 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 1.989	0.17 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N319/N387	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N388/N319	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N318/N388	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N389/N318	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N389/N369	6.170 6.170	2.38 L/(>1000)	1.412 1.412	0.31 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.412	0.41 L/(>1000)
N24/N393	6.795 6.795	9.81 L/(>1000)	6.795 6.795	1.02 L/(>1000)	6.795 6.795	10.48 L/(>1000)	7.003 7.003	1.38 L/(>1000)
N394/N398	6.795 6.795	9.81 L/(>1000)	6.795 6.795	0.97 L/(>1000)	6.795 6.795	10.48 L/(>1000)	7.003 7.003	1.33 L/(>1000)
N393/N413	21.500 2.922	2.33 L/(>1000)	21.708 21.708	39.85 L/799.6	21.291 2.922	2.54 L/(>1000)	21.708 22.126	42.70 L/815.9
N398/N413	21.291 2.922	2.46 L/(>1000)	21.708 21.708	39.85 L/799.7	21.082 2.922	2.71 L/(>1000)	21.708 22.126	42.70 L/816.0
N392/N397	36.667 36.667	9.89 L/(>1000)	36.250 36.250	176.08 L/411.7	36.667 36.667	11.36 L/(>1000)	36.250 36.250	188.38 L/442.7
N392/N399	1.853 1.853	0.05 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.06 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N441/N399	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N440/N399	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N440/N400	1.858 1.858	0.04 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.652 1.858	0.04 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N439/N400	1.433 1.433	0.03 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.433 1.194	0.04 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N439/N401	1.713 1.713	0.18 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.713 1.523	0.23 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N438/N401	2.463 2.463	0.11 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.18 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N438/N402	1.400 1.400	0.07 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.400 1.200	0.09 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N437/N402	1.777 1.777	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 1.777	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N437/N403	1.678 1.678	0.04 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.05 L/(>1000)	0.629 0.629	0.58 L/(>1000)
N436/N403	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.02 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N436/N404	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.756 1.756	0.04 L/(>1000)	0.878 0.878	0.53 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N435/N404	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N435/N405	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.04 L/(>1000)	0.917 0.917	0.49 L/(>1000)
N434/N405	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.01 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N434/N406	1.911 1.911	0.02 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N433/N406	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N433/N407	1.988 1.988	0.02 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N432/N407	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.055 1.761	0.01 L/(>1000)	3.229 3.229	0.62 L/(>1000)
N432/N408	2.582 2.582	0.09 L/(>1000)	1.033 1.033	0.29 L/(>1000)	2.582 2.582	0.11 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N431/N408	1.811 1.811	0.23 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.25 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N431/N409	2.679 2.679	0.31 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	0.43 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N430/N409	3.102 3.102	0.35 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.52 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N430/N410	1.943 1.943	0.11 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.16 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N430/N411	1.962 1.962	0.07 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.12 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N429/N411	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.586	0.07 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N429/N412	3.021 3.021	0.01 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 3.021	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N428/N412	2.673 2.673	0.02 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.673 2.673	0.02 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N428/N413	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N397/N414	1.853 1.853	0.05 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.853	0.06 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N455/N414	0.977 0.977	0.53 L/(>1000)	1.368 1.368	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N454/N414	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N454/N415	1.858 1.858	0.03 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.652 1.858	0.04 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N453/N415	1.433 1.433	0.03 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.433 1.433	0.04 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N453/N416	1.713 1.713	0.18 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.713 1.523	0.23 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N452/N416	2.463 2.463	0.12 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.18 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N452/N417	1.400 1.400	0.07 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.200 1.200	0.09 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N451/N417	1.777 1.777	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.031	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N451/N418	1.678 1.678	0.04 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.468	0.05 L/(>1000)	0.629 0.629	0.58 L/(>1000)
N450/N418	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.02 L/(>1000)	3.139 3.139	0.67 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N450/N419	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.756 1.756	0.04 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N449/N419	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N449/N420	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.04 L/(>1000)	0.917 0.917	0.49 L/(>1000)
N448/N420	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.01 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N448/N421	1.911 1.911	0.02 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N447/N421	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N447/N422	1.988 1.988	0.02 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N446/N422	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.62 L/(>1000)
N446/N423	2.582 2.582	0.09 L/(>1000)	1.033 1.033	0.29 L/(>1000)	2.582 2.582	0.11 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N445/N423	1.811 1.811	0.23 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.25 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N445/N424	2.679 2.679	0.32 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	0.43 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N444/N424	3.102 3.102	0.35 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.53 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N444/N425	1.943 1.943	0.11 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.16 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N444/N426	1.962 1.962	0.07 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.12 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N443/N426	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.07 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N443/N427	2.685 2.685	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.349 2.685	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N442/N427	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.673 2.673	0.02 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N442/N413	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N458/N455	6.170 6.170	2.39 L/(>1000)	1.210 1.210	0.26 L/(>1000)	6.170 6.170	2.55 L/(>1000)	1.613 1.210	0.40 L/(>1000)
N456/N397	1.989 1.989	0.11 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 1.989	0.16 L/(>1000)	1.547 1.547	1.66 L/(>1000)
N456/N396	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N457/N396	2.431 2.431	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.431	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N457/N395	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N458/N395	1.305 1.305	0.15 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.087	0.21 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N459/N392	1.989 1.989	0.12 L/(>1000)	1.547 1.547	1.63 L/(>1000)	1.989 1.989	0.17 L/(>1000)	1.547 1.547	1.66 L/(>1000)
N391/N459	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N460/N391	2.431 2.431	0.05 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.431	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N390/N460	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N461/N390	1.305 1.305	0.15 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N461/N441	6.170 6.170	2.39 L/(>1000)	1.210 1.210	0.29 L/(>1000)	6.170 6.170	2.55 L/(>1000)	1.210 1.210	0.40 L/(>1000)
N25/N465	6.795 6.795	9.87 L/(>1000)	6.795 6.795	0.97 L/(>1000)	6.795 6.795	10.55 L/(>1000)	6.795 6.795	1.35 L/(>1000)
N466/N470	6.795 6.795	9.87 L/(>1000)	6.795 6.795	0.92 L/(>1000)	6.795 6.795	10.55 L/(>1000)	6.795 6.795	1.31 L/(>1000)
N465/N485	21.708 3.131	3.90 L/(>1000)	21.708 21.708	39.97 L/796.9	21.708 3.340	4.15 L/(>1000)	21.708 22.126	42.86 L/809.3
N470/N485	21.708 3.131	3.99 L/(>1000)	21.708 21.708	39.95 L/797.3	21.708 3.340	4.28 L/(>1000)	21.708 22.126	42.83 L/809.7
N464/N469	54.583 54.583	36.83 L/(>1000)	36.250 36.250	177.08 L/409.4	54.583 54.375	45.79 L/(>1000)	36.250 36.250	189.71 L/440.9
N464/N471	2.084 2.084	0.04 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.621 2.084	0.06 L/(>1000)	1.853 1.853	1.37 L/(>1000)
N513/N471	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.57 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N512/N471	2.084 2.084	0.12 L/(>1000)	1.390 1.390	1.58 L/(>1000)	2.084 2.084	0.16 L/(>1000)	1.390 1.390	1.73 L/(>1000)
N512/N472	1.445 1.445	0.05 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.445	0.06 L/(>1000)	0.619 0.619	0.81 L/(>1000)
N511/N472	1.672 1.672	0.50 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 1.672	0.63 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N511/N473	1.903 1.903	1.03 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.30 L/(>1000)	2.474 2.474	0.66 L/(>1000)
N510/N473	1.724 1.724	0.34 L/(>1000)	2.955 2.955	0.61 L/(>1000)	1.724 1.724	0.46 L/(>1000)	3.201 2.955	0.64 L/(>1000)
N510/N474	1.600 1.600	1.98 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	2.53 L/(>1000)	0.600 0.600	0.63 L/(>1000)
N509/N474	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.62 L/(>1000)	3.046 3.046	0.19 L/(>1000)	3.046 3.046	0.64 L/(>1000)
N509/N475	2.097 2.097	5.45 L/616.2	0.629 0.629	0.54 L/(>1000)	2.097 2.097	6.92 L/642.6	0.629 0.629	0.59 L/(>1000)
N508/N475	2.615 2.615	4.04 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.13 L/(>1000)	3.139 3.139	0.70 L/(>1000)
N508/N476	1.317 1.317	2.38 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.317	3.02 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N507/N476	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.68 L/(>1000)	1.886 1.886	1.28 L/(>1000)	3.233 2.963	0.69 L/(>1000)
N507/N477	2.291 2.291	4.03 L/909.7	0.917 0.917	0.46 L/(>1000)	2.291 2.291	5.14 L/951.2	0.917 0.917	0.50 L/(>1000)
N506/N477	2.496 2.496	5.52 L/803.5	3.328 3.328	0.67 L/(>1000)	2.496 2.496	6.99 L/833.3	3.328 3.051	0.68 L/(>1000)
N506/N478	0.955 0.955	0.56 L/(>1000)	0.955 0.955	0.41 L/(>1000)	0.955 0.955	0.75 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N505/N478	2.283 2.283	1.87 L/(>1000)	3.139 3.139	0.66 L/(>1000)	2.283 2.283	2.35 L/(>1000)	3.139 3.139	0.65 L/(>1000)
N505/N479	2.734 2.734	3.22 L/(>1000)	0.994 0.994	0.35 L/(>1000)	2.734 2.734	4.10 L/(>1000)	0.994 0.994	0.38 L/(>1000)
N504/N479	2.642 2.642	6.39 L/734.9	3.229 3.229	0.64 L/(>1000)	2.642 2.642	8.13 L/765.9	3.229 3.229	0.63 L/(>1000)
N504/N480	1.033 1.033	0.57 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.033 1.033	0.71 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N503/N480	2.415 2.415	1.03 L/(>1000)	3.018 3.320	0.58 L/(>1000)	2.415 2.415	1.45 L/(>1000)	3.320 3.320	0.55 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N503/N481	2.947 2.947	2.03 L/(>1000)	1.072 1.072	0.24 L/(>1000)	2.947 2.947	2.54 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N502/N481	2.791 2.791	3.42 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.22 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N502/N482	1.943 1.943	2.20 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.81 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N502/N483	3.271 3.271	5.87 L/891.1	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.69 L/955.3	2.944 2.944	0.77 L/(>1000)
N501/N483	2.873 2.873	5.42 L/847.8	1.149 1.149	0.25 L/(>1000)	2.873 2.873	7.10 L/909.7	1.149 1.149	0.40 L/(>1000)
N501/N484	2.349 2.349	1.30 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.69 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N500/N484	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.46 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N500/N485	2.806 2.806	3.16 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N469/N486	2.084 2.084	0.05 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.621 2.084	0.06 L/(>1000)	1.853 1.853	1.37 L/(>1000)
N527/N486	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.57 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N526/N486	2.084 2.084	0.11 L/(>1000)	1.390 1.390	1.58 L/(>1000)	2.084 2.084	0.15 L/(>1000)	1.390 1.390	1.73 L/(>1000)
N526/N487	1.445 1.445	0.05 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.239	0.06 L/(>1000)	0.619 0.619	0.81 L/(>1000)
N525/N487	1.672 1.672	0.50 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 1.672	0.63 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N525/N488	1.903 1.903	1.02 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.30 L/(>1000)	2.474 2.474	0.66 L/(>1000)
N524/N488	1.724 1.724	0.35 L/(>1000)	2.955 2.955	0.61 L/(>1000)	1.724 1.724	0.47 L/(>1000)	3.201 2.955	0.64 L/(>1000)
N524/N489	1.600 1.600	1.98 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	2.53 L/(>1000)	0.600 0.600	0.63 L/(>1000)
N523/N489	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.62 L/(>1000)	3.046 3.046	0.19 L/(>1000)	3.046 3.046	0.64 L/(>1000)
N523/N490	2.097 2.097	5.45 L/616.2	0.629 0.629	0.54 L/(>1000)	2.097 2.097	6.92 L/642.7	0.629 0.629	0.59 L/(>1000)
N522/N490	2.615 2.615	4.04 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.13 L/(>1000)	3.139 3.139	0.70 L/(>1000)
N522/N491	1.317 1.317	2.38 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.317	3.02 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N521/N491	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.68 L/(>1000)	1.886 1.886	1.28 L/(>1000)	3.233 2.963	0.69 L/(>1000)
N521/N492	2.291 2.291	4.02 L/911.1	0.917 0.917	0.46 L/(>1000)	2.291 2.291	5.13 L/952.9	0.917 0.917	0.50 L/(>1000)
N520/N492	2.496 2.496	5.52 L/804.1	3.328 3.328	0.67 L/(>1000)	2.496 2.496	6.98 L/834.1	3.328 3.051	0.68 L/(>1000)
N520/N493	0.955 0.955	0.56 L/(>1000)	0.955 0.955	0.41 L/(>1000)	0.955 0.955	0.75 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N519/N493	2.283 2.283	1.87 L/(>1000)	3.139 3.139	0.66 L/(>1000)	2.283 2.283	2.35 L/(>1000)	3.139 3.139	0.65 L/(>1000)
N519/N494	2.734 2.734	3.21 L/(>1000)	0.994 0.994	0.35 L/(>1000)	2.734 2.734	4.09 L/(>1000)	0.994 0.994	0.38 L/(>1000)
N518/N494	2.642 2.642	6.39 L/735.4	3.229 3.229	0.64 L/(>1000)	2.642 2.642	8.12 L/766.5	3.229 3.229	0.63 L/(>1000)
N518/N495	1.033 1.033	0.57 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.033 1.033	0.71 L/(>1000)	1.033 1.033	0.31 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N517/N495	2.415 2.415	1.04 L/(>1000)	3.018 3.320	0.58 L/(>1000)	2.415 2.415	1.46 L/(>1000)	3.320 3.320	0.55 L/(>1000)
N517/N496	2.947 2.947	2.03 L/(>1000)	1.072 1.072	0.24 L/(>1000)	2.947 2.947	2.53 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N516/N496	2.791 2.791	3.42 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.22 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N516/N497	1.943 1.943	2.20 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.81 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N516/N498	3.271 3.271	5.86 L/892.4	2.944 2.944	0.80 L/(>1000)	3.271 3.271	7.68 L/957.2	2.944 2.944	0.77 L/(>1000)
N515/N498	2.873 2.873	5.42 L/848.7	1.149 1.149	0.25 L/(>1000)	2.873 2.873	7.09 L/910.8	1.149 1.149	0.40 L/(>1000)
N515/N499	2.349 2.349	1.30 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.69 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N514/N499	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.46 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N514/N485	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N530/N527	6.170 6.170	2.39 L/(>1000)	1.210 1.210	0.26 L/(>1000)	6.170 6.170	2.56 L/(>1000)	1.613 1.210	0.43 L/(>1000)
N528/N469	2.210 2.210	0.13 L/(>1000)	1.547 1.547	1.65 L/(>1000)	2.210 2.210	0.18 L/(>1000)	1.547 1.547	1.68 L/(>1000)
N528/N468	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.73 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.76 L/(>1000)
N529/N468	2.431 2.431	0.06 L/(>1000)	1.326 1.326	0.91 L/(>1000)	2.431 2.431	0.07 L/(>1000)	1.326 1.326	0.89 L/(>1000)
N529/N467	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.53 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.55 L/(>1000)
N530/N467	1.087 1.087	0.15 L/(>1000)	1.087 1.087	0.24 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N531/N464	2.210 2.210	0.14 L/(>1000)	1.547 1.547	1.65 L/(>1000)	2.210 1.989	0.19 L/(>1000)	1.547 1.547	1.68 L/(>1000)
N463/N531	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.73 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.76 L/(>1000)
N532/N463	2.431 2.431	0.06 L/(>1000)	1.326 1.326	0.91 L/(>1000)	2.652 2.431	0.07 L/(>1000)	1.326 1.326	0.89 L/(>1000)
N462/N532	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.53 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.55 L/(>1000)
N533/N462	1.305 1.305	0.15 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N533/N513	6.170 6.170	2.39 L/(>1000)	1.210 1.210	0.27 L/(>1000)	6.170 6.170	2.56 L/(>1000)	1.412 1.210	0.41 L/(>1000)
N26/N537	6.795 6.795	9.91 L/(>1000)	6.795 6.795	0.88 L/(>1000)	6.795 6.795	10.63 L/(>1000)	7.003 6.795	1.33 L/(>1000)
N538/N542	6.795 6.795	9.91 L/(>1000)	6.795 6.795	0.85 L/(>1000)	6.795 6.795	10.63 L/(>1000)	7.003 7.003	1.32 L/(>1000)
N537/N557	27.553 27.553	3.28 L/(>1000)	21.708 21.708	40.32 L/790.6	27.553 27.553	3.44 L/(>1000)	21.708 22.126	43.36 L/804.1
N542/N557	27.553 27.553	3.38 L/(>1000)	21.708 21.708	40.33 L/790.5	27.553 27.553	3.57 L/(>1000)	21.708 22.126	43.36 L/804.0
N536/N541	17.500 17.500	25.40 L/669.2	36.250 36.250	178.25 L/406.7	17.500 17.500	33.44 L/687.4	36.250 38.125	191.56 L/436.4
N536/N543	1.853 1.853	0.06 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.390 1.853	0.07 L/(>1000)	1.853 1.853	1.37 L/(>1000)
N585/N543	0.977 0.977	0.53 L/(>1000)	1.368 1.368	0.09 L/(>1000)	0.977 0.977	0.57 L/(>1000)	1.368 1.368	0.11 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N584/N543	2.084 2.084	0.19 L/(>1000)	1.390 1.390	1.57 L/(>1000)	2.084 2.084	0.24 L/(>1000)	1.390 1.390	1.72 L/(>1000)
N584/N544	1.858 1.858	0.06 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.652 1.858	0.06 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N583/N544	1.672 1.672	0.47 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.60 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N583/N545	1.903 1.903	1.00 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.27 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N582/N545	1.970 1.970	0.52 L/(>1000)	2.955 2.955	0.60 L/(>1000)	1.970 1.970	0.59 L/(>1000)	3.201 2.955	0.63 L/(>1000)
N582/N546	1.600 1.600	1.88 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	2.42 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N581/N546	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.62 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N581/N547	2.097 2.097	5.38 L/623.8	0.629 0.629	0.54 L/(>1000)	2.097 2.097	6.82 L/646.7	0.629 0.629	0.58 L/(>1000)
N580/N547	2.615 2.615	4.06 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.16 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N580/N548	1.317 1.317	2.35 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.317	2.97 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N579/N548	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	1.886 1.886	1.29 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N579/N549	2.291 2.291	4.03 L/909.2	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.12 L/942.3	0.917 0.917	0.49 L/(>1000)
N578/N549	2.496 2.496	5.52 L/804.6	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.99 L/836.6	3.328 3.051	0.68 L/(>1000)
N578/N550	0.955 0.955	0.60 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.78 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N577/N550	2.283 2.283	1.85 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.34 L/(>1000)	3.139 3.139	0.65 L/(>1000)
N577/N551	2.734 2.734	3.29 L/(>1000)	0.994 0.994	0.35 L/(>1000)	2.734 2.734	4.15 L/(>1000)	0.994 0.994	0.38 L/(>1000)
N576/N551	2.642 2.642	6.36 L/738.9	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.09 L/770.9	3.229 3.229	0.62 L/(>1000)
N576/N552	1.291 1.291	0.73 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.033 1.033	0.85 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N575/N552	2.415 2.415	1.18 L/(>1000)	3.018 3.018	0.58 L/(>1000)	2.415 2.415	1.47 L/(>1000)	3.320 3.320	0.55 L/(>1000)
N575/N553	2.679 2.679	1.93 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	2.48 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N574/N553	2.791 2.791	3.17 L/(>1000)	2.791 2.791	0.69 L/(>1000)	2.791 2.791	4.11 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N574/N554	1.943 1.943	2.13 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.79 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N574/N555	3.271 3.271	5.77 L/906.8	2.944 2.944	0.82 L/(>1000)	3.271 3.271	7.61 L/986.6	2.944 2.944	0.79 L/(>1000)
N573/N555	2.873 2.873	5.43 L/847.0	1.149 1.149	0.27 L/(>1000)	2.873 2.873	7.11 L/911.3	1.149 1.149	0.40 L/(>1000)
N573/N556	2.349 2.349	1.28 L/(>1000)	3.692 3.692	0.91 L/(>1000)	2.349 2.349	1.68 L/(>1000)	3.692 3.692	0.97 L/(>1000)
N572/N556	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.54 L/(>1000)	1.782 1.782	1.48 L/(>1000)	3.564 3.564	0.73 L/(>1000)
N572/N557	2.806 2.806	3.14 L/(>1000)	3.430 3.430	0.46 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.79 L/(>1000)
N541/N558	1.853 1.853	0.07 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.621 1.621	0.08 L/(>1000)	1.853 1.853	1.37 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N599/N558	0.977 0.977	0.53 L/(>1000)	1.368 1.368	0.09 L/(>1000)	0.977 0.977	0.57 L/(>1000)	1.368 1.368	0.11 L/(>1000)
N598/N558	2.084 2.084	0.20 L/(>1000)	1.390 1.390	1.57 L/(>1000)	2.084 2.084	0.25 L/(>1000)	1.390 1.390	1.72 L/(>1000)
N598/N559	1.858 1.858	0.06 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.652 1.652	0.06 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N597/N559	1.672 1.672	0.47 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.60 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N597/N560	1.903 1.903	1.00 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.27 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N596/N560	1.970 1.970	0.51 L/(>1000)	2.955 2.955	0.60 L/(>1000)	1.970 1.970	0.58 L/(>1000)	3.201 2.955	0.63 L/(>1000)
N596/N561	1.600 1.600	1.88 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	2.41 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N595/N561	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.62 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N595/N562	2.097 2.097	5.38 L/623.8	0.629 0.629	0.54 L/(>1000)	2.097 2.097	6.82 L/646.6	0.629 0.629	0.58 L/(>1000)
N594/N562	2.615 2.615	4.06 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.16 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N594/N563	1.317 1.317	2.35 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.317	2.97 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N593/N563	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	1.886 1.886	1.29 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N593/N564	2.291 2.291	4.04 L/907.8	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.13 L/940.7	0.917 0.917	0.49 L/(>1000)
N592/N564	2.496 2.496	5.52 L/804.0	3.328 3.328	0.66 L/(>1000)	2.496 2.496	7.00 L/835.8	3.328 3.051	0.68 L/(>1000)
N592/N565	0.955 0.955	0.61 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.78 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N591/N565	2.283 2.283	1.85 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.34 L/(>1000)	3.139 3.139	0.65 L/(>1000)
N591/N566	2.734 2.734	3.30 L/(>1000)	0.994 0.994	0.35 L/(>1000)	2.734 2.734	4.16 L/(>1000)	0.994 0.994	0.38 L/(>1000)
N590/N566	2.642 2.642	6.36 L/738.4	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.10 L/770.3	3.229 3.229	0.62 L/(>1000)
N590/N567	1.291 1.291	0.74 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.033 1.033	0.86 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N589/N567	2.415 2.415	1.17 L/(>1000)	3.018 3.018	0.58 L/(>1000)	2.415 2.415	1.46 L/(>1000)	3.320 3.320	0.55 L/(>1000)
N589/N568	2.679 2.679	1.93 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.49 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N588/N568	2.791 2.791	3.18 L/(>1000)	2.791 2.791	0.69 L/(>1000)	2.791 2.791	4.11 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N588/N569	1.943 1.943	2.14 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.80 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N588/N570	3.271 3.271	5.78 L/905.4	2.944 2.944	0.82 L/(>1000)	3.271 3.271	7.62 L/984.7	2.944 2.944	0.79 L/(>1000)
N587/N570	2.873 2.873	5.43 L/846.1	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.11 L/910.2	1.149 1.149	0.40 L/(>1000)
N587/N571	2.349 2.349	1.29 L/(>1000)	3.692 3.692	0.91 L/(>1000)	2.349 2.349	1.68 L/(>1000)	3.692 3.692	0.97 L/(>1000)
N586/N571	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.54 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.73 L/(>1000)
N586/N557	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.46 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.79 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N602/N599	6.170 6.170	2.42 L/(>1000)	2.628 1.008	0.26 L/(>1000)	6.170 6.170	2.59 L/(>1000)	1.613 1.008	0.45 L/(>1000)
N600/N541	2.431 2.431	0.11 L/(>1000)	1.547 1.547	1.64 L/(>1000)	2.210 2.431	0.20 L/(>1000)	1.547 1.547	1.68 L/(>1000)
N600/N540	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.76 L/(>1000)
N601/N540	2.431 2.431	0.07 L/(>1000)	1.326 1.326	0.91 L/(>1000)	2.431 2.431	0.08 L/(>1000)	1.326 1.326	0.89 L/(>1000)
N601/N539	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N602/N539	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N603/N536	2.431 2.431	0.10 L/(>1000)	1.547 1.547	1.64 L/(>1000)	2.210 2.210	0.20 L/(>1000)	1.547 1.547	1.68 L/(>1000)
N535/N603	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.76 L/(>1000)
N604/N535	2.431 2.431	0.06 L/(>1000)	1.326 1.326	0.91 L/(>1000)	2.431 2.431	0.08 L/(>1000)	1.326 1.326	0.89 L/(>1000)
N534/N604	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N605/N534	1.087 1.087	0.15 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N605/N585	6.170 6.170	2.42 L/(>1000)	1.210 1.008	0.26 L/(>1000)	6.170 6.170	2.59 L/(>1000)	1.613 1.210	0.43 L/(>1000)
N27/N609	6.795 6.795	9.98 L/(>1000)	6.795 6.795	0.86 L/(>1000)	6.795 6.795	10.77 L/(>1000)	7.003 6.795	1.39 L/(>1000)
N610/N614	6.795 6.795	9.98 L/(>1000)	6.795 6.795	0.84 L/(>1000)	6.795 6.795	10.77 L/(>1000)	7.003 6.795	1.38 L/(>1000)
N609/N629	21.291 2.922	3.30 L/(>1000)	21.708 21.708	40.59 L/784.9	20.873 3.131	3.68 L/(>1000)	21.708 21.917	43.91 L/801.5
N614/N629	21.082 2.922	3.44 L/(>1000)	21.708 21.708	40.58 L/785.1	20.873 2.922	3.88 L/(>1000)	21.708 21.917	43.90 L/801.7
N608/N613	42.708 45.625	9.23 L/(>1000)	36.250 36.250	179.58 L/403.7	45.417 41.667	11.03 L/(>1000)	36.250 34.375	194.17 L/429.3
N608/N615	1.853 1.853	0.06 L/(>1000)	1.853 1.853	1.27 L/(>1000)	1.621 1.853	0.07 L/(>1000)	1.853 1.853	1.39 L/(>1000)
N657/N615	0.977 0.977	0.54 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.58 L/(>1000)	1.172 1.368	0.10 L/(>1000)
N656/N615	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.59 L/(>1000)	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.75 L/(>1000)
N656/N616	1.445 1.445	0.08 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.652	0.08 L/(>1000)	0.619 2.271	0.81 L/(>1000)
N655/N616	1.911 1.911	0.05 L/(>1000)	2.866 2.866	0.73 L/(>1000)	1.672 1.911	0.08 L/(>1000)	2.866 2.866	0.76 L/(>1000)
N655/N617	2.094 2.094	0.22 L/(>1000)	0.571 0.571	0.58 L/(>1000)	2.094 2.094	0.27 L/(>1000)	0.571 0.571	0.63 L/(>1000)
N654/N617	2.463 2.463	0.32 L/(>1000)	3.201 0.739	0.53 L/(>1000)	2.463 2.463	0.36 L/(>1000)	0.739 0.985	0.59 L/(>1000)
N654/N618	1.200 1.200	0.11 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.200 1.400	0.15 L/(>1000)	0.600 0.600	0.64 L/(>1000)
N653/N618	2.284 2.284	0.05 L/(>1000)	3.046 3.046	0.64 L/(>1000)	2.031 2.284	0.05 L/(>1000)	3.046 3.046	0.66 L/(>1000)
N653/N619	1.678 1.678	0.06 L/(>1000)	0.629 0.629	0.54 L/(>1000)	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.59 L/(>1000)
N652/N619	2.092 2.092	0.03 L/(>1000)	3.139 3.139	0.66 L/(>1000)	2.092 2.092	0.04 L/(>1000)	3.139 3.139	0.68 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N652/N620	1.756 1.756	0.07 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.756 1.756	0.10 L/(>1000)	0.878 0.878	0.55 L/(>1000)
N651/N620	2.155 2.155	0.03 L/(>1000)	3.233 3.233	0.68 L/(>1000)	2.155 2.155	0.04 L/(>1000)	3.233 2.963	0.70 L/(>1000)
N651/N621	1.833 1.833	0.07 L/(>1000)	0.917 0.917	0.46 L/(>1000)	1.833 1.833	0.10 L/(>1000)	0.917 0.917	0.50 L/(>1000)
N650/N621	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.67 L/(>1000)	2.219 2.219	0.04 L/(>1000)	3.328 3.051	0.69 L/(>1000)
N650/N622	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.41 L/(>1000)	1.911 1.911	0.10 L/(>1000)	0.955 0.955	0.45 L/(>1000)
N649/N622	2.283 2.283	0.03 L/(>1000)	3.139 3.139	0.66 L/(>1000)	2.283 2.283	0.03 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N649/N623	1.988 1.988	0.07 L/(>1000)	0.994 0.994	0.35 L/(>1000)	1.988 1.988	0.09 L/(>1000)	0.994 0.994	0.39 L/(>1000)
N648/N623	2.642 2.642	0.01 L/(>1000)	3.229 3.229	0.65 L/(>1000)	2.349 2.349	0.02 L/(>1000)	3.229 3.229	0.64 L/(>1000)
N648/N624	2.324 2.324	0.11 L/(>1000)	1.033 1.033	0.30 L/(>1000)	2.324 2.324	0.11 L/(>1000)	1.033 1.033	0.33 L/(>1000)
N647/N624	1.811 1.811	0.21 L/(>1000)	3.018 3.018	0.59 L/(>1000)	1.811 1.811	0.21 L/(>1000)	3.320 3.320	0.56 L/(>1000)
N647/N625	3.215 3.215	0.45 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 3.215	0.55 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N646/N625	3.102 3.102	0.65 L/(>1000)	2.791 2.791	0.71 L/(>1000)	3.102 3.102	0.76 L/(>1000)	2.791 2.791	0.69 L/(>1000)
N646/N626	1.943 1.943	0.19 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.22 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N646/N627	1.962 1.962	0.16 L/(>1000)	2.617 2.617	0.76 L/(>1000)	1.962 1.962	0.19 L/(>1000)	2.617 2.617	0.71 L/(>1000)
N645/N627	2.873 2.873	0.07 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.08 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N645/N628	2.349 2.349	0.01 L/(>1000)	3.692 3.692	0.95 L/(>1000)	2.685 2.349	0.02 L/(>1000)	3.692 3.356	1.04 L/(>1000)
N644/N628	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.970 2.970	0.02 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N644/N629	3.118 3.118	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N613/N630	1.853 1.853	0.07 L/(>1000)	1.853 1.853	1.27 L/(>1000)	1.621 1.853	0.07 L/(>1000)	1.853 1.853	1.39 L/(>1000)
N671/N630	0.977 0.977	0.54 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.58 L/(>1000)	1.172 1.172	0.10 L/(>1000)
N670/N630	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.59 L/(>1000)	2.084 2.084	0.07 L/(>1000)	1.390 1.390	1.75 L/(>1000)
N670/N631	1.445 1.445	0.08 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.445	0.08 L/(>1000)	0.619 2.271	0.81 L/(>1000)
N669/N631	1.911 1.911	0.06 L/(>1000)	2.866 2.866	0.73 L/(>1000)	1.672 1.911	0.08 L/(>1000)	2.866 2.866	0.76 L/(>1000)
N669/N632	2.094 2.094	0.22 L/(>1000)	0.571 0.571	0.58 L/(>1000)	2.094 2.094	0.27 L/(>1000)	0.571 0.571	0.63 L/(>1000)
N668/N632	2.463 2.463	0.32 L/(>1000)	3.201 0.739	0.53 L/(>1000)	2.463 2.463	0.35 L/(>1000)	0.739 0.985	0.59 L/(>1000)
N668/N633	1.200 1.200	0.11 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.200 1.200	0.14 L/(>1000)	0.600 0.600	0.64 L/(>1000)
N667/N633	2.284 2.284	0.05 L/(>1000)	3.046 3.046	0.64 L/(>1000)	2.031 2.284	0.05 L/(>1000)	3.046 3.046	0.66 L/(>1000)
N667/N634	1.678 1.678	0.06 L/(>1000)	0.629 0.629	0.54 L/(>1000)	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.59 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N666/N634	2.092 2.092	0.03 L/(>1000)	3.139 3.139	0.66 L/(>1000)	2.092 2.092	0.04 L/(>1000)	3.139 3.139	0.68 L/(>1000)
N666/N635	1.756 1.756	0.07 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.756 1.756	0.10 L/(>1000)	0.878 0.878	0.55 L/(>1000)
N665/N635	2.155 2.155	0.03 L/(>1000)	3.233 3.233	0.68 L/(>1000)	2.155 2.155	0.04 L/(>1000)	3.233 2.963	0.70 L/(>1000)
N665/N636	1.833 1.833	0.08 L/(>1000)	0.917 0.917	0.46 L/(>1000)	1.833 1.833	0.10 L/(>1000)	0.917 0.917	0.50 L/(>1000)
N664/N636	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.67 L/(>1000)	2.219 2.219	0.04 L/(>1000)	3.328 3.051	0.69 L/(>1000)
N664/N637	1.911 1.911	0.08 L/(>1000)	0.955 0.955	0.41 L/(>1000)	1.911 1.911	0.10 L/(>1000)	0.955 0.955	0.45 L/(>1000)
N663/N637	2.283 2.283	0.03 L/(>1000)	3.139 3.139	0.66 L/(>1000)	2.283 2.283	0.03 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N663/N638	1.988 1.988	0.08 L/(>1000)	0.994 0.994	0.35 L/(>1000)	1.988 1.988	0.09 L/(>1000)	0.994 0.994	0.39 L/(>1000)
N662/N638	2.642 2.642	0.02 L/(>1000)	3.229 3.229	0.65 L/(>1000)	2.349 2.349	0.02 L/(>1000)	3.229 3.229	0.64 L/(>1000)
N662/N639	2.324 2.324	0.11 L/(>1000)	1.033 1.033	0.30 L/(>1000)	2.324 2.324	0.11 L/(>1000)	1.033 1.033	0.33 L/(>1000)
N661/N639	1.811 1.811	0.20 L/(>1000)	3.018 3.018	0.59 L/(>1000)	1.811 1.811	0.20 L/(>1000)	3.320 3.320	0.56 L/(>1000)
N661/N640	2.947 2.947	0.45 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.54 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N660/N640	3.102 3.102	0.64 L/(>1000)	2.791 2.791	0.71 L/(>1000)	3.102 3.102	0.75 L/(>1000)	2.791 2.791	0.69 L/(>1000)
N660/N641	1.943 1.943	0.19 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.22 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N660/N642	1.962 1.962	0.16 L/(>1000)	2.617 2.617	0.76 L/(>1000)	1.962 1.962	0.19 L/(>1000)	2.617 2.617	0.71 L/(>1000)
N659/N642	2.873 2.873	0.07 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.09 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N659/N643	2.349 2.349	0.01 L/(>1000)	3.692 3.692	0.95 L/(>1000)	2.685 2.349	0.02 L/(>1000)	3.692 3.356	1.04 L/(>1000)
N658/N643	2.970 2.970	0.02 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.970 2.970	0.02 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N658/N629	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 3.118	0.02 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N674/N671	6.170 6.170	2.43 L/(>1000)	2.837 1.008	0.33 L/(>1000)	6.170 6.170	2.62 L/(>1000)	1.815 1.008	0.49 L/(>1000)
N672/N613	1.989 1.989	0.10 L/(>1000)	1.547 1.547	1.66 L/(>1000)	2.210 1.989	0.19 L/(>1000)	1.547 1.547	1.70 L/(>1000)
N672/N612	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.73 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.77 L/(>1000)
N673/N612	2.431 2.431	0.06 L/(>1000)	1.326 1.326	0.92 L/(>1000)	2.431 2.431	0.07 L/(>1000)	1.326 1.326	0.91 L/(>1000)
N673/N611	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.53 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.55 L/(>1000)
N674/N611	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N675/N608	1.989 1.989	0.11 L/(>1000)	1.547 1.547	1.66 L/(>1000)	2.210 1.989	0.19 L/(>1000)	1.547 1.547	1.70 L/(>1000)
N607/N675	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.73 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.875 1.875	0.77 L/(>1000)
N676/N607	2.431 2.431	0.06 L/(>1000)	1.326 1.326	0.92 L/(>1000)	2.431 2.431	0.08 L/(>1000)	1.326 1.326	0.91 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N606/N676	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.53 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.55 L/(>1000)
N677/N606	1.087 1.087	0.15 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N677/N657	6.170 6.170	2.43 L/(>1000)	4.920 1.008	0.32 L/(>1000)	6.170 6.170	2.62 L/(>1000)	1.613 1.008	0.47 L/(>1000)
N28/N681	6.795 6.795	10.14 L/986.2	6.795 6.795	0.84 L/(>1000)	6.795 6.795	11.05 L/(>1000)	7.003 6.795	1.46 L/(>1000)
N682/N686	6.795 6.795	10.14 L/986.3	6.795 7.212	0.81 L/(>1000)	6.795 6.795	11.05 L/(>1000)	7.003 7.003	1.45 L/(>1000)
N681/N701	20.665 2.922	3.16 L/(>1000)	21.708 21.708	41.19 L/773.4	20.247 2.922	3.49 L/(>1000)	21.708 21.708	45.00 L/785.8
N686/N701	20.665 2.922	3.31 L/(>1000)	21.708 21.708	41.16 L/773.8	20.038 2.922	3.69 L/(>1000)	21.708 21.708	44.98 L/786.2
N680/N685	38.333 38.333	9.72 L/(>1000)	36.250 36.250	182.46 L/397.3	38.333 37.500	11.77 L/(>1000)	36.250 34.375	199.46 L/415.7
N680/N687	1.853 1.853	0.06 L/(>1000)	1.853 1.853	1.29 L/(>1000)	1.621 1.853	0.07 L/(>1000)	1.853 1.853	1.43 L/(>1000)
N729/N687	0.977 0.977	0.55 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.59 L/(>1000)	0.977 1.172	0.10 L/(>1000)
N728/N687	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.62 L/(>1000)	2.084 2.084	0.08 L/(>1000)	1.390 1.390	1.80 L/(>1000)
N728/N688	1.652 1.652	0.13 L/(>1000)	0.619 0.619	0.76 L/(>1000)	1.652 1.652	0.12 L/(>1000)	0.619 2.271	0.83 L/(>1000)
N727/N688	1.433 1.433	0.08 L/(>1000)	2.866 2.866	0.74 L/(>1000)	1.433 1.194	0.13 L/(>1000)	2.866 2.866	0.78 L/(>1000)
N727/N689	0.761 0.761	0.13 L/(>1000)	0.571 0.571	0.59 L/(>1000)	0.761 0.761	0.15 L/(>1000)	0.571 0.571	0.64 L/(>1000)
N726/N689	2.463 2.463	0.22 L/(>1000)	3.201 0.739	0.54 L/(>1000)	2.463 2.216	0.24 L/(>1000)	0.739 0.739	0.61 L/(>1000)
N726/N690	2.000 2.000	0.06 L/(>1000)	0.600 0.600	0.59 L/(>1000)	1.600 2.000	0.10 L/(>1000)	0.600 0.600	0.65 L/(>1000)
N725/N690	2.031 2.031	0.05 L/(>1000)	3.046 3.046	0.65 L/(>1000)	2.031 2.284	0.05 L/(>1000)	3.046 3.046	0.68 L/(>1000)
N725/N691	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.55 L/(>1000)	1.678 1.678	0.12 L/(>1000)	0.629 0.629	0.60 L/(>1000)
N724/N691	2.092 2.092	0.03 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.092 2.092	0.05 L/(>1000)	3.139 3.139	0.70 L/(>1000)
N724/N692	1.756 1.756	0.08 L/(>1000)	0.878 0.878	0.51 L/(>1000)	1.756 1.756	0.12 L/(>1000)	0.878 0.878	0.56 L/(>1000)
N723/N692	2.155 2.155	0.03 L/(>1000)	3.233 3.233	0.69 L/(>1000)	2.155 2.155	0.04 L/(>1000)	3.233 3.233	0.72 L/(>1000)
N723/N693	1.833 1.833	0.07 L/(>1000)	0.917 0.917	0.47 L/(>1000)	1.833 1.833	0.11 L/(>1000)	0.917 0.917	0.52 L/(>1000)
N722/N693	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.68 L/(>1000)	2.219 2.219	0.04 L/(>1000)	3.328 3.051	0.71 L/(>1000)
N722/N694	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.42 L/(>1000)	1.911 1.911	0.10 L/(>1000)	0.955 0.955	0.46 L/(>1000)
N721/N694	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.283 2.283	0.03 L/(>1000)	3.425 3.139	0.68 L/(>1000)
N721/N695	1.988 1.988	0.06 L/(>1000)	0.994 0.994	0.36 L/(>1000)	1.988 1.988	0.08 L/(>1000)	0.994 0.994	0.40 L/(>1000)
N720/N695	2.055 2.055	0.03 L/(>1000)	3.229 3.229	0.66 L/(>1000)	2.055 1.761	0.05 L/(>1000)	3.229 3.229	0.66 L/(>1000)
N720/N696	2.582 2.582	0.17 L/(>1000)	1.033 1.033	0.31 L/(>1000)	2.582 2.582	0.20 L/(>1000)	1.033 1.033	0.35 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N719/N696	1.811 1.811	0.50 L/(>1000)	3.018 3.018	0.60 L/(>1000)	1.811 1.811	0.62 L/(>1000)	3.320 3.320	0.59 L/(>1000)
N719/N697	1.072 1.072	0.30 L/(>1000)	1.072 1.072	0.24 L/(>1000)	1.072 1.072	0.37 L/(>1000)	1.072 1.072	0.27 L/(>1000)
N718/N697	3.102 3.102	0.43 L/(>1000)	2.791 2.791	0.72 L/(>1000)	3.102 3.102	0.55 L/(>1000)	2.791 2.791	0.71 L/(>1000)
N718/N698	1.943 1.943	0.12 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	0.16 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N718/N699	1.962 1.962	0.11 L/(>1000)	2.617 2.617	0.77 L/(>1000)	1.962 1.962	0.15 L/(>1000)	2.617 2.944	0.73 L/(>1000)
N717/N699	2.873 2.873	0.04 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N717/N700	2.685 2.685	0.01 L/(>1000)	3.692 3.692	0.96 L/(>1000)	2.685 2.685	0.02 L/(>1000)	3.692 3.356	1.06 L/(>1000)
N716/N700	2.673 2.673	0.02 L/(>1000)	3.267 3.564	0.57 L/(>1000)	2.673 2.673	0.03 L/(>1000)	3.564 3.564	0.78 L/(>1000)
N716/N701	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.45 L/(>1000)	2.806 2.806	0.02 L/(>1000)	3.742 3.430	0.76 L/(>1000)
N685/N702	1.853 1.853	0.07 L/(>1000)	1.853 1.853	1.29 L/(>1000)	1.621 2.084	0.07 L/(>1000)	1.853 1.853	1.43 L/(>1000)
N743/N702	0.977 0.977	0.55 L/(>1000)	1.172 1.172	0.06 L/(>1000)	0.977 0.977	0.59 L/(>1000)	0.977 1.172	0.10 L/(>1000)
N742/N702	2.084 2.084	0.07 L/(>1000)	1.390 1.390	1.62 L/(>1000)	2.084 2.084	0.09 L/(>1000)	1.390 1.390	1.80 L/(>1000)
N742/N703	1.652 1.652	0.12 L/(>1000)	0.619 0.619	0.76 L/(>1000)	1.652 1.652	0.11 L/(>1000)	0.619 2.271	0.83 L/(>1000)
N741/N703	1.433 1.433	0.08 L/(>1000)	2.866 2.866	0.74 L/(>1000)	1.433 1.433	0.12 L/(>1000)	2.866 2.866	0.77 L/(>1000)
N741/N704	0.761 0.761	0.13 L/(>1000)	0.571 0.571	0.59 L/(>1000)	0.761 0.761	0.14 L/(>1000)	0.571 0.571	0.64 L/(>1000)
N740/N704	2.463 2.463	0.21 L/(>1000)	3.201 0.739	0.54 L/(>1000)	2.463 2.216	0.22 L/(>1000)	0.739 0.739	0.61 L/(>1000)
N740/N705	2.000 2.000	0.06 L/(>1000)	0.600 0.600	0.59 L/(>1000)	1.600 2.000	0.10 L/(>1000)	0.600 0.600	0.65 L/(>1000)
N739/N705	2.031 2.031	0.05 L/(>1000)	3.046 3.046	0.65 L/(>1000)	2.031 2.031	0.05 L/(>1000)	3.046 3.046	0.68 L/(>1000)
N739/N706	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.55 L/(>1000)	1.678 1.678	0.12 L/(>1000)	0.629 0.629	0.60 L/(>1000)
N738/N706	2.092 2.092	0.03 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.092 2.092	0.05 L/(>1000)	3.139 3.139	0.70 L/(>1000)
N738/N707	1.756 1.756	0.08 L/(>1000)	0.878 0.878	0.51 L/(>1000)	1.756 1.756	0.12 L/(>1000)	0.878 0.878	0.56 L/(>1000)
N737/N707	2.155 2.155	0.03 L/(>1000)	3.233 3.233	0.69 L/(>1000)	2.155 2.155	0.04 L/(>1000)	3.233 3.233	0.72 L/(>1000)
N737/N708	1.833 1.833	0.07 L/(>1000)	0.917 0.917	0.47 L/(>1000)	1.833 1.833	0.11 L/(>1000)	0.917 0.917	0.52 L/(>1000)
N736/N708	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.68 L/(>1000)	2.219 2.219	0.04 L/(>1000)	3.328 3.051	0.71 L/(>1000)
N736/N709	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.42 L/(>1000)	1.911 1.911	0.10 L/(>1000)	0.955 0.955	0.46 L/(>1000)
N735/N709	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.283 2.283	0.03 L/(>1000)	3.425 3.139	0.68 L/(>1000)
N735/N710	1.988 1.988	0.06 L/(>1000)	0.994 0.994	0.36 L/(>1000)	1.988 1.988	0.08 L/(>1000)	0.994 0.994	0.40 L/(>1000)
N734/N710	2.055 2.055	0.03 L/(>1000)	3.229 3.229	0.66 L/(>1000)	2.055 1.761	0.04 L/(>1000)	3.229 3.229	0.66 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N734/N711	2.582 2.582	0.17 L/(>1000)	1.033 1.033	0.31 L/(>1000)	2.582 2.582	0.19 L/(>1000)	1.033 1.033	0.35 L/(>1000)
N733/N711	1.811 1.811	0.48 L/(>1000)	3.018 3.018	0.60 L/(>1000)	1.811 1.811	0.60 L/(>1000)	3.320 3.320	0.59 L/(>1000)
N733/N712	1.072 1.072	0.30 L/(>1000)	1.072 1.072	0.24 L/(>1000)	1.072 1.072	0.36 L/(>1000)	1.072 1.072	0.27 L/(>1000)
N732/N712	3.102 3.102	0.42 L/(>1000)	2.791 2.791	0.72 L/(>1000)	3.102 3.102	0.54 L/(>1000)	2.791 2.791	0.71 L/(>1000)
N732/N713	1.943 1.943	0.12 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	0.15 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N732/N714	1.962 1.962	0.11 L/(>1000)	2.617 2.617	0.77 L/(>1000)	1.962 1.962	0.14 L/(>1000)	2.617 2.944	0.73 L/(>1000)
N731/N714	2.586 2.586	0.04 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N731/N715	2.685 2.685	0.01 L/(>1000)	3.692 3.692	0.96 L/(>1000)	2.685 2.349	0.02 L/(>1000)	3.692 3.356	1.06 L/(>1000)
N730/N715	2.970 2.970	0.01 L/(>1000)	3.267 3.564	0.57 L/(>1000)	2.970 2.970	0.03 L/(>1000)	3.564 3.564	0.78 L/(>1000)
N730/N701	2.806 2.806	0.02 L/(>1000)	3.430 3.430	0.45 L/(>1000)	2.806 2.806	0.02 L/(>1000)	3.742 3.430	0.76 L/(>1000)
N746/N743	6.170 6.170	2.46 L/(>1000)	2.837 4.712	0.41 L/(>1000)	6.170 6.170	2.69 L/(>1000)	2.420 4.712	0.53 L/(>1000)
N744/N685	2.210 2.210	0.11 L/(>1000)	1.547 1.547	1.68 L/(>1000)	2.210 2.431	0.21 L/(>1000)	1.547 1.547	1.75 L/(>1000)
N744/N684	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.74 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.79 L/(>1000)
N745/N684	2.210 2.210	0.07 L/(>1000)	1.326 1.326	0.93 L/(>1000)	2.431 2.210	0.08 L/(>1000)	1.326 1.326	0.93 L/(>1000)
N745/N683	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.57 L/(>1000)
N746/N683	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 0.870	0.31 L/(>1000)
N747/N680	2.210 2.210	0.11 L/(>1000)	1.547 1.547	1.68 L/(>1000)	2.210 2.210	0.21 L/(>1000)	1.547 1.547	1.75 L/(>1000)
N679/N747	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.74 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.79 L/(>1000)
N748/N679	2.431 2.431	0.07 L/(>1000)	1.326 1.326	0.93 L/(>1000)	2.431 2.431	0.08 L/(>1000)	1.326 1.326	0.93 L/(>1000)
N678/N748	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.57 L/(>1000)
N749/N678	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 0.870	0.30 L/(>1000)
N749/N729	6.170 6.170	2.47 L/(>1000)	4.712 4.712	0.40 L/(>1000)	6.170 6.170	2.69 L/(>1000)	1.815 4.920	0.51 L/(>1000)
N29/N753	6.795 6.795	10.39 L/962.4	6.795 7.212	0.81 L/(>1000)	6.795 6.795	11.53 L/977.1	7.003 7.212	1.53 L/(>1000)
N754/N758	6.795 6.795	10.39 L/962.4	6.795 7.212	0.78 L/(>1000)	6.795 6.795	11.53 L/977.1	7.003 7.003	1.52 L/(>1000)
N753/N773	20.665 2.922	3.77 L/(>1000)	21.708 21.708	42.19 L/755.2	20.038 2.922	4.02 L/(>1000)	21.708 21.708	46.89 L/762.6
N758/N773	20.456 2.922	3.92 L/(>1000)	21.708 21.708	42.12 L/756.2	19.830 2.922	4.23 L/(>1000)	21.708 21.708	46.81 L/763.6
N752/N757	38.542 38.542	9.80 L/(>1000)	36.250 36.250	186.96 L/387.8	39.375 37.083	11.88 L/(>1000)	36.250 34.375	208.13 L/395.2
N752/N759	2.084 2.084	0.06 L/(>1000)	1.853 1.853	1.32 L/(>1000)	2.084 2.084	0.06 L/(>1000)	1.853 1.853	1.49 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N801/N759	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.05 L/(>1000)	0.977 0.977	0.62 L/(>1000)	0.977 1.172	0.10 L/(>1000)
N800/N759	2.084 2.084	0.06 L/(>1000)	1.390 1.390	1.66 L/(>1000)	2.084 2.084	0.08 L/(>1000)	1.390 1.390	1.88 L/(>1000)
N800/N760	1.445 1.445	0.17 L/(>1000)	0.619 0.619	0.79 L/(>1000)	1.652 1.445	0.18 L/(>1000)	0.619 0.619	0.87 L/(>1000)
N799/N760	1.672 1.672	0.17 L/(>1000)	2.866 2.866	0.76 L/(>1000)	1.672 1.672	0.29 L/(>1000)	2.866 2.866	0.81 L/(>1000)
N799/N761	0.761 0.761	0.18 L/(>1000)	0.571 0.571	0.60 L/(>1000)	0.761 0.761	0.24 L/(>1000)	0.571 0.571	0.67 L/(>1000)
N798/N761	2.463 2.463	0.34 L/(>1000)	3.201 0.739	0.55 L/(>1000)	2.463 2.463	0.37 L/(>1000)	0.739 0.739	0.63 L/(>1000)
N798/N762	1.800 1.800	0.10 L/(>1000)	0.600 0.600	0.60 L/(>1000)	1.600 1.800	0.17 L/(>1000)	0.600 0.600	0.67 L/(>1000)
N797/N762	2.031 2.031	0.06 L/(>1000)	3.046 3.046	0.66 L/(>1000)	2.031 2.031	0.06 L/(>1000)	3.046 3.046	0.70 L/(>1000)
N797/N763	1.678 1.678	0.12 L/(>1000)	0.629 0.629	0.56 L/(>1000)	1.678 1.678	0.15 L/(>1000)	0.629 0.629	0.63 L/(>1000)
N796/N763	2.092 2.092	0.05 L/(>1000)	3.139 3.139	0.69 L/(>1000)	2.092 2.092	0.06 L/(>1000)	3.139 3.139	0.73 L/(>1000)
N796/N764	1.756 1.756	0.11 L/(>1000)	0.878 0.878	0.52 L/(>1000)	1.756 1.756	0.15 L/(>1000)	0.878 0.878	0.59 L/(>1000)
N795/N764	2.155 2.155	0.04 L/(>1000)	3.233 3.233	0.70 L/(>1000)	2.155 2.155	0.06 L/(>1000)	3.233 3.233	0.74 L/(>1000)
N795/N765	1.833 1.833	0.09 L/(>1000)	0.917 0.917	0.48 L/(>1000)	1.833 1.833	0.14 L/(>1000)	0.917 0.917	0.54 L/(>1000)
N794/N765	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.70 L/(>1000)	2.219 2.219	0.05 L/(>1000)	3.328 3.328	0.74 L/(>1000)
N794/N766	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.43 L/(>1000)	1.911 1.911	0.12 L/(>1000)	0.955 0.955	0.49 L/(>1000)
N793/N766	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.69 L/(>1000)	2.283 2.283	0.04 L/(>1000)	3.425 3.139	0.72 L/(>1000)
N793/N767	1.740 1.740	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)	1.740 1.740	0.06 L/(>1000)	0.994 0.994	0.43 L/(>1000)
N792/N767	2.055 2.055	0.04 L/(>1000)	3.229 3.229	0.67 L/(>1000)	2.055 2.055	0.08 L/(>1000)	3.229 2.936	0.69 L/(>1000)
N792/N768	2.582 2.582	0.19 L/(>1000)	1.033 1.033	0.32 L/(>1000)	2.582 2.582	0.33 L/(>1000)	1.033 1.033	0.37 L/(>1000)
N791/N768	1.811 1.811	0.60 L/(>1000)	3.018 3.018	0.62 L/(>1000)	1.811 1.811	1.09 L/(>1000)	3.320 3.018	0.63 L/(>1000)
N791/N769	3.483 3.483	0.36 L/(>1000)	1.072 1.072	0.25 L/(>1000)	1.072 3.483	0.64 L/(>1000)	1.072 1.072	0.29 L/(>1000)
N790/N769	3.102 3.102	0.64 L/(>1000)	2.791 2.791	0.74 L/(>1000)	3.102 3.102	1.04 L/(>1000)	2.791 2.481	0.75 L/(>1000)
N790/N770	1.943 1.943	0.19 L/(>1000)	1.388 1.388	0.15 L/(>1000)	1.943 1.943	0.31 L/(>1000)	1.111 1.388	0.26 L/(>1000)
N790/N771	1.962 1.962	0.17 L/(>1000)	2.617 2.617	0.78 L/(>1000)	1.962 1.962	0.26 L/(>1000)	2.944 2.944	0.76 L/(>1000)
N789/N771	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.11 L/(>1000)	1.149 1.149	0.43 L/(>1000)
N789/N772	2.685 2.685	0.02 L/(>1000)	3.692 3.692	0.99 L/(>1000)	2.349 2.685	0.02 L/(>1000)	3.692 3.692	1.12 L/(>1000)
N788/N772	2.673 2.673	0.02 L/(>1000)	3.267 3.267	0.60 L/(>1000)	2.673 2.673	0.03 L/(>1000)	3.564 3.564	0.83 L/(>1000)
N788/N773	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.46 L/(>1000)	2.806 2.806	0.02 L/(>1000)	3.742 3.430	0.79 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N757/N774	2.084 2.084	0.07 L/(>1000)	1.853 1.853	1.32 L/(>1000)	2.084 2.084	0.07 L/(>1000)	1.853 1.853	1.49 L/(>1000)
N815/N774	0.977 0.977	0.56 L/(>1000)	0.977 0.977	0.05 L/(>1000)	0.977 0.977	0.62 L/(>1000)	0.977 0.977	0.10 L/(>1000)
N814/N774	2.084 2.084	0.07 L/(>1000)	1.390 1.390	1.66 L/(>1000)	2.084 2.084	0.10 L/(>1000)	1.390 1.390	1.87 L/(>1000)
N814/N775	1.445 1.445	0.15 L/(>1000)	0.619 0.619	0.78 L/(>1000)	1.652 1.445	0.16 L/(>1000)	0.619 0.619	0.87 L/(>1000)
N813/N775	1.672 1.672	0.18 L/(>1000)	2.866 2.866	0.76 L/(>1000)	1.672 1.672	0.29 L/(>1000)	2.866 2.866	0.81 L/(>1000)
N813/N776	0.761 0.761	0.17 L/(>1000)	0.571 0.571	0.60 L/(>1000)	0.761 0.761	0.23 L/(>1000)	0.571 0.571	0.67 L/(>1000)
N812/N776	2.463 2.463	0.32 L/(>1000)	3.201 0.739	0.55 L/(>1000)	2.463 2.216	0.35 L/(>1000)	0.739 0.739	0.63 L/(>1000)
N812/N777	1.800 1.800	0.10 L/(>1000)	0.600 0.600	0.60 L/(>1000)	1.600 2.000	0.17 L/(>1000)	0.600 0.600	0.67 L/(>1000)
N811/N777	2.031 2.031	0.06 L/(>1000)	3.046 3.046	0.66 L/(>1000)	2.031 2.031	0.06 L/(>1000)	3.046 3.046	0.70 L/(>1000)
N811/N778	1.678 1.678	0.12 L/(>1000)	0.629 0.629	0.56 L/(>1000)	1.678 1.678	0.15 L/(>1000)	0.629 0.629	0.63 L/(>1000)
N810/N778	2.092 2.092	0.05 L/(>1000)	3.139 3.139	0.69 L/(>1000)	2.092 2.092	0.06 L/(>1000)	3.139 3.139	0.73 L/(>1000)
N810/N779	1.756 1.756	0.11 L/(>1000)	0.878 0.878	0.52 L/(>1000)	1.756 1.756	0.15 L/(>1000)	0.878 0.878	0.59 L/(>1000)
N809/N779	2.155 2.155	0.04 L/(>1000)	3.233 3.233	0.70 L/(>1000)	2.155 2.155	0.06 L/(>1000)	3.233 3.233	0.74 L/(>1000)
N809/N780	1.833 1.833	0.09 L/(>1000)	0.917 0.917	0.48 L/(>1000)	1.833 1.833	0.14 L/(>1000)	0.917 0.917	0.54 L/(>1000)
N808/N780	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.70 L/(>1000)	2.219 2.219	0.05 L/(>1000)	3.328 3.328	0.74 L/(>1000)
N808/N781	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.43 L/(>1000)	1.911 1.911	0.12 L/(>1000)	0.955 0.955	0.49 L/(>1000)
N807/N781	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.69 L/(>1000)	2.283 2.283	0.04 L/(>1000)	3.425 3.139	0.72 L/(>1000)
N807/N782	1.740 1.740	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)	1.740 1.740	0.06 L/(>1000)	0.994 0.994	0.43 L/(>1000)
N806/N782	2.055 2.055	0.04 L/(>1000)	3.229 3.229	0.67 L/(>1000)	2.055 2.055	0.08 L/(>1000)	3.229 2.936	0.69 L/(>1000)
N806/N783	2.582 2.582	0.19 L/(>1000)	1.033 1.033	0.32 L/(>1000)	2.582 2.582	0.33 L/(>1000)	1.033 1.033	0.37 L/(>1000)
N805/N783	1.811 1.811	0.59 L/(>1000)	3.018 3.018	0.62 L/(>1000)	1.811 1.811	1.10 L/(>1000)	3.320 3.018	0.63 L/(>1000)
N805/N784	3.483 3.483	0.35 L/(>1000)	1.072 1.072	0.25 L/(>1000)	1.072 3.483	0.64 L/(>1000)	1.072 1.072	0.29 L/(>1000)
N804/N784	3.102 3.102	0.63 L/(>1000)	2.791 2.791	0.74 L/(>1000)	3.102 3.102	1.04 L/(>1000)	2.791 2.481	0.75 L/(>1000)
N804/N785	1.943 1.943	0.18 L/(>1000)	1.388 1.388	0.15 L/(>1000)	1.943 1.943	0.31 L/(>1000)	1.111 1.388	0.26 L/(>1000)
N804/N786	1.962 1.962	0.16 L/(>1000)	2.617 2.617	0.78 L/(>1000)	1.962 1.962	0.26 L/(>1000)	2.944 2.944	0.76 L/(>1000)
N803/N786	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.11 L/(>1000)	1.149 1.149	0.43 L/(>1000)
N803/N787	2.349 2.349	0.02 L/(>1000)	3.692 3.692	0.99 L/(>1000)	2.349 2.685	0.02 L/(>1000)	3.692 3.692	1.11 L/(>1000)
N802/N787	2.970 2.970	0.02 L/(>1000)	3.267 3.267	0.60 L/(>1000)	2.673 2.970	0.03 L/(>1000)	3.564 3.564	0.83 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N802/N773	2.806 2.806	0.02 L/(>1000)	3.430 3.430	0.46 L/(>1000)	2.806 2.806	0.03 L/(>1000)	3.742 3.430	0.79 L/(>1000)
N818/N815	6.170 6.170	2.53 L/(>1000)	3.045 4.712	0.50 L/(>1000)	6.170 6.170	2.80 L/(>1000)	2.420 4.712	0.59 L/(>1000)
N816/N757	2.210 2.210	0.14 L/(>1000)	1.547 1.547	1.72 L/(>1000)	2.210 2.210	0.23 L/(>1000)	1.547 1.547	1.83 L/(>1000)
N816/N756	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.76 L/(>1000)	1.875 1.875	0.03 L/(>1000)	0.625 0.625	0.83 L/(>1000)
N817/N756	2.210 2.210	0.07 L/(>1000)	1.326 1.326	0.95 L/(>1000)	2.431 2.210	0.08 L/(>1000)	1.326 1.547	0.97 L/(>1000)
N817/N755	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.55 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.59 L/(>1000)
N818/N755	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.32 L/(>1000)
N819/N752	2.210 2.210	0.13 L/(>1000)	1.547 1.547	1.72 L/(>1000)	2.210 2.210	0.23 L/(>1000)	1.547 1.547	1.82 L/(>1000)
N751/N819	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.76 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.875 1.875	0.83 L/(>1000)
N820/N751	2.210 2.210	0.07 L/(>1000)	1.326 1.326	0.95 L/(>1000)	2.431 2.210	0.08 L/(>1000)	1.326 1.547	0.97 L/(>1000)
N750/N820	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.55 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.59 L/(>1000)
N821/N750	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.32 L/(>1000)
N821/N801	6.170 6.170	2.53 L/(>1000)	4.712 4.712	0.48 L/(>1000)	6.170 6.170	2.80 L/(>1000)	2.420 4.712	0.57 L/(>1000)
N30/N825	6.795 6.795	10.87 L/920.3	7.212 7.212	0.82 L/(>1000)	6.795 6.795	12.47 L/933.9	7.003 7.420	1.56 L/(>1000)
N826/N830	6.795 6.795	10.86 L/920.6	7.212 7.212	0.85 L/(>1000)	6.795 6.795	12.46 L/934.2	7.003 7.212	1.56 L/(>1000)
N825/N845	17.325 17.325	9.59 L/(>1000)	21.708 21.708	44.19 L/723.1	17.325 17.534	11.75 L/(>1000)	21.708 21.708	50.74 L/727.0
N830/N845	17.325 17.325	9.82 L/(>1000)	21.708 21.708	43.91 L/727.2	17.325 17.325	12.03 L/(>1000)	21.708 21.708	50.40 L/731.4
N824/N829	36.250 36.250	9.99 L/(>1000)	36.250 36.250	195.14 L/371.5	42.083 36.250	12.17 L/(>1000)	36.042 36.042	223.71 L/377.6
N824/N831	2.316 2.316	0.05 L/(>1000)	1.853 1.853	1.41 L/(>1000)	2.084 2.316	0.06 L/(>1000)	1.853 1.853	1.64 L/(>1000)
N873/N831	0.977 0.977	0.58 L/(>1000)	0.977 0.977	0.07 L/(>1000)	0.977 0.977	0.67 L/(>1000)	0.977 0.977	0.11 L/(>1000)
N872/N831	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.76 L/(>1000)	2.084 2.084	0.18 L/(>1000)	1.390 1.390	2.05 L/(>1000)
N872/N832	1.652 1.652	0.30 L/(>1000)	0.619 0.619	0.85 L/(>1000)	1.858 1.858	0.32 L/(>1000)	0.619 0.619	0.98 L/(>1000)
N871/N832	1.433 1.433	0.36 L/(>1000)	2.866 2.866	0.84 L/(>1000)	1.433 1.194	0.46 L/(>1000)	2.866 2.866	0.92 L/(>1000)
N871/N833	2.284 2.284	0.65 L/(>1000)	2.474 2.474	0.71 L/(>1000)	2.284 2.284	1.01 L/(>1000)	2.474 2.474	0.82 L/(>1000)
N870/N833	2.216 2.216	1.70 L/(>1000)	2.955 2.955	0.72 L/(>1000)	2.216 2.216	2.28 L/(>1000)	2.955 2.955	0.81 L/(>1000)
N870/N834	1.800 1.800	0.42 L/(>1000)	0.600 0.600	0.67 L/(>1000)	2.200 2.200	0.36 L/(>1000)	0.600 0.600	0.77 L/(>1000)
N869/N834	1.777 1.777	0.30 L/(>1000)	3.046 3.046	0.71 L/(>1000)	2.284 1.777	0.46 L/(>1000)	3.046 3.046	0.78 L/(>1000)
N869/N835	2.307 2.307	4.46 L/696.4	0.629 0.629	0.62 L/(>1000)	2.307 2.307	6.37 L/706.0	0.629 0.629	0.72 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N868/N835	2.615 2.615	6.15 L/680.5	3.139 3.139	0.75 L/(>1000)	2.615 2.615	8.40 L/686.8	3.139 3.139	0.82 L/(>1000)
N868/N836	1.097 1.097	1.59 L/(>1000)	0.878 0.878	0.56 L/(>1000)	1.097 1.097	2.36 L/(>1000)	0.878 0.878	0.65 L/(>1000)
N867/N836	1.347 1.347	0.63 L/(>1000)	3.233 3.233	0.75 L/(>1000)	1.347 1.347	0.48 L/(>1000)	3.233 3.233	0.81 L/(>1000)
N867/N837	2.521 2.521	5.14 L/635.0	0.917 0.917	0.50 L/(>1000)	2.521 2.521	7.32 L/641.0	0.917 0.917	0.58 L/(>1000)
N866/N837	2.773 2.773	6.72 L/660.6	3.328 3.328	0.73 L/(>1000)	2.773 2.773	9.23 L/661.5	3.328 3.328	0.79 L/(>1000)
N866/N838	1.433 1.433	2.21 L/(>1000)	0.955 0.955	0.44 L/(>1000)	1.433 1.194	3.18 L/(>1000)	0.955 0.955	0.51 L/(>1000)
N865/N838	1.712 1.712	1.20 L/(>1000)	3.139 3.139	0.71 L/(>1000)	1.427 1.427	1.14 L/(>1000)	3.139 3.139	0.75 L/(>1000)
N865/N839	2.734 2.734	6.31 L/584.7	0.994 0.994	0.36 L/(>1000)	2.734 2.734	8.81 L/589.9	0.994 0.994	0.41 L/(>1000)
N864/N839	2.936 2.936	7.17 L/654.8	3.229 3.229	0.67 L/(>1000)	2.936 2.936	9.95 L/655.2	3.229 3.229	0.70 L/(>1000)
N864/N840	1.291 1.291	2.89 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.291 1.549	3.89 L/(>1000)	1.033 1.033	0.32 L/(>1000)
N863/N840	1.811 1.811	2.90 L/(>1000)	3.018 3.018	0.60 L/(>1000)	1.811 1.811	3.66 L/(>1000)	3.018 3.018	0.60 L/(>1000)
N863/N841	3.215 3.483	1.62 L/(>1000)	1.072 1.072	0.24 L/(>1000)	3.215 3.483	2.87 L/(>1000)	1.072 1.072	0.30 L/(>1000)
N862/N841	2.481 2.481	3.76 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.481 2.481	5.63 L/(>1000)	2.791 2.791	0.70 L/(>1000)
N862/N842	1.943 1.943	2.67 L/(>1000)	1.388 1.388	0.19 L/(>1000)	1.943 1.943	3.87 L/(>1000)	1.111 1.388	0.32 L/(>1000)
N862/N843	3.271 3.271	7.43 L/704.5	2.617 2.617	0.92 L/(>1000)	3.271 3.271	10.52 L/715.1	2.617 2.617	0.97 L/(>1000)
N861/N843	3.161 3.161	6.68 L/597.8	1.149 1.149	0.29 L/(>1000)	3.161 3.161	9.65 L/605.8	1.149 1.149	0.48 L/(>1000)
N861/N844	2.014 2.014	1.93 L/(>1000)	3.692 3.692	1.02 L/(>1000)	2.014 2.014	1.90 L/(>1000)	3.692 3.356	1.20 L/(>1000)
N860/N844	2.376 2.376	1.28 L/(>1000)	3.564 3.564	0.62 L/(>1000)	2.673 2.673	1.14 L/(>1000)	3.564 3.564	0.92 L/(>1000)
N860/N845	3.430 3.430	2.27 L/(>1000)	3.430 3.430	0.56 L/(>1000)	3.430 3.430	3.46 L/(>1000)	3.430 3.430	1.01 L/(>1000)
N829/N846	2.316 2.316	0.05 L/(>1000)	1.853 1.853	1.41 L/(>1000)	2.084 2.084	0.07 L/(>1000)	1.853 1.853	1.64 L/(>1000)
N887/N846	0.977 0.977	0.59 L/(>1000)	0.977 0.977	0.06 L/(>1000)	0.977 0.977	0.68 L/(>1000)	0.977 0.977	0.11 L/(>1000)
N886/N846	2.084 2.084	0.15 L/(>1000)	1.390 1.390	1.76 L/(>1000)	2.084 2.084	0.18 L/(>1000)	1.390 1.390	2.05 L/(>1000)
N886/N847	1.652 1.652	0.29 L/(>1000)	0.619 0.619	0.85 L/(>1000)	1.858 1.652	0.30 L/(>1000)	0.619 0.619	0.98 L/(>1000)
N885/N847	1.433 1.433	0.35 L/(>1000)	2.866 2.866	0.84 L/(>1000)	1.433 1.433	0.47 L/(>1000)	2.866 2.866	0.92 L/(>1000)
N885/N848	2.284 2.284	0.65 L/(>1000)	2.474 2.474	0.71 L/(>1000)	2.284 2.284	1.02 L/(>1000)	2.474 2.474	0.82 L/(>1000)
N884/N848	2.216 2.216	1.67 L/(>1000)	2.955 2.955	0.71 L/(>1000)	2.216 2.216	2.25 L/(>1000)	2.955 2.955	0.81 L/(>1000)
N884/N849	2.000 2.000	0.51 L/(>1000)	0.600 0.600	0.67 L/(>1000)	2.000 2.000	0.44 L/(>1000)	0.600 0.600	0.76 L/(>1000)
N883/N849	1.777 1.777	0.38 L/(>1000)	3.046 3.046	0.71 L/(>1000)	2.538 2.538	0.30 L/(>1000)	3.046 3.046	0.77 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N883/N850	2.307 2.307	4.31 L/683.6	0.629 0.629	0.62 L/(>1000)	2.307 2.307	6.26 L/687.0	0.839 0.629	0.71 L/(>1000)
N882/N850	2.615 2.615	6.10 L/686.4	3.139 3.139	0.74 L/(>1000)	2.615 2.615	8.36 L/687.2	3.139 3.139	0.82 L/(>1000)
N882/N851	1.097 1.097	1.55 L/(>1000)	0.878 0.878	0.56 L/(>1000)	1.097 1.097	2.33 L/(>1000)	0.878 0.878	0.64 L/(>1000)
N881/N851	1.347 1.347	0.70 L/(>1000)	3.233 3.233	0.73 L/(>1000)	1.347 1.347	0.49 L/(>1000)	3.233 3.233	0.80 L/(>1000)
N881/N852	2.521 2.521	5.08 L/635.4	0.917 0.917	0.51 L/(>1000)	2.521 2.521	7.29 L/646.8	0.917 0.917	0.59 L/(>1000)
N880/N852	2.773 2.773	6.70 L/662.3	3.328 3.328	0.73 L/(>1000)	2.773 2.773	9.23 L/663.2	3.328 3.328	0.79 L/(>1000)
N880/N853	1.433 1.433	2.19 L/(>1000)	0.955 0.955	0.43 L/(>1000)	1.433 1.433	3.18 L/(>1000)	0.955 0.955	0.49 L/(>1000)
N879/N853	1.712 1.712	1.15 L/(>1000)	3.139 3.139	0.69 L/(>1000)	1.427 1.427	1.00 L/(>1000)	3.139 3.139	0.72 L/(>1000)
N879/N854	2.734 2.734	6.29 L/585.8	0.994 0.994	0.38 L/(>1000)	2.734 2.734	8.82 L/589.0	0.994 0.994	0.43 L/(>1000)
N878/N854	2.936 2.936	7.17 L/655.4	3.229 3.229	0.68 L/(>1000)	2.936 2.936	9.95 L/657.5	3.229 2.936	0.71 L/(>1000)
N878/N855	1.291 1.291	2.89 L/(>1000)	1.033 1.033	0.26 L/(>1000)	1.291 1.291	3.90 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N877/N855	1.811 1.811	2.88 L/(>1000)	3.018 3.320	0.55 L/(>1000)	1.811 1.811	3.63 L/(>1000)	3.320 3.320	0.55 L/(>1000)
N877/N856	3.215 3.483	1.61 L/(>1000)	1.072 1.072	0.27 L/(>1000)	3.215 3.483	2.86 L/(>1000)	1.072 1.072	0.33 L/(>1000)
N876/N856	2.481 2.481	3.74 L/(>1000)	2.791 2.791	0.70 L/(>1000)	2.481 2.481	5.62 L/(>1000)	2.791 2.481	0.72 L/(>1000)
N876/N857	1.943 1.943	2.66 L/(>1000)	1.388 1.388	0.18 L/(>1000)	1.943 1.943	3.86 L/(>1000)	1.111 1.388	0.31 L/(>1000)
N876/N858	3.271 3.271	7.44 L/703.1	2.617 2.617	0.90 L/(>1000)	3.271 3.271	10.52 L/712.7	2.617 2.617	0.95 L/(>1000)
N875/N858	3.161 3.161	6.74 L/603.3	1.149 1.149	0.28 L/(>1000)	3.161 3.161	9.67 L/607.5	1.149 1.149	0.48 L/(>1000)
N875/N859	2.014 2.014	1.68 L/(>1000)	3.692 3.692	1.04 L/(>1000)	2.014 2.014	1.63 L/(>1000)	3.692 3.356	1.23 L/(>1000)
N874/N859	2.376 2.376	1.25 L/(>1000)	3.564 3.564	0.63 L/(>1000)	2.376 2.376	1.11 L/(>1000)	3.564 3.564	0.93 L/(>1000)
N874/N845	3.430 3.430	2.23 L/(>1000)	3.430 3.430	0.57 L/(>1000)	3.430 3.430	3.41 L/(>1000)	3.430 3.430	1.01 L/(>1000)
N890/N887	6.170 6.170	2.64 L/(>1000)	3.253 4.712	0.61 L/(>1000)	6.170 6.170	3.02 L/(>1000)	2.628 4.712	0.68 L/(>1000)
N888/N829	2.210 2.210	0.17 L/(>1000)	1.547 1.547	1.80 L/(>1000)	2.210 2.210	0.27 L/(>1000)	1.547 1.547	1.98 L/(>1000)
N888/N828	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.80 L/(>1000)	1.875 1.875	0.04 L/(>1000)	0.625 0.625	0.90 L/(>1000)
N889/N828	2.210 2.210	0.09 L/(>1000)	1.326 1.326	0.99 L/(>1000)	2.210 2.210	0.09 L/(>1000)	1.326 1.326	1.05 L/(>1000)
N889/N827	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.58 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.65 L/(>1000)
N890/N827	1.087 1.087	0.13 L/(>1000)	1.087 1.087	0.25 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.305 0.870	0.35 L/(>1000)
N891/N824	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.80 L/(>1000)	2.210 2.210	0.27 L/(>1000)	1.547 1.547	1.98 L/(>1000)
N823/N891	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.80 L/(>1000)	0.625 0.625	0.04 L/(>1000)	1.875 1.875	0.90 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N892/N823	2.210 2.210	0.09 L/(>1000)	1.326 1.326	0.99 L/(>1000)	2.431 2.210	0.09 L/(>1000)	1.326 1.326	1.05 L/(>1000)
N822/N892	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.58 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.64 L/(>1000)
N893/N822	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.25 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.305 0.870	0.34 L/(>1000)
N893/N873	6.170 6.170	2.66 L/(>1000)	3.253 4.712	0.58 L/(>1000)	6.170 6.170	3.04 L/(>1000)	2.628 4.712	0.65 L/(>1000)
N31/N897	6.795 6.795	10.77 L/928.1	7.212 7.212	0.84 L/(>1000)	6.795 6.795	12.70 L/951.7	7.003 7.212	1.54 L/(>1000)
N898/N902	6.795 6.795	10.80 L/925.9	7.212 7.212	0.86 L/(>1000)	6.795 6.795	12.73 L/949.2	7.003 7.212	1.54 L/(>1000)
N897/N917	15.029 15.029	10.63 L/(>1000)	21.291 21.500	45.13 L/722.1	15.029 15.029	13.18 L/(>1000)	21.082 21.708	53.62 L/744.7
N902/N917	15.029 15.029	10.86 L/(>1000)	21.291 21.500	45.43 L/717.3	15.029 15.029	13.45 L/(>1000)	21.291 21.708	53.95 L/740.4
N896/N901	42.292 42.292	12.15 L/(>1000)	36.667 36.667	189.16 L/383.3	42.292 42.083	14.70 L/(>1000)	37.917 42.083	222.59 L/388.3
N896/N903	1.853 1.853	0.13 L/(>1000)	1.853 1.853	1.36 L/(>1000)	2.084 1.853	0.19 L/(>1000)	1.853 1.853	1.64 L/(>1000)
N945/N903	1.075 1.075	0.56 L/(>1000)	1.505 1.505	0.68 L/(>1000)	1.075 1.075	0.67 L/(>1000)	1.505 1.505	0.86 L/(>1000)
N944/N903	1.621 1.621	0.59 L/(>1000)	1.390 1.390	1.70 L/(>1000)	1.621 1.621	0.72 L/(>1000)	1.390 1.390	2.05 L/(>1000)
N944/N904	1.720 1.720	3.55 L/815.1	0.645 0.645	0.84 L/(>1000)	1.720 1.720	4.27 L/830.3	0.645 0.645	1.00 L/(>1000)
N943/N904	1.911 1.911	2.98 L/(>1000)	2.866 2.866	0.84 L/(>1000)	1.911 1.911	3.47 L/(>1000)	2.866 2.866	0.98 L/(>1000)
N943/N905	1.505 1.505	10.24 L/297.4	2.412 2.412	0.70 L/(>1000)	1.505 1.505	12.35 L/303.2	2.412 2.412	0.85 L/(>1000)
N942/N905	1.724 1.724	3.70 L/(>1000)	2.955 2.955	0.70 L/(>1000)	1.724 1.724	4.35 L/(>1000)	2.955 2.955	0.83 L/(>1000)
N942/N906	1.720 1.720	10.94 L/292.6	0.645 0.645	0.66 L/(>1000)	1.720 1.720	13.05 L/295.7	0.645 0.645	0.80 L/(>1000)
N941/N906	2.031 2.031	7.99 L/508.3	3.046 3.046	0.71 L/(>1000)	2.031 2.031	9.51 L/519.4	3.046 3.046	0.81 L/(>1000)
N941/N907	1.720 1.720	20.37 L/164.8	0.645 0.645	0.59 L/(>1000)	1.720 1.720	24.19 L/169.3	0.645 0.645	0.71 L/(>1000)
N940/N907	1.831 1.831	6.10 L/686.3	3.139 3.139	0.73 L/(>1000)	1.831 1.831	6.58 L/708.2	3.139 3.139	0.83 L/(>1000)
N940/N908	1.720 1.720	20.99 L/167.3	0.860 0.860	0.55 L/(>1000)	1.720 1.720	24.84 L/173.6	0.860 0.860	0.65 L/(>1000)
N939/N908	2.155 2.155	12.36 L/348.6	3.233 3.233	0.73 L/(>1000)	2.155 2.155	14.59 L/359.7	3.233 3.233	0.83 L/(>1000)
N939/N909	1.720 1.720	32.50 L/112.8	0.860 0.860	0.49 L/(>1000)	1.720 1.720	38.61 L/118.2	0.860 0.860	0.59 L/(>1000)
N938/N909	1.941 1.941	10.03 L/442.4	3.051 3.051	0.71 L/(>1000)	1.941 1.941	11.13 L/443.5	3.328 3.328	0.79 L/(>1000)
N938/N910	1.960 1.960	33.21 L/115.1	0.860 0.860	0.44 L/(>1000)	1.960 1.960	39.39 L/119.5	0.860 0.860	0.52 L/(>1000)
N937/N910	2.283 2.283	17.53 L/260.5	3.139 3.139	0.68 L/(>1000)	2.283 2.283	20.71 L/268.3	3.139 3.139	0.74 L/(>1000)
N937/N911	1.960 1.960	44.41 L/89.5	0.860 0.860	0.38 L/(>1000)	1.960 1.960	52.71 L/93.6	0.860 0.860	0.44 L/(>1000)
N936/N911	2.055 2.055	13.76 L/341.5	3.229 3.229	0.65 L/(>1000)	2.055 2.349	15.42 L/346.4	3.229 3.229	0.69 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N936/N912	2.200 2.200	44.47 L/92.9	0.860 0.860	0.31 L/(>1000)	2.200 2.200	52.89 L/95.7	0.860 0.860	0.35 L/(>1000)
N935/N912	2.415 2.415	17.56 L/275.0	3.018 3.320	0.57 L/(>1000)	2.415 2.415	20.57 L/276.1	3.320 3.320	0.57 L/(>1000)
N935/N913	1.960 1.960	54.62 L/78.5	1.075 1.075	0.30 L/(>1000)	1.960 1.960	65.05 L/80.7	1.075 1.075	0.39 L/(>1000)
N934/N913	1.861 1.861	9.24 L/537.3	2.171 2.171	0.81 L/(>1000)	1.861 2.171	10.58 L/541.4	1.861 2.171	0.89 L/(>1000)
N934/N914	2.387 2.387	55.94 L/79.4	1.290 1.290	0.21 L/(>1000)	2.387 2.387	66.58 L/80.5	1.290 1.290	0.40 L/(>1000)
N934/N915	2.617 2.617	12.73 L/411.1	2.944 2.944	0.94 L/(>1000)	2.617 2.617	14.12 L/412.5	2.944 2.944	1.03 L/(>1000)
N933/N915	2.200 2.200	60.66 L/75.8	1.075 1.075	0.51 L/(>1000)	2.200 2.200	72.07 L/76.3	1.075 1.075	0.77 L/(>1000)
N933/N916	2.685 2.685	26.38 L/203.6	3.692 3.692	1.28 L/(>1000)	2.685 2.685	31.32 L/205.7	4.027 3.692	1.64 L/(>1000)
N932/N916	2.413 2.413	63.03 L/75.4	3.476 3.476	0.97 L/(>1000)	2.413 2.413	75.13 L/76.2	3.476 3.476	1.42 L/(>1000)
N932/N917	1.871 1.871	14.72 L/339.0	3.430 3.430	0.73 L/(>1000)	1.871 1.871	16.95 L/342.1	3.430 3.430	1.36 L/(>1000)
N901/N918	1.853 1.853	0.10 L/(>1000)	1.853 1.853	1.37 L/(>1000)	1.853 1.853	0.16 L/(>1000)	1.853 1.853	1.65 L/(>1000)
N959/N918	1.075 1.075	0.55 L/(>1000)	1.505 1.505	0.69 L/(>1000)	1.075 1.075	0.65 L/(>1000)	1.505 1.505	0.86 L/(>1000)
N958/N918	1.621 1.621	0.60 L/(>1000)	1.390 1.390	1.69 L/(>1000)	1.621 1.621	0.73 L/(>1000)	1.390 1.390	2.04 L/(>1000)
N958/N919	1.505 1.505	3.08 L/937.7	0.645 0.645	0.83 L/(>1000)	1.505 1.505	3.72 L/954.4	0.645 0.645	0.99 L/(>1000)
N957/N919	1.911 1.911	1.32 L/(>1000)	2.866 2.866	0.83 L/(>1000)	1.911 1.911	1.52 L/(>1000)	2.866 2.866	0.97 L/(>1000)
N957/N920	1.720 1.720	9.88 L/308.1	2.412 2.412	0.70 L/(>1000)	1.720 1.720	11.93 L/314.2	2.412 2.412	0.85 L/(>1000)
N956/N920	1.724 1.724	3.65 L/(>1000)	2.955 2.955	0.71 L/(>1000)	1.724 1.724	4.30 L/(>1000)	2.955 2.955	0.84 L/(>1000)
N956/N921	1.720 1.720	10.91 L/293.4	0.645 0.645	0.66 L/(>1000)	1.720 1.720	13.01 L/296.7	0.645 0.645	0.79 L/(>1000)
N955/N921	2.031 2.031	7.73 L/525.2	3.046 3.046	0.71 L/(>1000)	2.031 2.031	9.18 L/540.1	3.046 3.046	0.82 L/(>1000)
N955/N922	1.720 1.720	20.30 L/165.3	0.645 0.645	0.60 L/(>1000)	1.720 1.720	24.10 L/170.0	0.645 0.645	0.72 L/(>1000)
N954/N922	1.831 1.831	6.10 L/685.6	3.139 3.139	0.73 L/(>1000)	1.831 1.831	6.58 L/707.9	3.139 3.139	0.84 L/(>1000)
N954/N923	1.720 1.720	21.00 L/167.2	0.860 0.860	0.55 L/(>1000)	1.720 1.720	24.86 L/173.4	0.860 0.860	0.66 L/(>1000)
N953/N923	2.155 2.155	12.05 L/357.8	3.233 3.233	0.74 L/(>1000)	2.155 2.155	14.19 L/368.1	3.233 3.233	0.84 L/(>1000)
N953/N924	1.720 1.720	32.51 L/112.8	0.860 0.860	0.50 L/(>1000)	1.720 1.720	38.62 L/118.1	0.860 0.860	0.59 L/(>1000)
N952/N924	1.941 1.941	10.07 L/440.8	3.051 3.051	0.71 L/(>1000)	1.941 1.941	11.17 L/441.7	3.328 3.328	0.80 L/(>1000)
N952/N925	1.960 1.960	33.26 L/114.9	0.860 0.860	0.44 L/(>1000)	1.960 1.960	39.44 L/119.3	0.860 0.860	0.52 L/(>1000)
N951/N925	2.283 2.283	17.19 L/265.6	3.139 3.139	0.69 L/(>1000)	2.283 2.283	20.29 L/273.8	3.139 3.139	0.75 L/(>1000)
N951/N926	1.960 1.960	44.51 L/89.3	0.860 0.860	0.38 L/(>1000)	1.960 1.960	52.83 L/93.4	0.860 0.860	0.44 L/(>1000)

Listados

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N950/N926	2.055 2.055	13.82 L/339.9	3.229 3.229	0.65 L/(>1000)	2.055 2.349	15.49 L/344.8	3.229 3.229	0.70 L/(>1000)
N950/N927	2.200 2.200	44.58 L/92.7	0.860 0.860	0.31 L/(>1000)	2.200 2.200	53.01 L/95.5	0.860 0.860	0.35 L/(>1000)
N949/N927	2.415 2.415	17.45 L/276.7	3.320 3.320	0.57 L/(>1000)	2.415 2.415	20.45 L/279.0	3.320 3.320	0.57 L/(>1000)
N949/N928	1.960 1.960	54.72 L/78.3	1.075 1.075	0.31 L/(>1000)	1.960 1.960	65.16 L/80.6	1.075 1.075	0.40 L/(>1000)
N948/N928	1.861 1.861	9.26 L/535.6	2.171 2.171	0.80 L/(>1000)	1.861 2.171	10.61 L/539.4	1.861 2.171	0.88 L/(>1000)
N948/N929	2.387 2.387	56.01 L/79.3	1.290 1.290	0.20 L/(>1000)	2.387 2.387	66.67 L/80.4	1.290 1.290	0.40 L/(>1000)
N948/N930	2.617 2.617	12.76 L/410.2	2.944 2.944	0.95 L/(>1000)	2.617 2.617	14.15 L/411.1	2.944 2.944	1.04 L/(>1000)
N947/N930	2.200 2.200	60.76 L/75.7	1.075 1.075	0.50 L/(>1000)	2.200 2.200	72.19 L/76.2	1.075 1.075	0.76 L/(>1000)
N947/N931	2.685 2.685	26.76 L/200.7	3.692 3.692	1.27 L/(>1000)	2.685 2.685	31.77 L/201.7	4.027 4.027	1.62 L/(>1000)
N946/N931	2.413 2.413	63.14 L/75.3	3.476 3.476	0.96 L/(>1000)	2.413 2.413	75.26 L/76.1	3.476 3.476	1.41 L/(>1000)
N946/N917	1.871 1.871	14.67 L/340.0	3.430 3.430	0.73 L/(>1000)	1.871 1.871	16.91 L/343.6	3.430 3.430	1.35 L/(>1000)
N962/N959	5.962 5.962	2.73 L/(>1000)	4.087 4.087	0.87 L/(>1000)	5.962 5.962	3.22 L/(>1000)	4.087 4.087	0.94 L/(>1000)
N960/N901	2.210 2.210	0.24 L/(>1000)	1.547 1.547	1.75 L/(>1000)	2.210 2.210	0.34 L/(>1000)	1.547 1.547	1.96 L/(>1000)
N960/N900	1.875 1.875	0.03 L/(>1000)	0.625 0.625	0.75 L/(>1000)	1.875 1.875	0.04 L/(>1000)	0.625 0.625	0.87 L/(>1000)
N961/N900	2.210 2.210	0.09 L/(>1000)	1.326 1.326	0.97 L/(>1000)	2.210 2.210	0.10 L/(>1000)	1.326 1.326	1.05 L/(>1000)
N961/N899	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.61 L/(>1000)
N962/N899	1.087 1.087	0.13 L/(>1000)	0.870 0.870	0.19 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.087 0.870	0.28 L/(>1000)
N963/N896	2.210 2.210	0.24 L/(>1000)	1.547 1.547	1.74 L/(>1000)	2.210 2.210	0.34 L/(>1000)	1.547 1.547	1.96 L/(>1000)
N895/N963	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.75 L/(>1000)	0.625 0.625	0.04 L/(>1000)	1.875 1.875	0.87 L/(>1000)
N964/N895	2.210 2.210	0.09 L/(>1000)	1.326 1.326	0.97 L/(>1000)	2.210 2.210	0.10 L/(>1000)	1.326 1.326	1.05 L/(>1000)
N894/N964	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.61 L/(>1000)
N965/N894	1.087 1.087	0.13 L/(>1000)	0.870 0.870	0.20 L/(>1000)	1.305 1.087	0.21 L/(>1000)	1.087 0.870	0.29 L/(>1000)
N965/N945	5.962 5.962	2.70 L/(>1000)	4.295 4.295	0.85 L/(>1000)	5.962 5.962	3.19 L/(>1000)	4.295 4.295	0.93 L/(>1000)
N14/N969	6.795 6.795	10.36 L/965.4	7.003 7.003	1.22 L/(>1000)	6.795 6.795	11.07 L/(>1000)	7.003 7.003	1.42 L/(>1000)
N970/N974	6.795 6.795	9.74 L/(>1000)	7.003 7.003	1.19 L/(>1000)	6.795 6.795	10.38 L/(>1000)	7.003 7.003	1.40 L/(>1000)
N969/N989	27.553 27.553	2.27 L/(>1000)	21.708 21.708	40.03 L/799.1	27.762 27.553	2.48 L/(>1000)	21.708 22.126	42.82 L/814.7
N974/N989	27.553 27.553	2.34 L/(>1000)	21.708 21.708	39.83 L/801.1	27.762 28.179	2.57 L/(>1000)	21.708 22.126	42.59 L/816.6
N968/N973	55.000 55.000	27.29 L/653.7	36.250 36.250	176.08 L/411.8	55.000 55.000	35.67 L/662.0	36.250 36.250	188.06 L/441.8

Listados

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N968/N975	1.390 1.390	0.10 L/(>1000)	1.853 1.853	1.25 L/(>1000)	1.390 1.390	0.08 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N1017/N975	0.977 0.977	0.54 L/(>1000)	0.781 0.781	0.06 L/(>1000)	0.977 0.977	0.56 L/(>1000)	0.977 0.781	0.09 L/(>1000)
N1016/N975	2.084 2.084	0.20 L/(>1000)	1.390 1.390	1.55 L/(>1000)	2.084 2.084	0.24 L/(>1000)	1.390 1.390	1.69 L/(>1000)
N1016/N976	1.858 1.858	0.03 L/(>1000)	0.619 0.619	0.75 L/(>1000)	2.065 2.065	0.03 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N1015/N976	1.672 1.672	0.49 L/(>1000)	2.866 2.866	0.69 L/(>1000)	1.672 1.672	0.63 L/(>1000)	2.866 2.866	0.71 L/(>1000)
N1015/N977	1.903 1.903	1.01 L/(>1000)	2.474 2.474	0.59 L/(>1000)	1.903 1.903	1.28 L/(>1000)	2.474 2.474	0.64 L/(>1000)
N1014/N977	1.970 1.970	0.45 L/(>1000)	2.955 2.955	0.59 L/(>1000)	1.724 1.970	0.55 L/(>1000)	3.201 2.955	0.62 L/(>1000)
N1014/N978	1.600 1.600	1.91 L/(>1000)	0.600 0.600	0.56 L/(>1000)	1.600 1.600	2.45 L/(>1000)	0.600 0.600	0.61 L/(>1000)
N1013/N978	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.61 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.62 L/(>1000)
N1013/N979	2.097 2.097	5.39 L/622.4	0.629 0.629	0.52 L/(>1000)	2.097 2.097	6.85 L/647.9	0.629 0.629	0.56 L/(>1000)
N1012/N979	2.615 2.615	4.05 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.14 L/(>1000)	3.139 3.139	0.68 L/(>1000)
N1012/N980	1.317 1.317	2.35 L/(>1000)	0.878 0.878	0.48 L/(>1000)	1.317 1.317	2.99 L/(>1000)	0.878 0.878	0.52 L/(>1000)
N1011/N980	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.886 1.886	1.28 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N1011/N981	2.291 2.291	4.03 L/909.0	0.917 0.917	0.44 L/(>1000)	2.291 2.291	5.14 L/947.1	0.917 0.917	0.47 L/(>1000)
N1010/N981	2.496 2.496	5.51 L/805.6	3.051 3.051	0.65 L/(>1000)	2.496 2.496	6.98 L/836.8	3.328 3.051	0.66 L/(>1000)
N1010/N982	0.955 0.955	0.59 L/(>1000)	0.955 0.955	0.39 L/(>1000)	0.955 0.955	0.77 L/(>1000)	0.955 0.955	0.42 L/(>1000)
N1009/N982	2.283 2.283	1.85 L/(>1000)	3.139 3.139	0.64 L/(>1000)	2.283 2.283	2.33 L/(>1000)	3.139 3.139	0.63 L/(>1000)
N1009/N983	2.734 2.734	3.27 L/(>1000)	0.994 0.994	0.33 L/(>1000)	2.734 2.734	4.14 L/(>1000)	0.994 0.994	0.36 L/(>1000)
N1008/N983	2.642 2.642	6.36 L/738.0	3.229 3.229	0.62 L/(>1000)	2.642 2.642	8.10 L/769.3	3.229 3.229	0.60 L/(>1000)
N1008/N984	1.033 1.033	0.65 L/(>1000)	1.033 1.033	0.27 L/(>1000)	1.033 1.033	0.79 L/(>1000)	1.033 1.033	0.29 L/(>1000)
N1007/N984	2.415 2.415	1.11 L/(>1000)	3.018 3.018	0.56 L/(>1000)	2.415 2.415	1.45 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1007/N985	2.947 2.947	1.90 L/(>1000)	1.072 1.072	0.22 L/(>1000)	2.947 2.947	2.42 L/(>1000)	1.072 1.072	0.25 L/(>1000)
N1006/N985	2.791 2.791	3.20 L/(>1000)	2.791 2.791	0.67 L/(>1000)	2.791 2.791	4.06 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N1006/N986	1.943 1.943	2.14 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.77 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N1006/N987	3.271 3.271	5.78 L/904.9	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.60 L/977.5	2.944 2.944	0.77 L/(>1000)
N1005/N987	2.873 2.873	5.43 L/846.0	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.11 L/909.0	1.149 1.149	0.40 L/(>1000)
N1005/N988	2.349 2.349	1.28 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.67 L/(>1000)	3.692 3.692	0.97 L/(>1000)
N1004/N988	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.54 L/(>1000)	1.782 1.782	1.48 L/(>1000)	3.564 3.564	0.73 L/(>1000)

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Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1004/N989	2.806 2.806	3.14 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.18 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N973/N990	1.621 1.621	0.03 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.853	0.06 L/(>1000)	1.853 1.853	1.34 L/(>1000)
N1031/N990	0.977 0.977	0.52 L/(>1000)	1.368 1.368	0.12 L/(>1000)	0.977 0.977	0.55 L/(>1000)	1.368 1.368	0.13 L/(>1000)
N1030/N990	2.084 2.084	0.16 L/(>1000)	1.390 1.390	1.55 L/(>1000)	2.084 2.084	0.20 L/(>1000)	1.390 1.390	1.69 L/(>1000)
N1030/N991	1.032 1.032	0.04 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.032 1.032	0.05 L/(>1000)	0.619 0.619	0.79 L/(>1000)
N1029/N991	1.672 1.672	0.49 L/(>1000)	2.866 2.866	0.70 L/(>1000)	1.672 1.672	0.62 L/(>1000)	2.866 2.866	0.72 L/(>1000)
N1029/N992	1.903 1.903	1.01 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.28 L/(>1000)	2.474 2.474	0.64 L/(>1000)
N1028/N992	1.970 1.970	0.42 L/(>1000)	2.955 2.955	0.59 L/(>1000)	1.724 1.970	0.52 L/(>1000)	3.201 2.955	0.62 L/(>1000)
N1028/N993	1.600 1.600	1.92 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	2.46 L/(>1000)	0.600 0.600	0.61 L/(>1000)
N1027/N993	3.046 3.046	0.14 L/(>1000)	3.046 3.046	0.61 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.62 L/(>1000)
N1027/N994	2.097 2.097	5.41 L/620.9	0.629 0.629	0.53 L/(>1000)	2.097 2.097	6.87 L/646.0	0.629 0.629	0.57 L/(>1000)
N1026/N994	2.615 2.615	4.05 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.14 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N1026/N995	1.317 1.317	2.36 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.317 1.317	3.00 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1025/N995	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.886 1.886	1.28 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N1025/N996	2.291 2.291	4.04 L/908.1	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.14 L/946.2	0.917 0.917	0.48 L/(>1000)
N1024/N996	2.496 2.496	5.51 L/804.8	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.98 L/835.7	3.328 3.051	0.66 L/(>1000)
N1024/N997	0.955 0.955	0.59 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.77 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1023/N997	2.283 2.283	1.85 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.34 L/(>1000)	3.139 3.139	0.63 L/(>1000)
N1023/N998	2.734 2.734	3.27 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.734 2.734	4.14 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1022/N998	2.642 2.642	6.37 L/736.8	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.11 L/767.9	3.229 3.229	0.61 L/(>1000)
N1022/N999	1.033 1.033	0.64 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.033 1.033	0.78 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1021/N999	2.415 2.415	1.11 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.415 2.415	1.45 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1021/N1000	2.947 2.947	1.90 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.42 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1020/N1000	2.791 2.791	3.21 L/(>1000)	2.791 2.791	0.67 L/(>1000)	2.791 2.791	4.07 L/(>1000)	2.791 2.791	0.64 L/(>1000)
N1020/N1001	1.943 1.943	2.15 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.78 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1020/N1002	3.271 3.271	5.79 L/904.2	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.61 L/976.5	2.944 2.944	0.78 L/(>1000)
N1019/N1002	2.873 2.873	5.44 L/845.1	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.12 L/907.8	1.149 1.149	0.40 L/(>1000)
N1019/N1003	2.349 2.349	1.28 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.67 L/(>1000)	3.692 3.692	0.96 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1018/N1003	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.48 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1018/N989	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.46 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.79 L/(>1000)
N1034/N1031	6.170 6.170	2.38 L/(>1000)	1.613 1.613	0.39 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.412 1.613	0.45 L/(>1000)
N1032/N973	2.210 2.210	0.12 L/(>1000)	1.547 1.547	1.61 L/(>1000)	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.63 L/(>1000)
N1032/N972	1.875 1.875	0.01 L/(>1000)	0.833 0.833	0.70 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.73 L/(>1000)
N1033/N972	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.89 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.87 L/(>1000)
N1033/N971	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.51 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)
N1034/N971	1.305 1.305	0.17 L/(>1000)	1.087 0.870	0.21 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N1035/N968	1.326 1.326	0.35 L/(>1000)	1.547 1.547	1.70 L/(>1000)	1.326 1.326	0.49 L/(>1000)	1.547 1.547	1.73 L/(>1000)
N967/N1035	0.625 0.625	0.25 L/(>1000)	1.875 1.875	0.74 L/(>1000)	0.625 0.625	0.34 L/(>1000)	1.875 1.667	0.76 L/(>1000)
N1036/N967	2.431 0.663	0.21 L/(>1000)	1.326 1.326	0.96 L/(>1000)	2.652 2.873	0.34 L/(>1000)	1.326 1.326	0.94 L/(>1000)
N966/N1036	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.59 L/(>1000)	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.61 L/(>1000)
N1037/N966	1.957 1.957	0.38 L/(>1000)	1.087 1.087	0.29 L/(>1000)	1.740 1.740	0.35 L/(>1000)	1.305 0.870	0.37 L/(>1000)
N1037/N1017	5.962 5.962	2.58 L/(>1000)	1.412 1.412	0.39 L/(>1000)	5.962 5.962	2.79 L/(>1000)	1.412 1.412	0.48 L/(>1000)
N13/N1041	7.003 7.003	9.81 L/(>1000)	6.795 6.795	1.26 L/(>1000)	7.003 7.003	10.46 L/(>1000)	6.795 6.795	1.45 L/(>1000)
N1042/N1046	6.795 6.795	9.74 L/(>1000)	7.003 7.003	1.25 L/(>1000)	6.795 6.795	10.40 L/(>1000)	7.003 7.003	1.43 L/(>1000)
N1041/N1061	21.708 32.980	3.10 L/(>1000)	21.708 21.708	39.68 L/802.5	21.708 32.980	3.34 L/(>1000)	21.708 22.126	42.44 L/818.4
N1046/N1061	21.708 32.980	3.20 L/(>1000)	21.708 21.708	39.71 L/803.0	21.708 32.980	3.46 L/(>1000)	21.708 22.126	42.47 L/818.8
N1040/N1045	54.583 54.583	34.46 L/(>1000)	36.250 36.250	175.65 L/412.7	54.583 54.167	42.90 L/(>1000)	36.250 36.250	187.66 L/443.0
N1040/N1047	1.390 1.390	0.08 L/(>1000)	1.853 1.853	1.25 L/(>1000)	1.390 1.390	0.09 L/(>1000)	1.853 1.853	1.36 L/(>1000)
N1089/N1047	0.977 0.977	0.53 L/(>1000)	0.977 0.977	0.09 L/(>1000)	0.977 0.977	0.56 L/(>1000)	0.977 0.977	0.10 L/(>1000)
N1088/N1047	2.084 2.084	0.13 L/(>1000)	1.390 1.390	1.58 L/(>1000)	2.084 2.084	0.18 L/(>1000)	1.390 1.390	1.72 L/(>1000)
N1088/N1048	1.445 1.445	0.03 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.239 1.239	0.04 L/(>1000)	0.619 0.619	0.81 L/(>1000)
N1087/N1048	1.672 1.672	0.49 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 1.672	0.62 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1087/N1049	1.903 1.903	1.02 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.29 L/(>1000)	2.474 2.474	0.66 L/(>1000)
N1086/N1049	1.724 1.724	0.40 L/(>1000)	2.955 2.955	0.60 L/(>1000)	1.724 1.724	0.49 L/(>1000)	3.201 2.955	0.63 L/(>1000)
N1086/N1050	1.600 1.600	1.97 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	2.51 L/(>1000)	0.600 0.600	0.63 L/(>1000)
N1085/N1050	3.046 3.046	0.15 L/(>1000)	3.046 3.046	0.62 L/(>1000)	3.046 3.046	0.19 L/(>1000)	3.046 3.046	0.63 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1085/N1051	2.097 2.097	5.43 L/617.8	0.629 0.629	0.54 L/(>1000)	2.097 2.097	6.89 L/642.0	0.629 0.629	0.58 L/(>1000)
N1084/N1051	2.615 2.615	4.05 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.14 L/(>1000)	3.139 3.139	0.70 L/(>1000)
N1084/N1052	1.317 1.317	2.37 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.317	3.00 L/(>1000)	0.878 0.878	0.54 L/(>1000)
N1083/N1052	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	1.886 1.886	1.29 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1083/N1053	2.291 2.291	4.03 L/910.0	0.917 0.917	0.46 L/(>1000)	2.291 2.291	5.13 L/946.4	0.917 0.917	0.49 L/(>1000)
N1082/N1053	2.496 2.496	5.52 L/803.5	3.328 3.328	0.67 L/(>1000)	2.496 2.496	6.99 L/834.6	3.328 3.051	0.68 L/(>1000)
N1082/N1054	0.955 0.955	0.58 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.76 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N1081/N1054	2.283 2.283	1.87 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.35 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1081/N1055	2.734 2.734	3.22 L/(>1000)	0.994 0.994	0.35 L/(>1000)	2.734 2.734	4.08 L/(>1000)	0.994 0.994	0.38 L/(>1000)
N1080/N1055	2.642 2.642	6.39 L/734.7	3.229 3.229	0.64 L/(>1000)	2.642 2.642	8.13 L/765.7	3.229 3.229	0.62 L/(>1000)
N1080/N1056	1.033 1.033	0.60 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.033 1.033	0.72 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N1079/N1056	2.415 2.415	1.05 L/(>1000)	3.018 3.320	0.58 L/(>1000)	2.415 2.415	1.39 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N1079/N1057	2.947 2.947	2.01 L/(>1000)	1.072 1.072	0.24 L/(>1000)	2.947 2.947	2.55 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1078/N1057	2.791 2.791	3.40 L/(>1000)	2.791 2.791	0.67 L/(>1000)	2.791 2.791	4.27 L/(>1000)	2.791 2.791	0.63 L/(>1000)
N1078/N1058	1.943 1.943	2.19 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.83 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1078/N1059	3.271 3.271	5.86 L/892.8	2.944 2.944	0.80 L/(>1000)	3.271 3.271	7.70 L/962.2	2.944 2.944	0.77 L/(>1000)
N1077/N1059	2.873 2.873	5.43 L/846.0	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.11 L/909.4	1.149 1.149	0.40 L/(>1000)
N1077/N1060	2.349 2.349	1.30 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.69 L/(>1000)	3.692 3.692	0.95 L/(>1000)
N1076/N1060	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1076/N1061	2.806 2.806	3.14 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.18 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N1045/N1062	1.158 1.158	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.158	0.05 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N1103/N1062	0.977 0.977	0.52 L/(>1000)	0.977 0.977	0.08 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 0.977	0.09 L/(>1000)
N1102/N1062	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.19 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N1102/N1063	1.445 1.445	0.02 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.652	0.02 L/(>1000)	0.619 0.619	0.79 L/(>1000)
N1101/N1063	1.672 1.672	0.49 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.672	0.62 L/(>1000)	2.866 2.866	0.72 L/(>1000)
N1101/N1064	1.903 1.903	1.02 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.29 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N1100/N1064	1.970 1.970	0.42 L/(>1000)	2.955 2.955	0.60 L/(>1000)	1.724 1.970	0.52 L/(>1000)	3.201 2.955	0.63 L/(>1000)
N1100/N1065	1.600 1.600	1.96 L/(>1000)	0.600 0.600	0.58 L/(>1000)	1.600 1.600	2.50 L/(>1000)	0.600 0.600	0.62 L/(>1000)

Listados

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1099/N1065	3.046 3.046	0.15 L/(>1000)	3.046 3.046	0.62 L/(>1000)	3.046 3.046	0.19 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N1099/N1066	2.097 2.097	5.42 L/618.8	0.629 0.629	0.53 L/(>1000)	2.097 2.097	6.88 L/643.2	0.629 0.629	0.58 L/(>1000)
N1098/N1066	2.615 2.615	4.05 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.14 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N1098/N1067	1.317 1.317	2.36 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.317 1.317	2.99 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1097/N1067	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	1.886 1.886	1.29 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1097/N1068	2.291 2.291	4.02 L/911.5	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.12 L/948.0	0.917 0.917	0.49 L/(>1000)
N1096/N1068	2.496 2.496	5.52 L/804.2	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.99 L/835.5	3.328 3.051	0.67 L/(>1000)
N1096/N1069	0.955 0.955	0.58 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.76 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1095/N1069	2.283 2.283	1.86 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.35 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1095/N1070	2.734 2.734	3.22 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.734 2.734	4.08 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1094/N1070	2.642 2.642	6.38 L/735.7	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.12 L/766.9	3.229 3.229	0.61 L/(>1000)
N1094/N1071	1.033 1.033	0.61 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.033 1.033	0.73 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1093/N1071	2.415 2.415	1.06 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.415 2.415	1.40 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N1093/N1072	2.947 2.947	2.00 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.55 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1092/N1072	2.791 2.791	3.38 L/(>1000)	2.791 2.791	0.67 L/(>1000)	2.791 2.791	4.26 L/(>1000)	2.791 2.791	0.63 L/(>1000)
N1092/N1073	1.943 1.943	2.19 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.82 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1092/N1074	3.271 3.271	5.86 L/893.6	2.944 2.944	0.80 L/(>1000)	3.271 3.271	7.69 L/963.4	2.944 2.944	0.76 L/(>1000)
N1091/N1074	2.873 2.873	5.43 L/847.1	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.11 L/910.7	1.149 1.149	0.40 L/(>1000)
N1091/N1075	2.349 2.349	1.29 L/(>1000)	3.692 3.692	0.89 L/(>1000)	2.349 2.349	1.69 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N1090/N1075	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1090/N1061	2.806 2.806	3.14 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.18 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N1106/N1103	6.170 6.170	2.38 L/(>1000)	1.613 1.613	0.40 L/(>1000)	6.170 6.170	2.53 L/(>1000)	1.412 1.613	0.46 L/(>1000)
N1104/N1045	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.21 L/(>1000)	1.547 1.547	1.64 L/(>1000)
N1104/N1044	1.875 1.875	0.01 L/(>1000)	0.833 0.833	0.71 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.74 L/(>1000)
N1105/N1044	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.89 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.87 L/(>1000)
N1105/N1043	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.51 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.53 L/(>1000)
N1106/N1043	1.305 1.305	0.18 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 0.870	0.29 L/(>1000)
N1107/N1040	2.210 2.210	0.20 L/(>1000)	1.547 1.547	1.65 L/(>1000)	2.210 2.210	0.23 L/(>1000)	1.547 1.547	1.67 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1039/N1107	1.875 1.875	0.02 L/(>1000)	1.667 1.667	0.74 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.77 L/(>1000)
N1108/N1039	2.652 2.652	0.09 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.09 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1038/N1108	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.53 L/(>1000)	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.55 L/(>1000)
N1109/N1038	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.24 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N1109/N1089	6.170 6.170	2.36 L/(>1000)	1.412 1.412	0.38 L/(>1000)	6.170 6.170	2.52 L/(>1000)	1.412 1.412	0.46 L/(>1000)
N12/N1113	6.795 6.795	9.76 L/(>1000)	7.003 7.003	1.31 L/(>1000)	6.795 6.795	10.42 L/(>1000)	7.003 7.003	1.47 L/(>1000)
N1114/N1118	6.795 6.795	9.74 L/(>1000)	7.003 7.003	1.29 L/(>1000)	6.795 6.795	10.40 L/(>1000)	7.003 7.003	1.45 L/(>1000)
N1113/N1133	20.456 2.714	1.73 L/(>1000)	21.708 21.708	39.62 L/804.2	20.247 2.714	1.85 L/(>1000)	21.708 22.126	42.42 L/820.8
N1118/N1133	20.873 2.714	1.69 L/(>1000)	21.708 21.708	39.65 L/803.9	20.665 2.714	1.84 L/(>1000)	21.708 22.126	42.45 L/820.4
N1112/N1117	36.667 36.667	8.11 L/(>1000)	36.250 36.250	175.05 L/414.2	36.875 37.083	8.74 L/(>1000)	36.250 36.250	187.11 L/444.8
N1112/N1119	1.158 1.158	0.03 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.621 1.158	0.05 L/(>1000)	1.853 1.853	1.34 L/(>1000)
N1161/N1119	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.10 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N1160/N1119	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N1160/N1120	1.032 1.032	0.03 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.239 0.826	0.03 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N1159/N1120	1.194 1.194	0.01 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.433 1.194	0.02 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1159/N1121	1.903 1.903	0.18 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.713 1.903	0.23 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N1158/N1121	2.463 2.463	0.17 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.21 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N1158/N1122	1.200 1.200	0.08 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.400 1.200	0.11 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1157/N1122	2.284 2.284	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.284 2.284	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N1157/N1123	1.468 1.468	0.03 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.468	0.04 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N1156/N1123	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N1156/N1124	1.756 1.756	0.02 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.04 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1155/N1124	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	2.155 2.155	0.01 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N1155/N1125	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.04 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N1154/N1125	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.02 L/(>1000)	3.328 3.051	0.66 L/(>1000)
N1154/N1126	1.911 1.911	0.03 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1153/N1126	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1153/N1127	1.988 1.988	0.03 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.05 L/(>1000)	0.994 0.994	0.37 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1152/N1127	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N1152/N1128	2.324 2.324	0.06 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.324	0.10 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1151/N1128	1.811 1.811	0.13 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 2.113	0.21 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1151/N1129	2.947 2.947	0.34 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.42 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1150/N1129	3.102 3.102	0.47 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.55 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1150/N1130	1.943 1.943	0.14 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.16 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N1150/N1131	1.962 1.962	0.10 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.12 L/(>1000)	2.617 2.617	0.69 L/(>1000)
N1149/N1131	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1149/N1132	1.678 1.678	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.014 1.678	0.00 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N1148/N1132	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N1148/N1133	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N1117/N1134	1.158 1.158	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.158	0.05 L/(>1000)	1.853 1.853	1.34 L/(>1000)
N1175/N1134	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.10 L/(>1000)	0.977 0.977	0.55 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N1174/N1134	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.55 L/(>1000)	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.69 L/(>1000)
N1174/N1135	1.032 1.032	0.03 L/(>1000)	0.619 0.619	0.73 L/(>1000)	1.239 1.032	0.04 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N1173/N1135	1.433 1.433	0.03 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.433 1.433	0.03 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1173/N1136	1.713 1.713	0.18 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.713 1.903	0.23 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N1172/N1136	2.463 2.463	0.17 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.20 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N1172/N1137	1.200 1.200	0.08 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.400 1.200	0.10 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1171/N1137	2.284 2.284	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.284 2.284	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N1171/N1138	1.468 1.468	0.02 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.468	0.04 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N1170/N1138	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N1170/N1139	1.756 1.756	0.02 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.04 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1169/N1139	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.67 L/(>1000)
N1169/N1140	1.833 1.833	0.03 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.04 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N1168/N1140	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.02 L/(>1000)	3.328 3.051	0.66 L/(>1000)
N1168/N1141	1.911 1.911	0.03 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1167/N1141	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1167/N1142	1.988 1.988	0.03 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.05 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1166/N1142	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.055 2.055	0.01 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N1166/N1143	2.324 2.324	0.06 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.324	0.10 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1165/N1143	1.811 1.811	0.13 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 2.113	0.21 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1165/N1144	2.947 2.947	0.34 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.42 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1164/N1144	3.102 3.102	0.46 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.55 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1164/N1145	1.943 1.943	0.14 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.17 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N1164/N1146	1.962 1.962	0.10 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.12 L/(>1000)	2.617 2.617	0.69 L/(>1000)
N1163/N1146	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.07 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1163/N1147	1.678 1.678	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.014 1.678	0.00 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N1162/N1147	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.76 L/(>1000)
N1162/N1133	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N1178/N1175	6.170 6.170	2.37 L/(>1000)	1.613 1.613	0.43 L/(>1000)	6.170 6.170	2.53 L/(>1000)	1.613 1.613	0.47 L/(>1000)
N1176/N1117	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.64 L/(>1000)
N1176/N1116	1.875 1.875	0.02 L/(>1000)	0.833 0.833	0.71 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N1177/N1116	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.89 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.87 L/(>1000)
N1177/N1115	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.53 L/(>1000)
N1178/N1115	1.305 1.305	0.18 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N1179/N1112	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N1111/N1179	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N1180/N1111	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1110/N1180	0.625 0.625	0.00 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N1181/N1110	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.087	0.23 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N1181/N1161	6.170 6.170	2.37 L/(>1000)	1.412 1.412	0.39 L/(>1000)	6.170 6.170	2.53 L/(>1000)	1.412 1.412	0.47 L/(>1000)
N11/N1185	6.795 6.795	9.75 L/(>1000)	7.003 7.003	1.36 L/(>1000)	6.795 6.795	10.42 L/(>1000)	7.003 7.003	1.50 L/(>1000)
N1186/N1190	6.795 6.795	9.75 L/(>1000)	7.003 7.003	1.34 L/(>1000)	6.795 6.795	10.41 L/(>1000)	7.003 7.003	1.47 L/(>1000)
N1185/N1205	20.665 2.714	1.81 L/(>1000)	21.708 21.708	39.64 L/803.9	20.665 2.714	1.98 L/(>1000)	21.708 22.126	42.47 L/821.1
N1190/N1205	21.082 21.082	1.82 L/(>1000)	21.708 21.708	39.65 L/803.7	21.082 21.082	2.02 L/(>1000)	21.708 22.126	42.48 L/820.9

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1184/N1189	36.667 36.667	7.49 L/(>1000)	36.250 36.250	175.14 L/414.0	36.875 37.083	7.91 L/(>1000)	36.250 36.250	187.34 L/444.9
N1184/N1191	1.158 1.158	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.158	0.05 L/(>1000)	1.853 1.853	1.34 L/(>1000)
N1233/N1191	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.10 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N1232/N1191	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N1232/N1192	1.239 1.239	0.04 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.445	0.05 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N1231/N1192	1.672 1.672	0.02 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.672 1.433	0.02 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1231/N1193	0.761 0.761	0.02 L/(>1000)	0.571 0.571	0.57 L/(>1000)	0.761 0.761	0.04 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N1230/N1193	2.216 2.216	0.05 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.216 2.216	0.09 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N1230/N1194	2.000 2.000	0.01 L/(>1000)	0.600 0.600	0.57 L/(>1000)	2.000 2.000	0.02 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1229/N1194	2.031 2.031	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.031	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N1229/N1195	1.678 1.678	0.02 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.04 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N1228/N1195	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.02 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N1228/N1196	1.756 1.756	0.02 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.05 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1227/N1196	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1227/N1197	1.833 1.833	0.02 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.05 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N1226/N1197	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.02 L/(>1000)	3.328 3.051	0.66 L/(>1000)
N1226/N1198	1.911 1.911	0.02 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.05 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1225/N1198	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1225/N1199	1.988 1.988	0.03 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.05 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1224/N1199	2.055 2.055	0.00 L/(>1000)	3.229 3.229	0.63 L/(>1000)	1.761 2.055	0.01 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N1224/N1200	2.582 2.582	0.07 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.582	0.13 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1223/N1200	1.811 1.811	0.17 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.29 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1223/N1201	0.804 0.804	0.10 L/(>1000)	1.072 1.072	0.23 L/(>1000)	0.804 0.804	0.18 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1222/N1201	3.102 3.102	0.18 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.33 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1222/N1202	1.943 1.943	0.05 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.09 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1222/N1203	1.962 1.962	0.04 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.07 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N1221/N1203	2.873 2.873	0.02 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.04 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1221/N1204	2.685 2.685	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 2.685	0.00 L/(>1000)	3.692 3.692	1.02 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1220/N1204	2.673 2.673	0.00 L/(>1000)	3.564 3.564	0.57 L/(>1000)	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N1220/N1205	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.75 L/(>1000)
N1189/N1206	1.158 1.158	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.158	0.05 L/(>1000)	1.853 1.853	1.34 L/(>1000)
N1247/N1206	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.10 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N1246/N1206	2.084 2.084	0.03 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N1246/N1207	1.239 1.239	0.04 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.239	0.05 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N1245/N1207	1.672 1.672	0.01 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.911 1.672	0.02 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1245/N1208	0.761 0.761	0.02 L/(>1000)	0.571 0.571	0.57 L/(>1000)	0.761 0.761	0.04 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N1244/N1208	2.216 2.216	0.05 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.216 2.216	0.09 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N1244/N1209	2.000 2.000	0.01 L/(>1000)	0.600 0.600	0.57 L/(>1000)	2.000 2.000	0.02 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1243/N1209	2.031 2.031	0.01 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.031	0.02 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N1243/N1210	1.678 1.678	0.02 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.04 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N1242/N1210	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.02 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N1242/N1211	1.756 1.756	0.02 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.05 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1241/N1211	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1241/N1212	1.833 1.833	0.02 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.05 L/(>1000)	0.917 0.917	0.48 L/(>1000)
N1240/N1212	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.02 L/(>1000)	3.328 3.051	0.66 L/(>1000)
N1240/N1213	1.911 1.911	0.02 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.05 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1239/N1213	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.01 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1239/N1214	1.988 1.988	0.03 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.05 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1238/N1214	2.055 2.055	0.00 L/(>1000)	3.229 3.229	0.63 L/(>1000)	1.761 2.055	0.01 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N1238/N1215	2.582 2.582	0.07 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.582	0.13 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1237/N1215	1.811 1.811	0.17 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.29 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1237/N1216	0.804 0.804	0.10 L/(>1000)	1.072 1.072	0.23 L/(>1000)	0.804 0.804	0.18 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1236/N1216	3.102 3.102	0.18 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.32 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1236/N1217	1.943 1.943	0.05 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.09 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1236/N1218	1.962 1.962	0.04 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.07 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N1235/N1218	2.873 2.873	0.02 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.04 L/(>1000)	1.149 1.149	0.41 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1235/N1219	2.685 2.685	0.00 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.685 2.685	0.00 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N1234/N1219	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.57 L/(>1000)	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N1234/N1205	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.75 L/(>1000)
N1250/N1247	6.170 6.170	2.37 L/(>1000)	1.815 1.815	0.46 L/(>1000)	6.170 6.170	2.53 L/(>1000)	1.613 1.815	0.49 L/(>1000)
N1248/N1189	2.210 2.210	0.17 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N1248/N1188	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N1249/N1188	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1249/N1187	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N1250/N1187	1.305 1.305	0.18 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N1251/N1184	2.210 2.210	0.17 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N1183/N1251	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N1252/N1183	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1182/N1252	1.875 1.875	0.00 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N1253/N1182	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.087	0.23 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N1253/N1233	6.170 6.170	2.37 L/(>1000)	1.613 1.613	0.42 L/(>1000)	6.170 6.170	2.53 L/(>1000)	1.412 1.613	0.48 L/(>1000)
N10/N1257	6.795 6.795	9.76 L/(>1000)	7.003 7.003	1.42 L/(>1000)	6.795 6.795	10.43 L/(>1000)	7.003 7.003	1.53 L/(>1000)
N1258/N1262	6.795 6.795	9.76 L/(>1000)	7.003 7.003	1.40 L/(>1000)	6.795 6.795	10.43 L/(>1000)	7.003 7.003	1.50 L/(>1000)
N1257/N1277	20.873 20.873	1.99 L/(>1000)	21.708 21.708	39.70 L/802.6	21.082 20.873	2.23 L/(>1000)	21.708 22.126	42.56 L/819.6
N1262/N1277	21.291 21.291	2.01 L/(>1000)	21.708 21.708	39.71 L/802.5	21.291 21.291	2.28 L/(>1000)	21.708 22.126	42.57 L/819.6
N1256/N1261	42.500 42.500	6.89 L/(>1000)	36.250 36.250	175.40 L/413.3	45.833 36.667	7.19 L/(>1000)	36.250 36.250	187.75 L/444.6
N1256/N1263	1.158 1.158	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.158	0.05 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N1305/N1263	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.10 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N1304/N1263	2.084 2.084	0.02 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.04 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N1304/N1264	1.652 1.652	0.05 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.652 1.652	0.07 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N1303/N1264	1.433 1.433	0.04 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.433 1.433	0.04 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1303/N1265	1.903 1.903	0.17 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.903 1.903	0.22 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N1302/N1265	2.463 2.463	0.18 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.24 L/(>1000)	0.739 0.985	0.58 L/(>1000)
N1302/N1266	1.400 1.400	0.08 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.400 1.400	0.09 L/(>1000)	0.600 0.600	0.62 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1301/N1266	2.284 2.284	0.02 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.284	0.03 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N1301/N1267	1.678 1.678	0.04 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.06 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N1300/N1267	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.02 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N1300/N1268	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.06 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1299/N1268	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1299/N1269	1.833 1.833	0.04 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.06 L/(>1000)	0.917 0.917	0.49 L/(>1000)
N1298/N1269	2.219 2.219	0.02 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.02 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N1298/N1270	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.06 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1297/N1270	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1297/N1271	1.988 1.988	0.05 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.07 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1296/N1271	2.349 2.349	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.349 2.642	0.02 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N1296/N1272	2.582 2.582	0.09 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.582	0.15 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N1295/N1272	1.811 1.811	0.25 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.36 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1295/N1273	2.947 2.947	0.37 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.49 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1294/N1273	3.102 3.102	0.49 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.67 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N1294/N1274	1.943 1.943	0.14 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.20 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N1294/N1275	1.962 1.962	0.11 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.15 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N1293/N1275	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.08 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1293/N1276	2.349 2.349	0.01 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.349 2.349	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N1292/N1276	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.76 L/(>1000)
N1292/N1277	2.806 2.806	0.00 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 2.806	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N1261/N1278	1.158 1.158	0.04 L/(>1000)	1.853 1.853	1.24 L/(>1000)	1.390 1.158	0.05 L/(>1000)	1.853 1.853	1.35 L/(>1000)
N1319/N1278	0.977 0.977	0.52 L/(>1000)	1.172 1.172	0.11 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.11 L/(>1000)
N1318/N1278	2.084 2.084	0.02 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.05 L/(>1000)	1.390 1.390	1.70 L/(>1000)
N1318/N1279	1.652 1.652	0.05 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.652 1.652	0.06 L/(>1000)	0.619 2.271	0.79 L/(>1000)
N1317/N1279	1.433 1.433	0.03 L/(>1000)	2.866 2.866	0.71 L/(>1000)	1.433 1.433	0.04 L/(>1000)	2.866 2.866	0.73 L/(>1000)
N1317/N1280	1.903 1.903	0.17 L/(>1000)	0.571 0.571	0.57 L/(>1000)	1.903 1.903	0.22 L/(>1000)	0.571 0.571	0.61 L/(>1000)
N1316/N1280	2.463 2.463	0.18 L/(>1000)	3.201 0.739	0.52 L/(>1000)	2.463 2.463	0.24 L/(>1000)	0.739 0.985	0.58 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1316/N1281	1.400 1.400	0.08 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.400 1.400	0.09 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1315/N1281	2.284 2.284	0.02 L/(>1000)	3.046 3.046	0.63 L/(>1000)	2.031 2.284	0.03 L/(>1000)	3.046 3.046	0.65 L/(>1000)
N1315/N1282	1.678 1.678	0.04 L/(>1000)	0.629 0.629	0.53 L/(>1000)	1.678 1.678	0.06 L/(>1000)	0.629 0.629	0.57 L/(>1000)
N1314/N1282	2.092 2.092	0.01 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.092 2.092	0.02 L/(>1000)	3.139 3.139	0.67 L/(>1000)
N1314/N1283	1.756 1.756	0.03 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.756 1.756	0.06 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1313/N1283	2.155 2.155	0.01 L/(>1000)	3.233 3.233	0.67 L/(>1000)	2.155 2.155	0.02 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1313/N1284	1.833 1.833	0.04 L/(>1000)	0.917 0.917	0.45 L/(>1000)	1.833 1.833	0.06 L/(>1000)	0.917 0.917	0.49 L/(>1000)
N1312/N1284	2.219 2.219	0.01 L/(>1000)	3.328 3.328	0.66 L/(>1000)	2.219 2.219	0.02 L/(>1000)	3.328 3.051	0.67 L/(>1000)
N1312/N1285	1.911 1.911	0.04 L/(>1000)	0.955 0.955	0.40 L/(>1000)	1.911 1.911	0.06 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1311/N1285	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1311/N1286	1.988 1.988	0.05 L/(>1000)	0.994 0.994	0.34 L/(>1000)	1.988 1.988	0.07 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1310/N1286	2.349 2.349	0.01 L/(>1000)	3.229 3.229	0.63 L/(>1000)	2.349 2.642	0.02 L/(>1000)	3.229 3.229	0.61 L/(>1000)
N1310/N1287	2.582 2.582	0.09 L/(>1000)	1.033 1.033	0.28 L/(>1000)	2.582 2.582	0.15 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N1309/N1287	1.811 1.811	0.25 L/(>1000)	3.018 3.018	0.57 L/(>1000)	1.811 1.811	0.36 L/(>1000)	3.320 3.320	0.53 L/(>1000)
N1309/N1288	2.947 2.947	0.37 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	0.49 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1308/N1288	3.102 3.102	0.49 L/(>1000)	2.791 2.791	0.69 L/(>1000)	3.102 3.102	0.67 L/(>1000)	2.791 2.791	0.66 L/(>1000)
N1308/N1289	1.943 1.943	0.14 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	0.19 L/(>1000)	1.111 1.388	0.23 L/(>1000)
N1308/N1290	1.962 1.962	0.11 L/(>1000)	2.617 2.617	0.75 L/(>1000)	1.962 1.962	0.15 L/(>1000)	2.617 2.617	0.70 L/(>1000)
N1307/N1290	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.08 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1307/N1291	2.349 2.349	0.01 L/(>1000)	3.692 3.692	0.94 L/(>1000)	2.349 2.349	0.01 L/(>1000)	3.692 3.692	1.02 L/(>1000)
N1306/N1291	2.970 2.970	0.01 L/(>1000)	3.564 3.564	0.56 L/(>1000)	2.970 2.673	0.01 L/(>1000)	3.564 3.564	0.76 L/(>1000)
N1306/N1277	2.806 2.806	0.00 L/(>1000)	3.430 3.430	0.44 L/(>1000)	2.806 3.118	0.01 L/(>1000)	3.742 3.430	0.74 L/(>1000)
N1322/N1319	6.170 6.170	2.37 L/(>1000)	2.420 2.420	0.49 L/(>1000)	6.170 6.170	2.54 L/(>1000)	2.420 1.815	0.52 L/(>1000)
N1320/N1261	2.210 2.210	0.19 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.20 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N1320/N1260	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N1321/N1260	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1321/N1259	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N1322/N1259	1.305 1.305	0.19 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.30 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1323/N1256	2.210 2.210	0.18 L/(>1000)	1.547 1.547	1.62 L/(>1000)	2.210 2.210	0.20 L/(>1000)	1.547 1.547	1.65 L/(>1000)
N1255/N1323	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N1324/N1255	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1254/N1324	0.625 0.625	0.00 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N1325/N1254	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N1325/N1305	6.170 6.170	2.37 L/(>1000)	1.613 1.613	0.46 L/(>1000)	6.170 6.170	2.54 L/(>1000)	1.613 1.613	0.50 L/(>1000)
N9/N1329	6.795 6.795	9.83 L/(>1000)	7.003 7.003	1.47 L/(>1000)	6.795 6.795	10.52 L/(>1000)	7.003 7.003	1.56 L/(>1000)
N1330/N1334	6.795 6.795	9.83 L/(>1000)	7.003 7.003	1.45 L/(>1000)	6.795 6.795	10.52 L/(>1000)	7.003 7.003	1.54 L/(>1000)
N1329/N1349	27.762 27.762	1.84 L/(>1000)	21.708 21.708	39.95 L/797.9	27.762 27.762	2.03 L/(>1000)	21.708 22.126	42.87 L/811.1
N1334/N1349	27.762 27.762	1.88 L/(>1000)	21.708 21.708	39.95 L/797.8	27.762 27.762	2.09 L/(>1000)	21.708 22.126	42.88 L/811.0
N1328/N1333	55.000 55.000	28.22 L/657.0	36.250 36.250	176.64 L/410.5	54.792 55.000	36.64 L/665.5	36.250 38.125	189.40 L/441.7
N1328/N1335	1.390 1.390	0.03 L/(>1000)	1.853 1.853	1.25 L/(>1000)	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.36 L/(>1000)
N1377/N1335	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.13 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.14 L/(>1000)
N1376/N1335	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.18 L/(>1000)	1.390 1.390	1.71 L/(>1000)
N1376/N1336	1.239 1.239	0.07 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.445	0.09 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N1375/N1336	1.672 1.672	0.51 L/(>1000)	2.866 2.866	0.70 L/(>1000)	1.672 1.672	0.64 L/(>1000)	2.866 2.866	0.72 L/(>1000)
N1375/N1337	1.903 1.903	0.98 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.24 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N1374/N1337	1.724 1.724	0.39 L/(>1000)	2.955 2.955	0.59 L/(>1000)	1.724 1.970	0.51 L/(>1000)	3.201 2.955	0.62 L/(>1000)
N1374/N1338	1.600 1.600	1.92 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	2.46 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1373/N1338	3.046 3.046	0.13 L/(>1000)	3.046 3.046	0.61 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N1373/N1339	2.097 2.097	5.41 L/620.3	0.629 0.629	0.53 L/(>1000)	2.097 2.097	6.87 L/647.0	0.629 0.629	0.58 L/(>1000)
N1372/N1339	2.615 2.615	4.05 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.13 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N1372/N1340	1.317 1.317	2.37 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.317 1.317	3.01 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1371/N1340	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.886 1.886	1.28 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1371/N1341	2.291 2.291	4.05 L/905.8	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.16 L/947.3	0.917 0.917	0.49 L/(>1000)
N1370/N1341	2.496 2.496	5.50 L/806.8	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.96 L/837.3	3.328 3.051	0.67 L/(>1000)
N1370/N1342	0.955 0.955	0.58 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.77 L/(>1000)	0.955 0.955	0.43 L/(>1000)
N1369/N1342	2.283 2.283	1.84 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.32 L/(>1000)	3.139 3.139	0.64 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1369/N1343	2.734 2.734	3.30 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.734 2.734	4.18 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1368/N1343	2.642 2.642	6.36 L/739.0	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.09 L/770.2	3.229 3.229	0.62 L/(>1000)
N1368/N1344	1.033 1.033	0.65 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.033 1.033	0.80 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N1367/N1344	2.415 2.415	1.13 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.415 2.415	1.52 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N1367/N1345	2.947 2.947	2.00 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.51 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1366/N1345	2.791 2.791	3.25 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.07 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1366/N1346	1.943 1.943	2.17 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.79 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1366/N1347	3.271 3.271	5.84 L/896.3	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.66 L/963.5	2.944 2.944	0.78 L/(>1000)
N1365/N1347	2.873 2.873	5.42 L/848.2	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.10 L/910.2	1.149 1.149	0.40 L/(>1000)
N1365/N1348	2.349 2.349	1.29 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.68 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N1364/N1348	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1364/N1349	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.18 L/(>1000)	3.430 3.430	0.79 L/(>1000)
N1333/N1350	1.390 1.390	0.03 L/(>1000)	1.853 1.853	1.25 L/(>1000)	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.36 L/(>1000)
N1391/N1350	0.977 0.977	0.53 L/(>1000)	1.172 1.172	0.13 L/(>1000)	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.15 L/(>1000)
N1390/N1350	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.56 L/(>1000)	2.084 2.084	0.17 L/(>1000)	1.390 1.390	1.71 L/(>1000)
N1390/N1351	1.239 1.239	0.07 L/(>1000)	0.619 0.619	0.74 L/(>1000)	1.445 1.239	0.09 L/(>1000)	0.619 0.619	0.80 L/(>1000)
N1389/N1351	1.672 1.672	0.50 L/(>1000)	2.866 2.866	0.70 L/(>1000)	1.672 1.672	0.64 L/(>1000)	2.866 2.866	0.72 L/(>1000)
N1389/N1352	1.903 1.903	0.98 L/(>1000)	2.474 2.474	0.60 L/(>1000)	1.903 1.903	1.24 L/(>1000)	2.474 2.474	0.65 L/(>1000)
N1388/N1352	1.724 1.724	0.39 L/(>1000)	2.955 2.955	0.59 L/(>1000)	1.724 1.970	0.51 L/(>1000)	3.201 2.955	0.62 L/(>1000)
N1388/N1353	1.600 1.600	1.92 L/(>1000)	0.600 0.600	0.57 L/(>1000)	1.600 1.600	2.46 L/(>1000)	0.600 0.600	0.62 L/(>1000)
N1387/N1353	3.046 3.046	0.13 L/(>1000)	3.046 3.046	0.61 L/(>1000)	3.046 3.046	0.18 L/(>1000)	3.046 3.046	0.63 L/(>1000)
N1387/N1354	2.097 2.097	5.41 L/619.9	0.629 0.629	0.53 L/(>1000)	2.097 2.097	6.88 L/646.6	0.629 0.629	0.58 L/(>1000)
N1386/N1354	2.615 2.615	4.05 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.14 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N1386/N1355	1.317 1.317	2.37 L/(>1000)	0.878 0.878	0.49 L/(>1000)	1.317 1.317	3.01 L/(>1000)	0.878 0.878	0.53 L/(>1000)
N1385/N1355	1.886 1.886	1.01 L/(>1000)	3.233 3.233	0.66 L/(>1000)	1.886 1.886	1.28 L/(>1000)	3.233 2.963	0.68 L/(>1000)
N1385/N1356	2.291 2.291	4.05 L/905.5	0.917 0.917	0.45 L/(>1000)	2.291 2.291	5.16 L/946.9	0.917 0.917	0.49 L/(>1000)
N1384/N1356	2.496 2.496	5.51 L/806.0	3.328 3.328	0.66 L/(>1000)	2.496 2.496	6.97 L/836.2	3.328 3.051	0.67 L/(>1000)
N1384/N1357	0.955 0.955	0.58 L/(>1000)	0.955 0.955	0.40 L/(>1000)	0.955 0.955	0.77 L/(>1000)	0.955 0.955	0.43 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1383/N1357	2.283 2.283	1.84 L/(>1000)	3.139 3.139	0.65 L/(>1000)	2.283 2.283	2.32 L/(>1000)	3.139 3.139	0.64 L/(>1000)
N1383/N1358	2.734 2.734	3.30 L/(>1000)	0.994 0.994	0.34 L/(>1000)	2.734 2.734	4.19 L/(>1000)	0.994 0.994	0.37 L/(>1000)
N1382/N1358	2.642 2.642	6.36 L/738.2	3.229 3.229	0.63 L/(>1000)	2.642 2.642	8.09 L/769.3	3.229 3.229	0.62 L/(>1000)
N1382/N1359	1.033 1.033	0.65 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.033 1.033	0.80 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N1381/N1359	2.415 2.415	1.13 L/(>1000)	3.018 3.018	0.57 L/(>1000)	2.415 2.415	1.52 L/(>1000)	3.320 3.320	0.54 L/(>1000)
N1381/N1360	2.947 2.947	2.00 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.947	2.51 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1380/N1360	2.791 2.791	3.25 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.07 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1380/N1361	1.943 1.943	2.17 L/(>1000)	1.388 1.388	0.13 L/(>1000)	1.943 1.943	2.79 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1380/N1362	3.271 3.271	5.84 L/895.4	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.67 L/962.2	2.944 2.944	0.78 L/(>1000)
N1379/N1362	2.873 2.873	5.43 L/847.2	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.10 L/909.0	1.149 1.149	0.40 L/(>1000)
N1379/N1363	2.349 2.349	1.29 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.68 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N1378/N1363	1.782 1.782	1.09 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.47 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1378/N1349	2.806 2.806	3.15 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.19 L/(>1000)	3.430 3.430	0.79 L/(>1000)
N1394/N1391	6.170 6.170	2.39 L/(>1000)	2.420 2.420	0.54 L/(>1000)	6.170 6.170	2.56 L/(>1000)	2.420 2.420	0.58 L/(>1000)
N1392/N1333	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 2.210	0.18 L/(>1000)	1.547 1.547	1.66 L/(>1000)
N1392/N1332	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.72 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.75 L/(>1000)
N1393/N1332	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1393/N1331	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.52 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)
N1394/N1331	1.305 1.305	0.19 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N1395/N1328	2.210 2.210	0.16 L/(>1000)	1.547 1.547	1.63 L/(>1000)	2.210 2.210	0.18 L/(>1000)	1.547 1.547	1.66 L/(>1000)
N1327/N1395	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.72 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.75 L/(>1000)
N1396/N1327	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.90 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.326 1.326	0.88 L/(>1000)
N1326/N1396	0.625 0.625	0.00 L/(>1000)	1.875 1.875	0.52 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.54 L/(>1000)
N1397/N1326	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N1397/N1377	6.170 6.170	2.39 L/(>1000)	1.815 1.815	0.50 L/(>1000)	6.170 6.170	2.56 L/(>1000)	1.815 1.815	0.54 L/(>1000)
N8/N1401	6.795 6.795	9.93 L/(>1000)	7.003 7.003	1.56 L/(>1000)	6.795 6.795	10.66 L/(>1000)	7.003 7.003	1.65 L/(>1000)
N1402/N1406	6.795 6.795	9.93 L/(>1000)	7.003 7.003	1.54 L/(>1000)	6.795 6.795	10.66 L/(>1000)	7.003 7.003	1.64 L/(>1000)
N1401/N1421	21.500 32.980	2.82 L/(>1000)	21.708 21.708	40.27 L/791.0	21.500 32.980	3.05 L/(>1000)	21.708 22.126	43.35 L/805.5

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1406/N1421	21.500 33.189	2.84 L/(>1000)	21.708 21.708	40.27 L/791.1	21.500 33.189	3.09 L/(>1000)	21.708 22.126	43.34 L/805.6
N1400/N1405	18.333 17.917	15.85 L/(>1000)	36.250 36.250	178.30 L/406.6	18.125 54.792	19.20 L/(>1000)	36.250 34.583	191.89 L/434.8
N1400/N1407	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.390 1.390	0.06 L/(>1000)	1.853 1.853	1.38 L/(>1000)
N1449/N1407	0.977 0.977	0.54 L/(>1000)	0.977 0.977	0.11 L/(>1000)	0.977 0.977	0.57 L/(>1000)	0.977 0.977	0.11 L/(>1000)
N1448/N1407	2.084 2.084	0.10 L/(>1000)	1.390 1.390	1.59 L/(>1000)	2.084 2.084	0.13 L/(>1000)	1.390 1.390	1.74 L/(>1000)
N1448/N1408	1.652 1.652	0.08 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.652	0.11 L/(>1000)	0.619 0.619	0.81 L/(>1000)
N1447/N1408	1.672 1.672	0.17 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 1.672	0.21 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N1447/N1409	1.903 1.903	0.83 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.05 L/(>1000)	2.474 2.474	0.67 L/(>1000)
N1446/N1409	2.463 2.463	0.44 L/(>1000)	2.955 2.955	0.61 L/(>1000)	2.463 2.463	0.57 L/(>1000)	3.201 2.955	0.64 L/(>1000)
N1446/N1410	1.600 1.600	1.06 L/(>1000)	0.600 0.600	0.59 L/(>1000)	1.600 1.600	1.34 L/(>1000)	0.600 0.600	0.63 L/(>1000)
N1445/N1410	1.523 1.523	0.57 L/(>1000)	3.046 3.046	0.63 L/(>1000)	1.523 1.523	0.66 L/(>1000)	3.046 3.046	0.64 L/(>1000)
N1445/N1411	2.097 2.097	4.67 L/718.3	0.629 0.629	0.54 L/(>1000)	2.097 2.097	5.88 L/739.2	0.629 0.629	0.59 L/(>1000)
N1444/N1411	2.615 2.615	4.38 L/956.3	3.139 3.139	0.67 L/(>1000)	2.615 2.615	5.54 L/994.3	3.139 3.139	0.69 L/(>1000)
N1444/N1412	1.536 1.536	2.03 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.536	2.55 L/(>1000)	0.878 0.878	0.55 L/(>1000)
N1443/N1412	1.886 1.886	1.49 L/(>1000)	3.233 3.233	0.68 L/(>1000)	1.886 1.886	1.83 L/(>1000)	3.233 2.963	0.69 L/(>1000)
N1443/N1413	2.291 2.291	4.58 L/801.3	0.917 0.917	0.46 L/(>1000)	2.291 2.291	5.77 L/827.0	0.917 0.917	0.50 L/(>1000)
N1442/N1413	2.773 2.773	5.42 L/819.2	3.328 3.328	0.67 L/(>1000)	2.773 2.773	6.85 L/849.7	3.328 3.051	0.69 L/(>1000)
N1442/N1414	1.433 1.433	1.30 L/(>1000)	0.955 0.955	0.41 L/(>1000)	1.433 1.433	1.67 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N1441/N1414	1.998 1.998	1.80 L/(>1000)	3.139 3.139	0.66 L/(>1000)	1.998 1.998	2.21 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N1441/N1415	2.485 2.485	4.50 L/884.4	0.994 0.994	0.35 L/(>1000)	2.485 2.485	5.64 L/912.6	0.994 0.994	0.39 L/(>1000)
N1440/N1415	2.936 2.936	6.00 L/782.4	3.229 3.229	0.64 L/(>1000)	2.936 2.936	7.62 L/815.2	3.229 3.229	0.63 L/(>1000)
N1440/N1416	1.291 1.291	1.44 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.291 1.549	1.78 L/(>1000)	1.033 1.033	0.32 L/(>1000)
N1439/N1416	2.415 2.415	0.61 L/(>1000)	3.018 3.018	0.59 L/(>1000)	2.415 2.415	0.80 L/(>1000)	3.320 3.320	0.56 L/(>1000)
N1439/N1417	2.947 2.947	2.09 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	2.66 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1438/N1417	2.791 2.791	3.14 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.00 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1438/N1418	1.943 1.943	2.12 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.75 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1438/N1419	3.271 3.271	5.83 L/897.2	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.63 L/966.2	2.944 2.944	0.78 L/(>1000)
N1437/N1419	2.873 2.873	5.44 L/845.3	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.07 L/904.9	1.149 1.149	0.40 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1437/N1420	2.349 2.349	1.16 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.42 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N1436/N1420	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.46 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1436/N1421	2.806 2.806	3.13 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.16 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N1405/N1422	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.26 L/(>1000)	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.38 L/(>1000)
N1463/N1422	0.977 0.977	0.54 L/(>1000)	0.977 0.977	0.11 L/(>1000)	0.977 0.977	0.57 L/(>1000)	0.977 0.977	0.11 L/(>1000)
N1462/N1422	2.084 2.084	0.11 L/(>1000)	1.390 1.390	1.59 L/(>1000)	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.74 L/(>1000)
N1462/N1423	1.652 1.652	0.08 L/(>1000)	0.619 0.619	0.75 L/(>1000)	1.445 1.652	0.11 L/(>1000)	0.619 0.619	0.81 L/(>1000)
N1461/N1423	1.672 1.672	0.17 L/(>1000)	2.866 2.866	0.72 L/(>1000)	1.672 1.672	0.21 L/(>1000)	2.866 2.866	0.74 L/(>1000)
N1461/N1424	1.903 1.903	0.83 L/(>1000)	2.474 2.474	0.61 L/(>1000)	1.903 1.903	1.05 L/(>1000)	2.474 2.474	0.67 L/(>1000)
N1460/N1424	2.463 2.463	0.44 L/(>1000)	2.955 2.955	0.61 L/(>1000)	2.463 2.463	0.57 L/(>1000)	3.201 2.955	0.64 L/(>1000)
N1460/N1425	1.600 1.600	1.06 L/(>1000)	0.600 0.600	0.59 L/(>1000)	1.600 1.600	1.34 L/(>1000)	0.600 0.600	0.63 L/(>1000)
N1459/N1425	1.523 1.523	0.57 L/(>1000)	3.046 3.046	0.63 L/(>1000)	1.523 1.523	0.66 L/(>1000)	3.046 3.046	0.64 L/(>1000)
N1459/N1426	2.097 2.097	4.67 L/718.8	0.629 0.629	0.54 L/(>1000)	2.097 2.097	5.88 L/739.9	0.629 0.629	0.59 L/(>1000)
N1458/N1426	2.615 2.615	4.37 L/956.7	3.139 3.139	0.68 L/(>1000)	2.615 2.615	5.54 L/994.9	3.139 3.139	0.69 L/(>1000)
N1458/N1427	1.536 1.536	2.03 L/(>1000)	0.878 0.878	0.50 L/(>1000)	1.317 1.536	2.55 L/(>1000)	0.878 0.878	0.55 L/(>1000)
N1457/N1427	1.886 1.886	1.49 L/(>1000)	3.233 3.233	0.68 L/(>1000)	1.886 1.886	1.82 L/(>1000)	3.233 2.963	0.69 L/(>1000)
N1457/N1428	2.291 2.291	4.57 L/801.9	0.917 0.917	0.46 L/(>1000)	2.291 2.291	5.77 L/827.6	0.917 0.917	0.50 L/(>1000)
N1456/N1428	2.773 2.773	5.41 L/820.1	3.328 3.328	0.67 L/(>1000)	2.773 2.773	6.84 L/850.9	3.328 3.051	0.69 L/(>1000)
N1456/N1429	1.433 1.433	1.30 L/(>1000)	0.955 0.955	0.41 L/(>1000)	1.433 1.433	1.67 L/(>1000)	0.955 0.955	0.44 L/(>1000)
N1455/N1429	1.998 1.998	1.80 L/(>1000)	3.139 3.139	0.66 L/(>1000)	1.998 1.998	2.21 L/(>1000)	3.139 3.139	0.66 L/(>1000)
N1455/N1430	2.485 2.485	4.49 L/885.2	0.994 0.994	0.35 L/(>1000)	2.485 2.485	5.63 L/913.6	0.994 0.994	0.39 L/(>1000)
N1454/N1430	2.936 2.936	6.00 L/783.3	3.229 3.229	0.64 L/(>1000)	2.936 2.936	7.62 L/816.3	3.229 3.229	0.63 L/(>1000)
N1454/N1431	1.291 1.291	1.44 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.291 1.549	1.78 L/(>1000)	1.033 1.033	0.32 L/(>1000)
N1453/N1431	2.415 2.415	0.61 L/(>1000)	3.018 3.018	0.59 L/(>1000)	2.415 2.415	0.80 L/(>1000)	3.320 3.320	0.56 L/(>1000)
N1453/N1432	2.947 2.947	2.09 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	2.66 L/(>1000)	1.072 1.072	0.26 L/(>1000)
N1452/N1432	2.791 2.791	3.14 L/(>1000)	2.791 2.791	0.68 L/(>1000)	2.791 2.791	4.00 L/(>1000)	2.791 2.791	0.65 L/(>1000)
N1452/N1433	1.943 1.943	2.12 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	2.75 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1452/N1434	3.271 3.271	5.83 L/898.1	2.944 2.944	0.81 L/(>1000)	3.271 3.271	7.62 L/967.6	2.944 2.944	0.78 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1451/N1434	2.873 2.873	5.43 L/846.3	1.149 1.149	0.26 L/(>1000)	2.873 2.873	7.06 L/906.2	1.149 1.149	0.40 L/(>1000)
N1451/N1435	2.349 2.349	1.15 L/(>1000)	3.692 3.692	0.90 L/(>1000)	2.349 2.349	1.42 L/(>1000)	3.692 3.692	0.96 L/(>1000)
N1450/N1435	1.782 1.782	1.10 L/(>1000)	3.564 3.564	0.53 L/(>1000)	1.782 1.782	1.46 L/(>1000)	3.564 3.564	0.72 L/(>1000)
N1450/N1421	2.806 2.806	3.13 L/(>1000)	3.430 3.430	0.47 L/(>1000)	2.806 2.806	4.16 L/(>1000)	3.430 3.430	0.80 L/(>1000)
N1466/N1463	6.170 6.170	2.41 L/(>1000)	2.420 2.420	0.58 L/(>1000)	6.170 6.170	2.59 L/(>1000)	2.420 2.420	0.63 L/(>1000)
N1464/N1405	2.210 2.210	0.22 L/(>1000)	1.547 1.547	1.65 L/(>1000)	2.210 2.210	0.24 L/(>1000)	1.547 1.547	1.69 L/(>1000)
N1464/N1404	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.73 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.77 L/(>1000)
N1465/N1404	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.91 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.90 L/(>1000)
N1465/N1403	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.53 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.55 L/(>1000)
N1466/N1403	1.305 1.305	0.19 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N1467/N1400	2.210 2.210	0.22 L/(>1000)	1.547 1.547	1.65 L/(>1000)	2.210 2.210	0.24 L/(>1000)	1.547 1.547	1.69 L/(>1000)
N1399/N1467	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.73 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.77 L/(>1000)
N1468/N1399	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.91 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.90 L/(>1000)
N1398/N1468	0.625 0.625	0.00 L/(>1000)	1.875 1.875	0.53 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.55 L/(>1000)
N1469/N1398	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N1469/N1449	6.170 6.170	2.41 L/(>1000)	2.420 2.420	0.55 L/(>1000)	6.170 6.170	2.59 L/(>1000)	2.420 2.420	0.59 L/(>1000)
N7/N1473	6.795 6.795	10.05 L/994.8	7.003 7.003	1.64 L/(>1000)	6.795 6.795	10.88 L/(>1000)	7.003 7.003	1.74 L/(>1000)
N1474/N1478	6.795 6.795	10.05 L/994.8	7.003 7.003	1.61 L/(>1000)	6.795 6.795	10.88 L/(>1000)	7.003 7.003	1.72 L/(>1000)
N1473/N1493	18.160 18.160	4.67 L/(>1000)	21.708 21.708	40.82 L/780.3	17.951 17.951	6.16 L/(>1000)	21.708 21.917	44.27 L/798.0
N1478/N1493	18.160 18.160	4.70 L/(>1000)	21.708 21.708	40.81 L/780.3	17.951 17.951	6.22 L/(>1000)	21.708 21.917	44.26 L/798.1
N1472/N1477	18.125 54.583	15.61 L/(>1000)	36.250 36.250	180.90 L/400.8	18.125 54.792	18.94 L/(>1000)	36.250 34.375	196.23 L/423.0
N1472/N1479	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.28 L/(>1000)	1.621 1.390	0.06 L/(>1000)	1.853 1.853	1.40 L/(>1000)
N1521/N1479	0.977 0.977	0.54 L/(>1000)	0.977 0.977	0.11 L/(>1000)	0.977 0.977	0.58 L/(>1000)	0.977 1.172	0.12 L/(>1000)
N1520/N1479	2.084 2.084	0.11 L/(>1000)	1.390 1.390	1.60 L/(>1000)	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.77 L/(>1000)
N1520/N1480	1.445 1.445	0.09 L/(>1000)	0.619 0.619	0.76 L/(>1000)	1.445 1.445	0.13 L/(>1000)	0.619 2.271	0.82 L/(>1000)
N1519/N1480	1.672 1.672	0.27 L/(>1000)	2.866 2.866	0.73 L/(>1000)	1.672 1.672	0.32 L/(>1000)	2.866 2.866	0.76 L/(>1000)
N1519/N1481	2.094 2.284	0.06 L/(>1000)	0.571 0.571	0.58 L/(>1000)	2.094 2.284	0.08 L/(>1000)	0.571 0.571	0.63 L/(>1000)
N1518/N1481	2.216 2.216	0.61 L/(>1000)	3.201 0.739	0.54 L/(>1000)	2.216 2.216	0.74 L/(>1000)	0.739 0.739	0.60 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1518/N1482	1.800 1.800	0.48 L/(>1000)	0.600 0.600	0.59 L/(>1000)	1.800 1.800	0.60 L/(>1000)	0.600 0.600	0.64 L/(>1000)
N1517/N1482	2.284 2.284	0.21 L/(>1000)	3.046 3.046	0.64 L/(>1000)	2.284 2.538	0.19 L/(>1000)	3.046 3.046	0.67 L/(>1000)
N1517/N1483	1.468 1.468	0.51 L/(>1000)	0.629 0.629	0.55 L/(>1000)	1.468 1.678	0.67 L/(>1000)	0.629 0.629	0.60 L/(>1000)
N1516/N1483	2.092 2.092	0.11 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.092 2.092	0.12 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N1516/N1484	1.756 1.756	0.32 L/(>1000)	0.878 0.878	0.51 L/(>1000)	1.756 1.756	0.40 L/(>1000)	0.878 0.878	0.56 L/(>1000)
N1515/N1484	1.616 1.616	0.39 L/(>1000)	3.233 3.233	0.68 L/(>1000)	1.616 1.616	0.56 L/(>1000)	3.233 2.963	0.71 L/(>1000)
N1515/N1485	1.146 0.917	0.23 L/(>1000)	0.917 0.917	0.46 L/(>1000)	1.146 0.917	0.34 L/(>1000)	0.917 0.917	0.51 L/(>1000)
N1514/N1485	2.219 2.219	0.24 L/(>1000)	3.328 3.328	0.68 L/(>1000)	2.219 2.219	0.32 L/(>1000)	3.328 3.051	0.70 L/(>1000)
N1514/N1486	1.911 1.911	0.46 L/(>1000)	0.955 0.955	0.42 L/(>1000)	1.911 1.911	0.55 L/(>1000)	0.955 0.955	0.46 L/(>1000)
N1513/N1486	1.998 1.998	0.55 L/(>1000)	3.139 3.139	0.67 L/(>1000)	1.998 1.998	0.77 L/(>1000)	3.425 3.139	0.67 L/(>1000)
N1513/N1487	2.237 2.237	0.52 L/(>1000)	0.994 0.994	0.36 L/(>1000)	2.485 1.988	0.59 L/(>1000)	0.994 0.994	0.40 L/(>1000)
N1512/N1487	2.349 2.349	0.33 L/(>1000)	3.229 3.229	0.65 L/(>1000)	2.349 2.349	0.42 L/(>1000)	3.229 3.229	0.65 L/(>1000)
N1512/N1488	1.808 1.808	0.58 L/(>1000)	1.033 1.033	0.30 L/(>1000)	1.808 2.066	0.70 L/(>1000)	1.033 1.033	0.34 L/(>1000)
N1511/N1488	2.113 2.113	0.23 L/(>1000)	3.018 3.018	0.60 L/(>1000)	2.113 2.113	0.30 L/(>1000)	3.320 3.320	0.58 L/(>1000)
N1511/N1489	2.947 2.947	0.41 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	0.52 L/(>1000)	1.072 1.072	0.27 L/(>1000)
N1510/N1489	2.791 2.791	0.60 L/(>1000)	2.791 2.791	0.71 L/(>1000)	2.791 2.791	0.82 L/(>1000)	2.791 2.791	0.70 L/(>1000)
N1510/N1490	1.943 1.943	0.11 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	0.14 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1510/N1491	2.289 2.289	0.12 L/(>1000)	2.617 2.617	0.76 L/(>1000)	2.617 2.289	0.17 L/(>1000)	2.617 2.944	0.72 L/(>1000)
N1509/N1491	2.011 2.011	0.31 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.299 2.299	0.30 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1509/N1492	2.349 2.349	0.12 L/(>1000)	3.692 3.692	0.95 L/(>1000)	2.349 2.349	0.13 L/(>1000)	3.692 3.356	1.04 L/(>1000)
N1508/N1492	2.970 2.970	0.13 L/(>1000)	3.267 3.564	0.56 L/(>1000)	2.970 2.673	0.13 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N1508/N1493	3.118 3.118	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	3.118 3.430	0.02 L/(>1000)	3.742 3.430	0.75 L/(>1000)
N1477/N1494	1.390 1.390	0.05 L/(>1000)	1.853 1.853	1.28 L/(>1000)	1.621 1.390	0.06 L/(>1000)	1.853 1.853	1.40 L/(>1000)
N1535/N1494	0.977 0.977	0.54 L/(>1000)	0.977 0.977	0.11 L/(>1000)	0.977 0.977	0.58 L/(>1000)	0.977 1.172	0.12 L/(>1000)
N1534/N1494	2.084 2.084	0.11 L/(>1000)	1.390 1.390	1.60 L/(>1000)	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.77 L/(>1000)
N1534/N1495	1.445 1.445	0.08 L/(>1000)	0.619 0.619	0.76 L/(>1000)	1.445 1.445	0.13 L/(>1000)	0.619 2.271	0.82 L/(>1000)
N1533/N1495	1.672 1.672	0.27 L/(>1000)	2.866 2.866	0.73 L/(>1000)	1.672 1.672	0.32 L/(>1000)	2.866 2.866	0.76 L/(>1000)
N1533/N1496	2.094 2.284	0.06 L/(>1000)	0.571 0.571	0.58 L/(>1000)	2.094 2.284	0.08 L/(>1000)	0.571 0.571	0.63 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1532/N1496	2.216 2.216	0.61 L/(>1000)	3.201 0.739	0.54 L/(>1000)	2.216 2.216	0.74 L/(>1000)	0.739 0.739	0.60 L/(>1000)
N1532/N1497	1.800 1.800	0.48 L/(>1000)	0.600 0.600	0.59 L/(>1000)	1.800 1.800	0.60 L/(>1000)	0.600 0.600	0.64 L/(>1000)
N1531/N1497	2.284 2.284	0.21 L/(>1000)	3.046 3.046	0.64 L/(>1000)	2.284 2.538	0.20 L/(>1000)	3.046 3.046	0.67 L/(>1000)
N1531/N1498	1.468 1.468	0.51 L/(>1000)	0.629 0.629	0.55 L/(>1000)	1.468 1.678	0.67 L/(>1000)	0.629 0.629	0.60 L/(>1000)
N1530/N1498	2.092 2.092	0.12 L/(>1000)	3.139 3.139	0.67 L/(>1000)	2.092 2.092	0.12 L/(>1000)	3.139 3.139	0.69 L/(>1000)
N1530/N1499	1.756 1.756	0.32 L/(>1000)	0.878 0.878	0.51 L/(>1000)	1.756 1.756	0.40 L/(>1000)	0.878 0.878	0.56 L/(>1000)
N1529/N1499	1.616 1.616	0.39 L/(>1000)	3.233 3.233	0.68 L/(>1000)	1.616 1.886	0.56 L/(>1000)	3.233 2.963	0.71 L/(>1000)
N1529/N1500	1.146 0.917	0.23 L/(>1000)	0.917 0.917	0.46 L/(>1000)	1.146 0.917	0.34 L/(>1000)	0.917 0.917	0.51 L/(>1000)
N1528/N1500	2.219 2.219	0.24 L/(>1000)	3.328 3.328	0.68 L/(>1000)	2.219 2.219	0.32 L/(>1000)	3.328 3.051	0.70 L/(>1000)
N1528/N1501	1.911 1.911	0.46 L/(>1000)	0.955 0.955	0.42 L/(>1000)	1.911 1.911	0.55 L/(>1000)	0.955 0.955	0.46 L/(>1000)
N1527/N1501	1.998 1.998	0.55 L/(>1000)	3.139 3.139	0.67 L/(>1000)	1.998 1.998	0.77 L/(>1000)	3.425 3.139	0.67 L/(>1000)
N1527/N1502	2.237 2.237	0.52 L/(>1000)	0.994 0.994	0.36 L/(>1000)	2.485 1.988	0.59 L/(>1000)	0.994 0.994	0.40 L/(>1000)
N1526/N1502	2.349 2.349	0.33 L/(>1000)	3.229 3.229	0.65 L/(>1000)	2.349 2.349	0.42 L/(>1000)	3.229 3.229	0.65 L/(>1000)
N1526/N1503	1.808 1.808	0.58 L/(>1000)	1.033 1.033	0.30 L/(>1000)	1.808 1.808	0.70 L/(>1000)	1.033 1.033	0.34 L/(>1000)
N1525/N1503	2.113 2.113	0.23 L/(>1000)	3.018 3.018	0.60 L/(>1000)	2.113 2.113	0.30 L/(>1000)	3.320 3.320	0.58 L/(>1000)
N1525/N1504	2.947 2.947	0.41 L/(>1000)	1.072 1.072	0.23 L/(>1000)	2.947 2.679	0.52 L/(>1000)	1.072 1.072	0.27 L/(>1000)
N1524/N1504	2.791 2.791	0.60 L/(>1000)	2.791 2.791	0.71 L/(>1000)	2.791 2.791	0.82 L/(>1000)	2.791 2.791	0.70 L/(>1000)
N1524/N1505	1.943 1.943	0.11 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	0.14 L/(>1000)	1.111 1.388	0.24 L/(>1000)
N1524/N1506	2.289 2.289	0.12 L/(>1000)	2.617 2.617	0.76 L/(>1000)	2.617 2.289	0.17 L/(>1000)	2.617 2.944	0.72 L/(>1000)
N1523/N1506	2.011 2.011	0.31 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.299 2.299	0.30 L/(>1000)	1.149 1.149	0.41 L/(>1000)
N1523/N1507	2.349 2.349	0.12 L/(>1000)	3.692 3.692	0.95 L/(>1000)	2.349 2.349	0.13 L/(>1000)	3.692 3.356	1.04 L/(>1000)
N1522/N1507	2.970 2.970	0.13 L/(>1000)	3.267 3.564	0.56 L/(>1000)	2.970 2.673	0.13 L/(>1000)	3.564 3.564	0.77 L/(>1000)
N1522/N1493	3.118 3.118	0.01 L/(>1000)	3.430 3.430	0.44 L/(>1000)	3.118 3.430	0.02 L/(>1000)	3.742 3.430	0.75 L/(>1000)
N1538/N1535	6.170 6.170	2.44 L/(>1000)	2.628 2.628	0.64 L/(>1000)	6.170 6.170	2.64 L/(>1000)	2.628 2.628	0.69 L/(>1000)
N1536/N1477	2.210 2.210	0.24 L/(>1000)	1.547 1.547	1.67 L/(>1000)	2.210 2.210	0.26 L/(>1000)	1.547 1.547	1.72 L/(>1000)
N1536/N1476	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.74 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.78 L/(>1000)
N1537/N1476	2.652 2.652	0.05 L/(>1000)	1.326 1.326	0.92 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.91 L/(>1000)
N1537/N1475	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.54 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 0.625	0.56 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1538/N1475	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 0.870	0.30 L/(>1000)
N1539/N1472	2.210 2.210	0.24 L/(>1000)	1.547 1.547	1.67 L/(>1000)	2.210 2.210	0.26 L/(>1000)	1.547 1.547	1.72 L/(>1000)
N1471/N1539	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.74 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.78 L/(>1000)
N1540/N1471	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.92 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.326 1.326	0.91 L/(>1000)
N1470/N1540	0.625 0.625	0.00 L/(>1000)	1.875 1.875	0.54 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.56 L/(>1000)
N1541/N1470	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 0.870	0.30 L/(>1000)
N1541/N1521	6.170 6.170	2.44 L/(>1000)	2.420 2.420	0.61 L/(>1000)	6.170 6.170	2.64 L/(>1000)	2.420 2.420	0.66 L/(>1000)
N6/N1545	6.795 6.795	10.36 L/965.4	7.003 7.003	1.71 L/(>1000)	6.795 6.795	11.36 L/992.2	7.003 7.003	1.81 L/(>1000)
N1546/N1550	6.795 6.795	10.36 L/965.5	7.003 7.003	1.69 L/(>1000)	6.795 6.795	11.36 L/992.3	7.003 7.003	1.79 L/(>1000)
N1545/N1565	22.752 3.548	1.09 L/(>1000)	21.708 21.708	42.01 L/758.0	22.126 3.340	1.52 L/(>1000)	21.708 21.708	46.19 L/760.9
N1550/N1565	23.170 3.548	1.11 L/(>1000)	21.708 21.708	42.01 L/758.1	22.335 3.966	1.52 L/(>1000)	21.708 21.708	46.18 L/760.9
N1544/N1549	36.458 36.458	6.52 L/(>1000)	36.250 36.250	186.45 L/388.8	36.042 36.458	6.81 L/(>1000)	36.250 34.375	205.14 L/401.2
N1544/N1551	1.390 1.390	0.04 L/(>1000)	1.853 1.853	1.32 L/(>1000)	1.621 1.390	0.06 L/(>1000)	1.853 1.853	1.47 L/(>1000)
N1593/N1551	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.13 L/(>1000)	0.977 0.977	0.61 L/(>1000)	1.172 1.172	0.13 L/(>1000)
N1592/N1551	2.084 2.084	0.09 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.084 2.084	0.11 L/(>1000)	1.390 1.390	1.85 L/(>1000)
N1592/N1552	1.445 1.445	0.10 L/(>1000)	0.619 0.619	0.78 L/(>1000)	1.239 1.239	0.12 L/(>1000)	0.619 0.619	0.86 L/(>1000)
N1591/N1552	1.672 1.672	0.16 L/(>1000)	2.866 2.866	0.75 L/(>1000)	1.672 1.672	0.27 L/(>1000)	2.866 2.866	0.80 L/(>1000)
N1591/N1553	0.571 0.571	0.07 L/(>1000)	0.571 0.571	0.60 L/(>1000)	2.284 0.761	0.13 L/(>1000)	0.571 0.571	0.66 L/(>1000)
N1590/N1553	2.463 2.463	0.11 L/(>1000)	3.201 0.739	0.55 L/(>1000)	2.463 2.463	0.15 L/(>1000)	0.739 0.739	0.62 L/(>1000)
N1590/N1554	1.600 1.600	0.10 L/(>1000)	0.600 0.600	0.60 L/(>1000)	1.600 1.600	0.19 L/(>1000)	0.600 0.600	0.67 L/(>1000)
N1589/N1554	2.031 2.031	0.04 L/(>1000)	3.046 3.046	0.66 L/(>1000)	2.031 2.031	0.06 L/(>1000)	3.046 3.046	0.69 L/(>1000)
N1589/N1555	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.56 L/(>1000)	1.678 1.678	0.17 L/(>1000)	0.629 0.629	0.62 L/(>1000)
N1588/N1555	2.092 2.092	0.03 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.092 2.092	0.07 L/(>1000)	3.139 3.139	0.72 L/(>1000)
N1588/N1556	1.756 1.756	0.08 L/(>1000)	0.878 0.878	0.52 L/(>1000)	1.756 1.756	0.16 L/(>1000)	0.878 0.878	0.58 L/(>1000)
N1587/N1556	2.155 2.155	0.03 L/(>1000)	3.233 3.233	0.70 L/(>1000)	2.155 2.155	0.06 L/(>1000)	3.233 3.233	0.73 L/(>1000)
N1587/N1557	1.833 1.833	0.08 L/(>1000)	0.917 0.917	0.48 L/(>1000)	1.833 1.833	0.15 L/(>1000)	0.917 0.917	0.53 L/(>1000)
N1586/N1557	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.70 L/(>1000)	2.219 2.219	0.05 L/(>1000)	3.328 3.328	0.73 L/(>1000)
N1586/N1558	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.43 L/(>1000)	1.911 1.911	0.13 L/(>1000)	0.955 0.955	0.48 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1585/N1558	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.69 L/(>1000)	2.283 2.283	0.04 L/(>1000)	3.425 3.139	0.71 L/(>1000)
N1585/N1559	1.740 1.740	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)	1.740 1.740	0.08 L/(>1000)	0.994 0.994	0.42 L/(>1000)
N1584/N1559	2.055 2.055	0.04 L/(>1000)	3.229 3.229	0.67 L/(>1000)	2.055 2.055	0.08 L/(>1000)	3.229 2.936	0.68 L/(>1000)
N1584/N1560	2.582 2.582	0.15 L/(>1000)	1.033 1.033	0.32 L/(>1000)	2.841 2.582	0.25 L/(>1000)	1.033 1.033	0.36 L/(>1000)
N1583/N1560	1.811 1.811	0.51 L/(>1000)	3.018 3.018	0.62 L/(>1000)	1.811 1.811	0.91 L/(>1000)	3.320 3.320	0.62 L/(>1000)
N1583/N1561	3.483 3.483	0.29 L/(>1000)	1.072 1.072	0.25 L/(>1000)	3.483 0.804	0.53 L/(>1000)	1.072 1.072	0.29 L/(>1000)
N1582/N1561	3.102 3.102	0.52 L/(>1000)	2.791 2.791	0.74 L/(>1000)	3.102 3.102	0.93 L/(>1000)	2.791 2.791	0.74 L/(>1000)
N1582/N1562	1.943 1.943	0.16 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	0.28 L/(>1000)	1.111 1.388	0.25 L/(>1000)
N1582/N1563	1.962 1.962	0.13 L/(>1000)	2.617 2.617	0.78 L/(>1000)	1.962 1.962	0.25 L/(>1000)	2.944 2.944	0.75 L/(>1000)
N1581/N1563	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.09 L/(>1000)	1.149 1.149	0.42 L/(>1000)
N1581/N1564	2.685 2.685	0.01 L/(>1000)	3.692 3.692	0.98 L/(>1000)	2.349 2.349	0.02 L/(>1000)	3.692 3.356	1.08 L/(>1000)
N1580/N1564	2.673 2.673	0.02 L/(>1000)	3.267 3.267	0.59 L/(>1000)	2.673 2.673	0.03 L/(>1000)	3.564 3.267	0.81 L/(>1000)
N1580/N1565	2.806 2.806	0.02 L/(>1000)	3.430 3.430	0.45 L/(>1000)	2.806 2.806	0.03 L/(>1000)	3.742 3.430	0.76 L/(>1000)
N1549/N1566	1.390 1.390	0.04 L/(>1000)	1.853 1.853	1.32 L/(>1000)	1.621 1.390	0.06 L/(>1000)	1.853 1.853	1.47 L/(>1000)
N1607/N1566	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.13 L/(>1000)	0.977 0.977	0.61 L/(>1000)	1.172 1.172	0.13 L/(>1000)
N1606/N1566	2.084 2.084	0.09 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.084 2.084	0.11 L/(>1000)	1.390 1.390	1.85 L/(>1000)
N1606/N1567	1.445 1.445	0.10 L/(>1000)	0.619 0.619	0.78 L/(>1000)	1.239 1.239	0.12 L/(>1000)	0.619 0.619	0.86 L/(>1000)
N1605/N1567	1.672 1.672	0.16 L/(>1000)	2.866 2.866	0.75 L/(>1000)	1.672 1.672	0.27 L/(>1000)	2.866 2.866	0.80 L/(>1000)
N1605/N1568	0.761 0.761	0.08 L/(>1000)	0.571 0.571	0.60 L/(>1000)	2.284 0.761	0.13 L/(>1000)	0.571 0.571	0.66 L/(>1000)
N1604/N1568	2.463 2.463	0.11 L/(>1000)	3.201 0.739	0.55 L/(>1000)	2.463 2.216	0.14 L/(>1000)	0.739 0.739	0.62 L/(>1000)
N1604/N1569	1.600 1.600	0.10 L/(>1000)	0.600 0.600	0.60 L/(>1000)	1.600 1.600	0.19 L/(>1000)	0.600 0.600	0.67 L/(>1000)
N1603/N1569	2.031 2.031	0.04 L/(>1000)	3.046 3.046	0.66 L/(>1000)	2.031 2.031	0.06 L/(>1000)	3.046 3.046	0.69 L/(>1000)
N1603/N1570	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.56 L/(>1000)	1.678 1.678	0.17 L/(>1000)	0.629 0.629	0.62 L/(>1000)
N1602/N1570	2.092 2.092	0.03 L/(>1000)	3.139 3.139	0.68 L/(>1000)	2.092 2.092	0.07 L/(>1000)	3.139 3.139	0.72 L/(>1000)
N1602/N1571	1.756 1.756	0.08 L/(>1000)	0.878 0.878	0.52 L/(>1000)	1.756 1.756	0.16 L/(>1000)	0.878 0.878	0.58 L/(>1000)
N1601/N1571	2.155 2.155	0.03 L/(>1000)	3.233 3.233	0.70 L/(>1000)	2.155 2.155	0.06 L/(>1000)	3.233 3.233	0.73 L/(>1000)
N1601/N1572	1.833 1.833	0.08 L/(>1000)	0.917 0.917	0.48 L/(>1000)	1.833 1.833	0.15 L/(>1000)	0.917 0.917	0.53 L/(>1000)
N1600/N1572	2.219 2.219	0.03 L/(>1000)	3.328 3.328	0.70 L/(>1000)	2.219 2.219	0.05 L/(>1000)	3.328 3.328	0.73 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1600/N1573	1.911 1.911	0.07 L/(>1000)	0.955 0.955	0.43 L/(>1000)	1.911 1.911	0.13 L/(>1000)	0.955 0.955	0.48 L/(>1000)
N1599/N1573	2.283 2.283	0.02 L/(>1000)	3.139 3.139	0.69 L/(>1000)	2.283 2.283	0.04 L/(>1000)	3.425 3.139	0.71 L/(>1000)
N1599/N1574	1.740 1.740	0.04 L/(>1000)	0.994 0.994	0.37 L/(>1000)	1.740 1.740	0.08 L/(>1000)	0.994 0.994	0.42 L/(>1000)
N1598/N1574	2.055 2.055	0.04 L/(>1000)	3.229 3.229	0.67 L/(>1000)	2.055 2.055	0.08 L/(>1000)	3.229 2.936	0.68 L/(>1000)
N1598/N1575	2.582 2.582	0.15 L/(>1000)	1.033 1.033	0.32 L/(>1000)	2.841 2.582	0.25 L/(>1000)	1.033 1.033	0.36 L/(>1000)
N1597/N1575	1.811 1.811	0.51 L/(>1000)	3.018 3.018	0.62 L/(>1000)	1.811 1.811	0.91 L/(>1000)	3.320 3.320	0.62 L/(>1000)
N1597/N1576	3.483 3.483	0.29 L/(>1000)	1.072 1.072	0.25 L/(>1000)	3.483 0.804	0.53 L/(>1000)	1.072 1.072	0.29 L/(>1000)
N1596/N1576	3.102 3.102	0.52 L/(>1000)	2.791 2.791	0.74 L/(>1000)	3.102 3.102	0.94 L/(>1000)	2.791 2.791	0.74 L/(>1000)
N1596/N1577	1.943 1.943	0.16 L/(>1000)	1.388 1.388	0.14 L/(>1000)	1.943 1.943	0.28 L/(>1000)	1.111 1.388	0.25 L/(>1000)
N1596/N1578	1.962 1.962	0.13 L/(>1000)	2.617 2.617	0.78 L/(>1000)	1.962 1.962	0.25 L/(>1000)	2.944 2.944	0.75 L/(>1000)
N1595/N1578	2.873 2.873	0.06 L/(>1000)	1.149 1.149	0.27 L/(>1000)	2.873 2.873	0.09 L/(>1000)	1.149 1.149	0.42 L/(>1000)
N1595/N1579	2.685 2.685	0.01 L/(>1000)	3.692 3.692	0.98 L/(>1000)	2.349 2.685	0.02 L/(>1000)	3.692 3.356	1.08 L/(>1000)
N1594/N1579	2.673 2.673	0.02 L/(>1000)	3.267 3.267	0.59 L/(>1000)	2.673 2.673	0.03 L/(>1000)	3.564 3.267	0.81 L/(>1000)
N1594/N1565	2.806 2.806	0.02 L/(>1000)	3.430 3.430	0.45 L/(>1000)	2.806 2.806	0.03 L/(>1000)	3.742 3.430	0.76 L/(>1000)
N1610/N1607	6.170 6.170	2.52 L/(>1000)	2.628 2.628	0.72 L/(>1000)	6.170 6.170	2.76 L/(>1000)	2.628 2.628	0.77 L/(>1000)
N1608/N1549	2.210 2.210	0.25 L/(>1000)	1.547 1.547	1.72 L/(>1000)	2.210 2.210	0.27 L/(>1000)	1.547 1.547	1.80 L/(>1000)
N1608/N1548	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.76 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.82 L/(>1000)
N1609/N1548	2.873 2.873	0.05 L/(>1000)	1.326 1.326	0.95 L/(>1000)	2.652 2.873	0.07 L/(>1000)	1.326 1.547	0.96 L/(>1000)
N1609/N1547	0.625 0.625	0.00 L/(>1000)	0.625 0.625	0.55 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 0.625	0.59 L/(>1000)
N1610/N1547	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N1611/N1544	2.210 2.210	0.25 L/(>1000)	1.547 1.547	1.72 L/(>1000)	2.210 2.210	0.27 L/(>1000)	1.547 1.547	1.80 L/(>1000)
N1543/N1611	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.76 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.82 L/(>1000)
N1612/N1543	2.652 2.652	0.06 L/(>1000)	1.326 1.326	0.95 L/(>1000)	2.652 2.873	0.07 L/(>1000)	1.326 1.547	0.96 L/(>1000)
N1542/N1612	0.625 0.625	0.00 L/(>1000)	1.875 1.875	0.55 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.59 L/(>1000)
N1613/N1542	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N1613/N1593	6.170 6.170	2.52 L/(>1000)	2.628 2.628	0.69 L/(>1000)	6.170 6.170	2.76 L/(>1000)	2.628 2.628	0.75 L/(>1000)
N5/N1617	6.795 6.795	11.56 L/865.2	7.003 7.003	1.78 L/(>1000)	6.795 6.795	12.99 L/871.2	7.003 7.003	1.89 L/(>1000)
N1618/N1622	6.795 6.795	11.56 L/865.4	7.212 7.212	1.76 L/(>1000)	6.795 6.795	12.99 L/871.3	7.212 7.212	1.87 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1617/N1637	23.378 3.548	1.21 L/(>1000)	21.708 21.708	43.78 L/729.9	22.961 3.548	1.66 L/(>1000)	21.500 21.708	49.38 L/745.1
N1622/N1637	23.587 3.548	1.22 L/(>1000)	21.708 21.708	43.77 L/730.1	22.961 3.548	1.67 L/(>1000)	21.500 21.708	49.37 L/745.2
N1616/N1621	36.458 36.458	6.16 L/(>1000)	36.250 36.250	197.18 L/367.7	36.042 36.042	6.84 L/(>1000)	36.250 34.583	221.60 L/369.2
N1616/N1623	1.390 1.390	0.04 L/(>1000)	1.853 1.853	1.40 L/(>1000)	1.853 1.390	0.06 L/(>1000)	1.853 1.853	1.61 L/(>1000)
N1665/N1623	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.13 L/(>1000)	0.977 0.977	0.62 L/(>1000)	0.977 1.172	0.14 L/(>1000)
N1664/N1623	2.084 2.084	0.12 L/(>1000)	1.621 1.621	1.62 L/(>1000)	2.084 2.084	0.16 L/(>1000)	1.621 1.621	1.86 L/(>1000)
N1664/N1624	1.239 1.239	0.08 L/(>1000)	0.619 0.619	0.76 L/(>1000)	1.239 1.445	0.10 L/(>1000)	0.619 0.619	0.85 L/(>1000)
N1663/N1624	1.433 1.433	0.17 L/(>1000)	2.866 2.866	0.53 L/(>1000)	1.672 1.433	0.33 L/(>1000)	2.866 2.866	0.56 L/(>1000)
N1663/N1625	1.332 1.332	0.22 L/(>1000)	2.474 2.474	0.49 L/(>1000)	1.332 1.332	0.28 L/(>1000)	2.474 2.474	0.55 L/(>1000)
N1662/N1625	2.463 2.463	0.10 L/(>1000)	2.955 0.739	0.41 L/(>1000)	2.463 2.463	0.13 L/(>1000)	0.739 0.739	0.46 L/(>1000)
N1662/N1626	1.400 1.400	0.08 L/(>1000)	0.600 0.600	0.49 L/(>1000)	1.600 1.600	0.11 L/(>1000)	0.600 0.600	0.56 L/(>1000)
N1661/N1626	2.031 2.031	0.08 L/(>1000)	3.046 3.046	0.53 L/(>1000)	2.031 2.031	0.14 L/(>1000)	3.046 3.046	0.57 L/(>1000)
N1661/N1627	1.678 1.678	0.05 L/(>1000)	0.629 0.629	0.45 L/(>1000)	1.678 1.678	0.09 L/(>1000)	0.629 0.629	0.51 L/(>1000)
N1660/N1627	2.092 2.092	0.08 L/(>1000)	3.139 3.139	0.57 L/(>1000)	2.092 2.092	0.15 L/(>1000)	3.139 3.139	0.61 L/(>1000)
N1660/N1628	1.756 1.756	0.05 L/(>1000)	0.878 0.878	0.41 L/(>1000)	1.756 1.756	0.10 L/(>1000)	0.878 0.658	0.47 L/(>1000)
N1659/N1628	2.155 2.155	0.07 L/(>1000)	2.963 2.963	0.61 L/(>1000)	2.155 2.155	0.14 L/(>1000)	3.233 3.233	0.64 L/(>1000)
N1659/N1629	1.833 1.833	0.05 L/(>1000)	0.917 0.917	0.37 L/(>1000)	1.833 1.833	0.09 L/(>1000)	0.917 0.917	0.42 L/(>1000)
N1658/N1629	2.219 2.219	0.07 L/(>1000)	3.051 3.051	0.64 L/(>1000)	2.219 2.219	0.13 L/(>1000)	3.051 3.051	0.66 L/(>1000)
N1658/N1630	1.911 1.911	0.05 L/(>1000)	0.955 0.955	0.33 L/(>1000)	1.911 1.911	0.08 L/(>1000)	0.955 0.955	0.37 L/(>1000)
N1657/N1630	2.283 2.283	0.06 L/(>1000)	3.139 3.139	0.64 L/(>1000)	2.283 2.283	0.11 L/(>1000)	3.139 2.854	0.66 L/(>1000)
N1657/N1631	1.740 1.740	0.03 L/(>1000)	0.994 0.994	0.28 L/(>1000)	1.740 1.740	0.05 L/(>1000)	0.994 0.994	0.32 L/(>1000)
N1656/N1631	2.055 2.055	0.07 L/(>1000)	2.936 2.936	0.65 L/(>1000)	2.055 2.055	0.14 L/(>1000)	2.936 2.936	0.65 L/(>1000)
N1656/N1632	2.582 2.582	0.11 L/(>1000)	1.033 1.033	0.22 L/(>1000)	2.582 2.582	0.20 L/(>1000)	1.033 1.033	0.25 L/(>1000)
N1655/N1632	1.811 1.811	0.54 L/(>1000)	3.018 3.018	0.61 L/(>1000)	1.811 1.811	1.00 L/(>1000)	3.018 3.018	0.60 L/(>1000)
N1655/N1633	1.608 3.215	0.50 L/(>1000)	1.072 1.072	0.19 L/(>1000)	1.340 3.215	0.74 L/(>1000)	1.072 1.072	0.22 L/(>1000)
N1654/N1633	3.102 3.102	0.66 L/(>1000)	2.481 2.481	0.72 L/(>1000)	3.102 3.102	0.92 L/(>1000)	2.481 2.791	0.72 L/(>1000)
N1654/N1634	1.943 1.943	0.14 L/(>1000)	1.111 1.111	0.11 L/(>1000)	1.943 1.943	0.20 L/(>1000)	1.111 1.111	0.20 L/(>1000)
N1654/N1635	1.962 1.962	0.13 L/(>1000)	2.617 2.617	0.81 L/(>1000)	1.962 1.962	0.17 L/(>1000)	2.617 2.617	0.80 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1653/N1635	2.873 2.873	0.03 L/(>1000)	1.149 1.149	0.22 L/(>1000)	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.34 L/(>1000)
N1653/N1636	2.685 2.685	0.03 L/(>1000)	3.356 3.356	0.98 L/(>1000)	2.685 2.685	0.05 L/(>1000)	3.692 3.356	1.06 L/(>1000)
N1652/N1636	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.54 L/(>1000)	2.673 2.673	0.02 L/(>1000)	3.564 3.564	0.73 L/(>1000)
N1652/N1637	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.39 L/(>1000)	2.806 2.806	0.03 L/(>1000)	3.742 3.430	0.65 L/(>1000)
N1621/N1638	1.390 1.390	0.04 L/(>1000)	1.853 1.853	1.40 L/(>1000)	1.853 1.621	0.06 L/(>1000)	1.853 1.853	1.60 L/(>1000)
N1679/N1638	0.977 0.977	0.56 L/(>1000)	1.172 1.172	0.13 L/(>1000)	0.977 0.977	0.62 L/(>1000)	0.977 1.172	0.14 L/(>1000)
N1678/N1638	2.084 2.084	0.13 L/(>1000)	1.621 1.621	1.62 L/(>1000)	2.084 2.084	0.16 L/(>1000)	1.621 1.621	1.86 L/(>1000)
N1678/N1639	1.239 1.239	0.08 L/(>1000)	0.619 0.619	0.76 L/(>1000)	1.239 1.239	0.09 L/(>1000)	0.619 0.619	0.85 L/(>1000)
N1677/N1639	1.672 1.672	0.18 L/(>1000)	2.866 2.866	0.53 L/(>1000)	1.672 1.672	0.34 L/(>1000)	2.866 2.866	0.56 L/(>1000)
N1677/N1640	1.332 1.332	0.20 L/(>1000)	2.474 2.474	0.49 L/(>1000)	1.332 1.332	0.26 L/(>1000)	2.474 2.474	0.55 L/(>1000)
N1676/N1640	2.463 2.463	0.10 L/(>1000)	2.955 0.739	0.41 L/(>1000)	2.463 2.463	0.13 L/(>1000)	0.739 0.739	0.46 L/(>1000)
N1676/N1641	1.400 1.400	0.08 L/(>1000)	0.600 0.600	0.49 L/(>1000)	1.600 1.600	0.11 L/(>1000)	0.600 0.600	0.56 L/(>1000)
N1675/N1641	2.031 2.031	0.08 L/(>1000)	3.046 3.046	0.53 L/(>1000)	2.031 2.031	0.14 L/(>1000)	3.046 3.046	0.57 L/(>1000)
N1675/N1642	1.678 1.678	0.05 L/(>1000)	0.629 0.629	0.45 L/(>1000)	1.678 1.678	0.10 L/(>1000)	0.629 0.629	0.51 L/(>1000)
N1674/N1642	2.092 2.092	0.08 L/(>1000)	3.139 3.139	0.57 L/(>1000)	2.092 2.092	0.15 L/(>1000)	3.139 3.139	0.61 L/(>1000)
N1674/N1643	1.756 1.756	0.05 L/(>1000)	0.878 0.878	0.41 L/(>1000)	1.756 1.756	0.10 L/(>1000)	0.878 0.658	0.47 L/(>1000)
N1673/N1643	2.155 2.155	0.07 L/(>1000)	2.963 2.963	0.61 L/(>1000)	2.155 2.155	0.14 L/(>1000)	3.233 3.233	0.64 L/(>1000)
N1673/N1644	1.833 1.833	0.05 L/(>1000)	0.917 0.917	0.37 L/(>1000)	1.833 1.833	0.09 L/(>1000)	0.917 0.917	0.42 L/(>1000)
N1672/N1644	2.219 2.219	0.07 L/(>1000)	3.051 3.051	0.64 L/(>1000)	2.219 2.219	0.13 L/(>1000)	3.051 3.051	0.66 L/(>1000)
N1672/N1645	1.911 1.911	0.05 L/(>1000)	0.955 0.955	0.33 L/(>1000)	1.911 1.911	0.08 L/(>1000)	0.955 0.955	0.37 L/(>1000)
N1671/N1645	2.283 2.283	0.06 L/(>1000)	3.139 3.139	0.64 L/(>1000)	2.283 2.283	0.11 L/(>1000)	3.139 2.854	0.66 L/(>1000)
N1671/N1646	1.740 1.740	0.03 L/(>1000)	0.994 0.994	0.28 L/(>1000)	1.740 1.740	0.05 L/(>1000)	0.994 0.994	0.32 L/(>1000)
N1670/N1646	2.055 2.055	0.07 L/(>1000)	2.936 2.936	0.65 L/(>1000)	2.055 2.055	0.14 L/(>1000)	2.936 2.936	0.65 L/(>1000)
N1670/N1647	2.582 2.582	0.11 L/(>1000)	1.033 1.033	0.22 L/(>1000)	2.582 2.582	0.20 L/(>1000)	1.033 1.033	0.25 L/(>1000)
N1669/N1647	1.811 1.811	0.54 L/(>1000)	3.018 3.018	0.61 L/(>1000)	1.811 1.811	1.01 L/(>1000)	3.018 3.018	0.60 L/(>1000)
N1669/N1648	1.608 3.215	0.49 L/(>1000)	1.072 1.072	0.19 L/(>1000)	1.340 3.215	0.73 L/(>1000)	1.072 1.072	0.22 L/(>1000)
N1668/N1648	3.102 3.102	0.66 L/(>1000)	2.481 2.481	0.72 L/(>1000)	3.102 3.102	0.91 L/(>1000)	2.481 2.791	0.72 L/(>1000)
N1668/N1649	1.943 1.943	0.14 L/(>1000)	1.111 1.111	0.11 L/(>1000)	1.943 1.943	0.20 L/(>1000)	1.111 1.111	0.20 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1668/N1650	1.962 1.962	0.13 L/(>1000)	2.617 2.617	0.81 L/(>1000)	1.962 1.962	0.17 L/(>1000)	2.617 2.617	0.80 L/(>1000)
N1667/N1650	2.873 2.873	0.03 L/(>1000)	1.149 1.149	0.22 L/(>1000)	2.873 2.873	0.05 L/(>1000)	1.149 1.149	0.34 L/(>1000)
N1667/N1651	2.685 2.685	0.03 L/(>1000)	3.356 3.356	0.98 L/(>1000)	2.685 2.685	0.05 L/(>1000)	3.692 3.356	1.06 L/(>1000)
N1666/N1651	2.673 2.673	0.01 L/(>1000)	3.564 3.564	0.54 L/(>1000)	2.673 2.673	0.02 L/(>1000)	3.564 3.564	0.73 L/(>1000)
N1666/N1637	2.806 2.806	0.01 L/(>1000)	3.430 3.430	0.39 L/(>1000)	2.806 2.806	0.03 L/(>1000)	3.742 3.430	0.65 L/(>1000)
N1682/N1679	6.170 6.170	2.85 L/(>1000)	2.628 2.628	0.82 L/(>1000)	6.170 6.170	3.20 L/(>1000)	2.628 2.628	0.88 L/(>1000)
N1680/N1621	2.210 2.210	0.28 L/(>1000)	1.547 1.547	1.91 L/(>1000)	2.210 2.210	0.30 L/(>1000)	1.547 1.547	2.06 L/(>1000)
N1680/N1620	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.85 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.94 L/(>1000)
N1681/N1620	0.884 0.884	0.05 L/(>1000)	1.326 1.326	1.05 L/(>1000)	2.431 0.884	0.07 L/(>1000)	1.326 1.547	1.09 L/(>1000)
N1681/N1619	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.60 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 0.625	0.66 L/(>1000)
N1682/N1619	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.25 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.34 L/(>1000)
N1683/N1616	2.210 2.210	0.28 L/(>1000)	1.547 1.547	1.91 L/(>1000)	2.210 2.210	0.31 L/(>1000)	1.547 1.547	2.06 L/(>1000)
N1615/N1683	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.85 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.94 L/(>1000)
N1684/N1615	0.663 0.663	0.05 L/(>1000)	1.326 1.326	1.05 L/(>1000)	2.652 0.663	0.07 L/(>1000)	1.326 1.547	1.09 L/(>1000)
N1614/N1684	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.60 L/(>1000)	0.625 1.875	0.01 L/(>1000)	1.875 1.875	0.66 L/(>1000)
N1685/N1614	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.25 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.34 L/(>1000)
N1685/N1665	6.170 6.170	2.85 L/(>1000)	2.628 2.628	0.79 L/(>1000)	6.170 6.170	3.20 L/(>1000)	2.628 2.628	0.86 L/(>1000)
N4/N1689	6.795 6.795	11.43 L/874.7	7.003 7.003	1.80 L/(>1000)	6.795 6.795	13.09 L/877.0	7.212 7.003	1.93 L/(>1000)
N1690/N1694	6.795 6.795	11.42 L/875.3	7.212 7.212	1.78 L/(>1000)	6.795 6.795	13.08 L/877.7	7.212 7.212	1.91 L/(>1000)
N1689/N1709	27.762 27.762	2.03 L/(>1000)	21.500 21.500	47.01 L/681.1	27.970 27.762	2.55 L/(>1000)	21.500 21.708	54.09 L/682.3
N1694/N1709	27.762 27.762	2.09 L/(>1000)	21.500 21.500	46.98 L/681.5	27.970 27.762	2.62 L/(>1000)	21.500 21.708	54.07 L/682.9
N1688/N1693	44.583 44.583	5.58 L/(>1000)	36.250 36.250	204.37 L/354.8	36.250 28.125	6.68 L/(>1000)	36.250 36.250	233.56 L/357.2
N1688/N1695	1.853 1.853	0.05 L/(>1000)	1.853 1.853	1.48 L/(>1000)	1.621 1.853	0.09 L/(>1000)	1.853 1.853	1.72 L/(>1000)
N1737/N1695	0.977 0.977	0.61 L/(>1000)	0.977 0.977	0.14 L/(>1000)	0.977 0.977	0.70 L/(>1000)	0.977 0.977	0.14 L/(>1000)
N1736/N1695	2.084 2.084	0.13 L/(>1000)	1.390 1.390	1.83 L/(>1000)	2.084 2.316	0.16 L/(>1000)	1.390 1.390	2.13 L/(>1000)
N1736/N1696	1.032 1.032	0.10 L/(>1000)	0.619 0.619	0.88 L/(>1000)	1.239 1.032	0.14 L/(>1000)	0.619 0.619	1.01 L/(>1000)
N1735/N1696	1.672 1.672	0.32 L/(>1000)	2.866 2.866	0.86 L/(>1000)	1.672 1.672	0.44 L/(>1000)	2.866 2.866	0.95 L/(>1000)
N1735/N1697	1.903 1.903	1.74 L/(>1000)	2.474 2.474	0.73 L/(>1000)	1.903 1.903	2.26 L/(>1000)	2.474 2.474	0.85 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1734/N1697	2.463 2.463	2.12 L/(>1000)	2.955 2.955	0.74 L/(>1000)	2.463 2.463	2.68 L/(>1000)	2.955 2.955	0.84 L/(>1000)
N1734/N1698	1.400 1.400	0.80 L/(>1000)	0.600 0.600	0.70 L/(>1000)	1.400 1.600	1.12 L/(>1000)	0.600 0.600	0.80 L/(>1000)
N1733/N1698	1.777 1.777	1.01 L/(>1000)	3.046 3.046	0.74 L/(>1000)	1.777 1.777	1.60 L/(>1000)	3.046 3.046	0.82 L/(>1000)
N1733/N1699	2.097 2.097	5.63 L/596.2	0.629 0.629	0.64 L/(>1000)	2.097 2.097	7.84 L/602.3	0.839 0.629	0.74 L/(>1000)
N1732/N1699	2.615 2.615	6.29 L/665.7	3.139 3.139	0.78 L/(>1000)	2.615 2.615	8.59 L/670.9	3.139 3.139	0.86 L/(>1000)
N1732/N1700	1.317 1.317	2.32 L/(>1000)	0.878 0.878	0.59 L/(>1000)	1.317 1.317	3.24 L/(>1000)	0.878 0.878	0.68 L/(>1000)
N1731/N1700	1.886 1.886	1.38 L/(>1000)	3.233 3.233	0.78 L/(>1000)	1.886 1.886	2.15 L/(>1000)	3.233 3.233	0.85 L/(>1000)
N1731/N1701	2.291 2.291	6.24 L/587.1	0.917 0.917	0.52 L/(>1000)	2.291 2.291	8.70 L/594.8	0.917 0.917	0.59 L/(>1000)
N1730/N1701	2.773 2.773	7.18 L/618.0	3.051 3.051	0.75 L/(>1000)	2.773 2.773	9.80 L/623.8	3.328 3.328	0.82 L/(>1000)
N1730/N1702	1.433 1.433	2.53 L/(>1000)	0.955 0.955	0.46 L/(>1000)	1.433 1.433	3.57 L/(>1000)	0.955 0.955	0.52 L/(>1000)
N1729/N1702	1.998 1.998	1.52 L/(>1000)	3.139 3.139	0.74 L/(>1000)	1.998 1.998	2.37 L/(>1000)	3.139 3.139	0.78 L/(>1000)
N1729/N1703	2.485 2.485	7.14 L/556.8	0.994 0.994	0.37 L/(>1000)	2.485 2.485	9.90 L/557.9	0.994 0.994	0.41 L/(>1000)
N1728/N1703	2.936 2.936	7.88 L/595.8	3.229 3.229	0.69 L/(>1000)	2.936 2.936	10.79 L/599.4	3.229 2.936	0.71 L/(>1000)
N1728/N1704	1.549 1.549	3.07 L/(>1000)	1.033 1.033	0.29 L/(>1000)	1.549 1.549	4.15 L/(>1000)	1.033 1.033	0.31 L/(>1000)
N1727/N1704	2.113 2.113	0.79 L/(>1000)	3.018 3.320	0.59 L/(>1000)	2.113 2.113	1.09 L/(>1000)	3.320 3.320	0.58 L/(>1000)
N1727/N1705	2.679 2.679	3.19 L/(>1000)	1.072 1.072	0.27 L/(>1000)	2.679 2.679	4.43 L/(>1000)	1.072 1.072	0.32 L/(>1000)
N1726/N1705	2.791 2.791	4.42 L/(>1000)	2.791 2.791	0.73 L/(>1000)	2.791 2.791	6.06 L/(>1000)	2.791 2.791	0.74 L/(>1000)
N1726/N1706	1.943 1.943	3.00 L/(>1000)	1.388 1.388	0.18 L/(>1000)	1.943 1.943	4.12 L/(>1000)	1.111 1.388	0.32 L/(>1000)
N1726/N1707	3.271 3.271	8.17 L/640.6	2.617 2.617	0.97 L/(>1000)	3.271 3.271	11.22 L/643.1	2.617 2.944	1.03 L/(>1000)
N1725/N1707	2.873 2.873	7.82 L/587.8	1.149 1.149	0.35 L/(>1000)	2.873 2.873	10.98 L/588.0	1.149 1.149	0.54 L/(>1000)
N1725/N1708	2.349 2.349	1.17 L/(>1000)	3.692 3.692	1.10 L/(>1000)	2.349 2.685	2.10 L/(>1000)	3.692 3.356	1.29 L/(>1000)
N1724/N1708	1.782 1.782	1.50 L/(>1000)	3.564 3.564	0.72 L/(>1000)	1.782 1.782	2.46 L/(>1000)	3.564 3.564	1.02 L/(>1000)
N1724/N1709	3.118 3.118	4.40 L/(>1000)	3.430 3.430	0.56 L/(>1000)	2.806 3.118	6.26 L/(>1000)	3.430 3.430	1.01 L/(>1000)
N1693/N1710	1.853 1.853	0.05 L/(>1000)	1.853 1.853	1.48 L/(>1000)	1.621 1.853	0.09 L/(>1000)	1.853 1.853	1.72 L/(>1000)
N1751/N1710	0.977 0.977	0.62 L/(>1000)	0.977 0.977	0.13 L/(>1000)	0.977 0.977	0.71 L/(>1000)	0.977 0.977	0.13 L/(>1000)
N1750/N1710	2.084 2.084	0.14 L/(>1000)	1.390 1.390	1.83 L/(>1000)	2.084 2.084	0.16 L/(>1000)	1.390 1.390	2.14 L/(>1000)
N1750/N1711	1.239 1.239	0.13 L/(>1000)	0.619 0.619	0.88 L/(>1000)	1.445 1.239	0.16 L/(>1000)	0.619 0.619	1.01 L/(>1000)
N1749/N1711	1.672 1.672	0.18 L/(>1000)	2.866 2.866	0.87 L/(>1000)	1.672 1.672	0.29 L/(>1000)	2.866 2.866	0.96 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1749/N1712	2.094 2.094	1.66 L/(>1000)	2.474 2.474	0.73 L/(>1000)	1.903 2.094	2.16 L/(>1000)	2.474 2.474	0.86 L/(>1000)
N1748/N1712	2.463 2.463	2.10 L/(>1000)	2.955 2.955	0.73 L/(>1000)	2.463 2.463	2.65 L/(>1000)	2.955 2.955	0.84 L/(>1000)
N1748/N1713	1.400 1.400	0.74 L/(>1000)	0.600 0.600	0.70 L/(>1000)	1.400 1.400	1.06 L/(>1000)	0.600 0.600	0.81 L/(>1000)
N1747/N1713	1.777 1.777	0.78 L/(>1000)	3.046 3.046	0.74 L/(>1000)	1.777 1.777	1.39 L/(>1000)	3.046 3.046	0.82 L/(>1000)
N1747/N1714	2.097 2.097	5.47 L/613.1	0.629 0.629	0.64 L/(>1000)	2.097 2.097	7.70 L/620.6	0.839 0.629	0.74 L/(>1000)
N1746/N1714	2.615 2.615	6.24 L/670.9	3.139 3.139	0.78 L/(>1000)	2.615 2.615	8.55 L/672.3	3.139 3.139	0.86 L/(>1000)
N1746/N1715	1.317 1.317	2.28 L/(>1000)	0.878 0.878	0.58 L/(>1000)	1.317 1.317	3.20 L/(>1000)	0.878 0.878	0.67 L/(>1000)
N1745/N1715	2.155 2.155	1.19 L/(>1000)	3.233 3.233	0.77 L/(>1000)	1.886 2.155	1.99 L/(>1000)	3.233 3.233	0.84 L/(>1000)
N1745/N1716	2.291 2.291	6.13 L/598.1	0.917 0.917	0.54 L/(>1000)	2.291 2.291	8.62 L/605.3	0.917 0.917	0.61 L/(>1000)
N1744/N1716	2.773 2.773	7.14 L/621.8	3.051 3.051	0.76 L/(>1000)	2.773 2.773	9.76 L/624.6	3.328 3.328	0.82 L/(>1000)
N1744/N1717	1.433 1.433	2.46 L/(>1000)	0.955 0.955	0.45 L/(>1000)	1.433 1.433	3.52 L/(>1000)	0.955 0.955	0.51 L/(>1000)
N1743/N1717	2.283 2.283	1.25 L/(>1000)	3.139 3.139	0.72 L/(>1000)	1.998 1.998	2.12 L/(>1000)	3.139 3.139	0.75 L/(>1000)
N1743/N1718	2.485 2.485	6.96 L/571.1	0.994 0.994	0.40 L/(>1000)	2.485 2.485	9.73 L/573.2	0.994 0.994	0.45 L/(>1000)
N1742/N1718	2.936 2.936	7.85 L/598.7	3.229 3.229	0.70 L/(>1000)	2.936 2.936	10.76 L/599.6	3.229 2.936	0.72 L/(>1000)
N1742/N1719	1.549 1.549	3.04 L/(>1000)	1.033 1.033	0.28 L/(>1000)	1.549 1.549	4.12 L/(>1000)	1.033 1.033	0.30 L/(>1000)
N1741/N1719	2.113 2.113	0.71 L/(>1000)	3.018 3.320	0.57 L/(>1000)	2.415 2.113	1.03 L/(>1000)	3.320 3.320	0.55 L/(>1000)
N1741/N1720	2.679 2.679	3.17 L/(>1000)	1.072 1.072	0.29 L/(>1000)	2.679 2.947	4.41 L/(>1000)	1.072 1.072	0.34 L/(>1000)
N1740/N1720	2.791 2.791	4.44 L/(>1000)	2.791 2.791	0.74 L/(>1000)	2.791 2.791	6.08 L/(>1000)	2.791 2.791	0.75 L/(>1000)
N1740/N1721	1.943 1.943	3.02 L/(>1000)	1.388 1.388	0.17 L/(>1000)	1.943 1.943	4.14 L/(>1000)	1.111 1.388	0.31 L/(>1000)
N1740/N1722	3.271 3.271	8.23 L/635.9	2.617 2.617	0.96 L/(>1000)	3.271 3.271	11.29 L/637.3	2.617 2.944	1.01 L/(>1000)
N1739/N1722	2.873 2.873	8.13 L/565.3	1.149 1.149	0.33 L/(>1000)	2.873 2.873	11.33 L/571.4	1.149 1.149	0.52 L/(>1000)
N1739/N1723	2.349 2.349	1.67 L/(>1000)	3.692 3.692	1.12 L/(>1000)	2.349 2.349	2.67 L/(>1000)	3.692 3.356	1.31 L/(>1000)
N1738/N1723	2.079 2.079	1.54 L/(>1000)	3.564 3.564	0.72 L/(>1000)	2.079 2.079	2.51 L/(>1000)	3.564 3.564	1.01 L/(>1000)
N1738/N1709	3.118 3.118	4.38 L/(>1000)	3.430 3.430	0.56 L/(>1000)	2.806 3.118	6.24 L/(>1000)	3.430 3.430	1.01 L/(>1000)
N1754/N1751	6.170 6.170	2.80 L/(>1000)	2.837 2.837	0.93 L/(>1000)	6.170 6.170	3.20 L/(>1000)	2.837 2.837	1.02 L/(>1000)
N1752/N1693	2.210 2.210	0.32 L/(>1000)	1.547 1.547	1.87 L/(>1000)	2.210 2.210	0.35 L/(>1000)	1.547 1.547	2.05 L/(>1000)
N1752/N1692	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.82 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 0.833	0.93 L/(>1000)
N1753/N1692	0.884 0.884	0.06 L/(>1000)	1.326 1.326	1.03 L/(>1000)	2.431 0.884	0.07 L/(>1000)	1.326 1.326	1.10 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1753/N1691	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.59 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 0.625	0.66 L/(>1000)
N1754/N1691	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.24 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.087 0.870	0.33 L/(>1000)
N1755/N1688	2.210 2.210	0.32 L/(>1000)	1.547 1.547	1.87 L/(>1000)	2.210 2.210	0.35 L/(>1000)	1.547 1.547	2.06 L/(>1000)
N1687/N1755	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.83 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 1.667	0.93 L/(>1000)
N1756/N1687	0.663 0.663	0.05 L/(>1000)	1.326 1.326	1.03 L/(>1000)	2.652 0.663	0.07 L/(>1000)	1.326 1.326	1.10 L/(>1000)
N1686/N1756	1.875 1.875	0.00 L/(>1000)	1.875 1.875	0.59 L/(>1000)	0.625 1.875	0.01 L/(>1000)	1.875 1.875	0.66 L/(>1000)
N1757/N1686	1.305 1.305	0.22 L/(>1000)	1.087 1.087	0.24 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.087 1.087	0.33 L/(>1000)
N1757/N1737	6.170 6.170	2.81 L/(>1000)	2.837 2.837	0.90 L/(>1000)	6.170 6.170	3.22 L/(>1000)	2.837 2.628	0.99 L/(>1000)
N3/N1761	6.795 6.795	11.16 L/896.2	7.212 7.212	1.74 L/(>1000)	6.795 6.795	12.78 L/899.0	7.212 7.212	1.88 L/(>1000)
N1762/N1766	6.795 6.795	11.17 L/895.0	7.212 7.212	1.72 L/(>1000)	6.795 6.795	12.80 L/897.9	7.212 7.212	1.85 L/(>1000)
N1761/N1781	21.708 32.771	3.22 L/(>1000)	21.917 21.917	45.23 L/706.6	21.708 32.980	3.72 L/(>1000)	21.917 21.917	52.06 L/712.7
N1766/N1781	21.708 32.771	3.28 L/(>1000)	21.917 21.917	45.28 L/706.0	21.708 32.980	3.80 L/(>1000)	21.917 21.917	52.10 L/711.8
N1760/N1765	42.708 68.125	5.31 L/(>1000)	36.250 36.250	199.88 L/362.7	36.250 68.125	6.70 L/(>1000)	36.250 36.250	229.07 L/364.3
N1760/N1767	2.084 2.084	0.16 L/(>1000)	1.853 1.853	1.40 L/(>1000)	2.316 2.084	0.16 L/(>1000)	1.853 1.853	1.63 L/(>1000)
N1809/N1767	0.977 0.977	0.60 L/(>1000)	1.368 1.368	0.21 L/(>1000)	0.977 0.977	0.69 L/(>1000)	1.563 1.563	0.23 L/(>1000)
N1808/N1767	2.084 2.084	0.44 L/(>1000)	1.390 1.390	1.71 L/(>1000)	2.084 2.084	0.52 L/(>1000)	1.390 1.390	2.00 L/(>1000)
N1808/N1768	1.445 1.445	0.23 L/(>1000)	0.619 0.619	0.84 L/(>1000)	1.445 1.445	0.29 L/(>1000)	0.619 0.619	0.96 L/(>1000)
N1807/N1768	1.433 1.433	0.21 L/(>1000)	2.866 2.866	0.77 L/(>1000)	1.672 1.433	0.30 L/(>1000)	2.866 2.866	0.86 L/(>1000)
N1807/N1769	2.094 2.094	5.31 L/573.0	2.284 2.284	0.70 L/(>1000)	1.903 1.903	6.38 L/582.0	2.284 2.284	0.82 L/(>1000)
N1806/N1769	2.463 2.463	6.44 L/611.6	2.955 2.955	0.68 L/(>1000)	2.463 2.463	7.69 L/616.0	3.201 2.955	0.78 L/(>1000)
N1806/N1770	1.200 1.200	1.97 L/(>1000)	0.600 0.600	0.67 L/(>1000)	1.200 1.200	2.41 L/(>1000)	0.600 0.600	0.77 L/(>1000)
N1805/N1770	2.031 2.031	0.81 L/(>1000)	3.046 3.046	0.72 L/(>1000)	2.031 2.284	1.32 L/(>1000)	3.046 3.046	0.79 L/(>1000)
N1805/N1771	2.097 2.097	5.09 L/659.7	0.629 0.629	0.64 L/(>1000)	2.097 2.097	7.17 L/659.8	0.629 0.629	0.74 L/(>1000)
N1804/N1771	2.615 2.615	6.23 L/671.6	3.139 3.139	0.77 L/(>1000)	2.615 2.615	8.53 L/673.7	3.139 3.139	0.85 L/(>1000)
N1804/N1772	1.317 1.317	2.00 L/(>1000)	0.658 0.658	0.59 L/(>1000)	1.317 1.317	2.85 L/(>1000)	0.878 0.878	0.68 L/(>1000)
N1803/N1772	1.886 1.886	0.63 L/(>1000)	3.233 3.233	0.77 L/(>1000)	2.155 1.886	1.23 L/(>1000)	3.233 3.233	0.85 L/(>1000)
N1803/N1773	2.521 2.521	5.66 L/647.3	0.917 0.917	0.56 L/(>1000)	2.291 2.521	8.00 L/649.8	0.917 0.917	0.65 L/(>1000)
N1802/N1773	2.773 2.773	7.02 L/632.0	3.328 3.328	0.78 L/(>1000)	2.773 2.773	9.62 L/633.5	3.328 3.328	0.85 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1802/N1774	1.433 1.433	2.23 L/(>1000)	0.955 0.955	0.49 L/(>1000)	1.433 1.433	3.22 L/(>1000)	0.955 0.955	0.57 L/(>1000)
N1801/N1774	1.998 1.998	0.69 L/(>1000)	3.139 3.139	0.75 L/(>1000)	2.283 1.998	1.19 L/(>1000)	3.425 3.425	0.81 L/(>1000)
N1801/N1775	2.734 2.734	6.44 L/617.7	0.994 0.994	0.46 L/(>1000)	2.485 2.485	9.03 L/621.6	0.994 0.994	0.53 L/(>1000)
N1800/N1775	2.936 2.936	7.68 L/611.7	3.229 3.229	0.74 L/(>1000)	2.936 2.936	10.57 L/614.0	3.229 3.229	0.79 L/(>1000)
N1800/N1776	1.549 1.549	2.71 L/(>1000)	1.033 1.033	0.38 L/(>1000)	1.549 1.549	3.74 L/(>1000)	1.033 1.033	0.44 L/(>1000)
N1799/N1776	1.509 1.509	0.76 L/(>1000)	3.320 3.320	0.66 L/(>1000)	1.509 1.509	0.56 L/(>1000)	3.320 3.320	0.69 L/(>1000)
N1799/N1777	2.947 2.947	4.70 L/810.2	1.072 1.072	0.33 L/(>1000)	2.947 2.947	6.42 L/831.3	1.072 1.072	0.39 L/(>1000)
N1798/N1777	2.791 2.791	6.73 L/737.9	2.481 2.481	0.80 L/(>1000)	2.791 2.791	8.94 L/750.9	2.791 2.481	0.84 L/(>1000)
N1798/N1778	1.943 1.943	3.65 L/(>1000)	1.388 1.388	0.15 L/(>1000)	1.943 1.943	4.94 L/(>1000)	1.111 1.111	0.28 L/(>1000)
N1798/N1779	3.271 3.271	8.60 L/608.2	2.944 2.944	0.91 L/(>1000)	3.271 3.271	11.78 L/609.2	2.944 2.944	0.96 L/(>1000)
N1797/N1779	3.161 3.161	7.53 L/610.2	1.149 1.149	0.33 L/(>1000)	2.873 3.161	10.62 L/615.4	1.149 1.149	0.51 L/(>1000)
N1797/N1780	2.349 2.349	0.78 L/(>1000)	3.692 3.692	1.06 L/(>1000)	2.349 2.685	0.97 L/(>1000)	3.692 3.692	1.21 L/(>1000)
N1796/N1780	2.079 2.079	0.67 L/(>1000)	3.564 3.564	0.69 L/(>1000)	1.782 2.079	0.89 L/(>1000)	3.564 3.564	0.95 L/(>1000)
N1796/N1781	3.118 3.118	3.41 L/(>1000)	3.430 3.430	0.50 L/(>1000)	3.118 3.430	5.03 L/(>1000)	3.430 3.430	0.90 L/(>1000)
N1765/N1782	2.084 2.084	0.16 L/(>1000)	1.853 1.853	1.40 L/(>1000)	2.316 2.084	0.16 L/(>1000)	1.853 1.853	1.64 L/(>1000)
N1823/N1782	0.977 0.977	0.58 L/(>1000)	1.563 1.563	0.18 L/(>1000)	0.977 0.977	0.67 L/(>1000)	1.563 1.563	0.20 L/(>1000)
N1822/N1782	2.084 2.084	0.44 L/(>1000)	1.390 1.390	1.71 L/(>1000)	2.084 2.084	0.52 L/(>1000)	1.390 1.390	1.99 L/(>1000)
N1822/N1783	1.445 1.445	0.24 L/(>1000)	0.619 0.619	0.83 L/(>1000)	1.652 1.445	0.29 L/(>1000)	0.619 0.619	0.96 L/(>1000)
N1821/N1783	1.672 1.672	0.23 L/(>1000)	2.866 2.866	0.77 L/(>1000)	1.672 1.672	0.38 L/(>1000)	2.866 2.866	0.85 L/(>1000)
N1821/N1784	1.903 1.903	5.34 L/570.0	2.474 2.474	0.70 L/(>1000)	1.903 1.903	6.43 L/576.3	2.474 2.474	0.82 L/(>1000)
N1820/N1784	2.463 2.463	6.45 L/610.7	2.955 2.955	0.69 L/(>1000)	2.463 2.463	7.70 L/615.1	2.955 2.955	0.78 L/(>1000)
N1820/N1785	1.200 1.200	1.98 L/(>1000)	0.600 0.600	0.66 L/(>1000)	1.200 1.200	2.42 L/(>1000)	0.600 0.600	0.76 L/(>1000)
N1819/N1785	2.031 2.031	0.84 L/(>1000)	3.046 3.046	0.72 L/(>1000)	2.031 2.284	1.38 L/(>1000)	3.046 3.046	0.80 L/(>1000)
N1819/N1786	2.097 2.097	5.09 L/659.9	0.629 0.629	0.63 L/(>1000)	2.097 2.307	7.19 L/665.6	0.629 0.629	0.73 L/(>1000)
N1818/N1786	2.615 2.615	6.23 L/671.3	3.139 3.139	0.76 L/(>1000)	2.615 2.615	8.54 L/672.3	3.139 3.139	0.84 L/(>1000)
N1818/N1787	1.317 1.317	1.98 L/(>1000)	0.878 0.878	0.59 L/(>1000)	1.317 1.317	2.84 L/(>1000)	0.878 0.878	0.69 L/(>1000)
N1817/N1787	1.886 1.886	0.67 L/(>1000)	3.233 3.233	0.78 L/(>1000)	2.155 1.886	1.20 L/(>1000)	3.233 3.233	0.86 L/(>1000)
N1817/N1788	2.521 2.521	5.62 L/652.4	0.917 0.917	0.54 L/(>1000)	2.291 2.521	7.97 L/661.7	0.917 0.917	0.63 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1816/N1788	2.773 2.773	7.01 L/633.3	3.328 3.328	0.77 L/(>1000)	2.773 2.773	9.61 L/634.9	3.328 3.328	0.84 L/(>1000)
N1816/N1789	1.433 1.433	2.20 L/(>1000)	0.955 0.955	0.50 L/(>1000)	1.433 1.433	3.20 L/(>1000)	0.955 0.955	0.58 L/(>1000)
N1815/N1789	1.998 1.998	0.72 L/(>1000)	3.139 3.139	0.77 L/(>1000)	2.283 1.998	1.11 L/(>1000)	3.425 3.425	0.82 L/(>1000)
N1815/N1790	2.734 2.734	6.38 L/623.6	0.994 0.994	0.43 L/(>1000)	2.485 2.734	8.98 L/626.6	0.994 0.994	0.50 L/(>1000)
N1814/N1790	2.936 2.936	7.65 L/613.8	3.229 3.229	0.73 L/(>1000)	2.936 2.936	10.55 L/618.1	3.229 3.229	0.77 L/(>1000)
N1814/N1791	1.549 1.549	2.70 L/(>1000)	1.033 1.033	0.39 L/(>1000)	1.549 1.549	3.74 L/(>1000)	1.033 1.033	0.46 L/(>1000)
N1813/N1791	1.509 1.509	0.77 L/(>1000)	3.018 3.018	0.69 L/(>1000)	1.509 1.509	0.56 L/(>1000)	3.320 3.018	0.72 L/(>1000)
N1813/N1792	2.947 2.947	4.69 L/810.6	1.072 1.072	0.28 L/(>1000)	2.947 2.947	6.41 L/824.0	1.072 1.072	0.34 L/(>1000)
N1812/N1792	2.791 2.791	6.70 L/740.4	2.791 2.791	0.79 L/(>1000)	2.791 2.791	8.92 L/754.0	2.791 2.481	0.82 L/(>1000)
N1812/N1793	1.943 1.943	3.63 L/(>1000)	1.388 1.388	0.15 L/(>1000)	1.943 1.943	4.92 L/(>1000)	1.388 1.388	0.28 L/(>1000)
N1812/N1794	3.271 3.271	8.57 L/611.0	2.944 2.944	0.92 L/(>1000)	3.271 3.271	11.75 L/611.8	2.944 2.944	0.98 L/(>1000)
N1811/N1794	3.161 3.161	7.38 L/622.8	1.149 1.149	0.36 L/(>1000)	3.161 3.161	10.47 L/632.7	1.149 1.149	0.53 L/(>1000)
N1811/N1795	2.349 2.349	0.82 L/(>1000)	3.692 3.692	1.04 L/(>1000)	2.349 2.685	0.71 L/(>1000)	3.692 3.692	1.20 L/(>1000)
N1810/N1795	2.079 2.079	0.67 L/(>1000)	3.564 3.564	0.69 L/(>1000)	1.485 2.079	0.92 L/(>1000)	3.564 3.564	0.95 L/(>1000)
N1810/N1781	3.118 3.118	3.45 L/(>1000)	3.430 3.430	0.50 L/(>1000)	3.118 3.118	5.08 L/(>1000)	3.430 3.430	0.90 L/(>1000)
N1826/N1823	6.170 6.170	2.77 L/(>1000)	3.462 3.045	1.11 L/(>1000)	6.170 6.170	3.17 L/(>1000)	3.462 2.837	1.24 L/(>1000)
N1824/N1765	1.989 1.989	0.44 L/(>1000)	1.547 1.547	1.83 L/(>1000)	2.210 1.989	0.49 L/(>1000)	1.547 1.547	2.01 L/(>1000)
N1824/N1764	0.625 0.625	0.05 L/(>1000)	0.625 0.625	0.80 L/(>1000)	0.625 0.625	0.06 L/(>1000)	0.625 0.833	0.90 L/(>1000)
N1825/N1764	2.652 2.652	0.08 L/(>1000)	1.326 1.326	1.01 L/(>1000)	2.652 2.652	0.11 L/(>1000)	1.326 1.326	1.07 L/(>1000)
N1825/N1763	0.625 0.625	0.04 L/(>1000)	0.625 0.625	0.58 L/(>1000)	0.625 0.625	0.05 L/(>1000)	0.625 0.625	0.65 L/(>1000)
N1826/N1763	1.305 1.305	0.23 L/(>1000)	0.870 0.870	0.23 L/(>1000)	1.305 1.305	0.24 L/(>1000)	1.087 1.087	0.33 L/(>1000)
N1827/N1760	2.210 2.210	0.43 L/(>1000)	1.547 1.547	1.83 L/(>1000)	2.210 1.989	0.49 L/(>1000)	1.547 1.547	2.00 L/(>1000)
N1759/N1827	1.875 1.875	0.05 L/(>1000)	1.875 1.875	0.80 L/(>1000)	1.875 1.875	0.06 L/(>1000)	1.875 1.667	0.89 L/(>1000)
N1828/N1759	2.652 2.652	0.09 L/(>1000)	1.326 1.326	1.01 L/(>1000)	2.431 2.652	0.11 L/(>1000)	1.326 1.326	1.07 L/(>1000)
N1758/N1828	1.875 1.875	0.04 L/(>1000)	1.875 1.875	0.58 L/(>1000)	1.875 1.875	0.05 L/(>1000)	1.875 1.875	0.65 L/(>1000)
N1829/N1758	1.305 1.305	0.24 L/(>1000)	0.870 0.870	0.23 L/(>1000)	1.305 1.305	0.25 L/(>1000)	1.087 1.087	0.32 L/(>1000)
N1829/N1809	6.170 6.170	2.75 L/(>1000)	2.837 2.837	1.07 L/(>1000)	6.170 6.170	3.15 L/(>1000)	3.462 2.837	1.20 L/(>1000)
N1/N1833	7.420 7.420	5.27 L/(>1000)	7.212 7.212	1.64 L/(>1000)	7.420 7.420	5.97 L/(>1000)	7.212 7.212	1.76 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2/N1837	7.420 7.420	5.27 L/(>1000)	7.212 7.212	1.62 L/(>1000)	7.420 7.420	5.98 L/(>1000)	7.212 7.212	1.74 L/(>1000)
N1833/N1852	1.044 32.563	1.55 L/(>1000)	11.272 7.097	4.72 L/(>1000)	1.044 32.563	1.79 L/(>1000)	11.063 7.097	5.73 L/(>1000)
N1837/N1852	1.044 32.563	1.54 L/(>1000)	11.272 7.097	4.69 L/(>1000)	1.044 32.563	1.79 L/(>1000)	11.063 7.097	5.71 L/(>1000)
N32/N1903	7.420 7.420	3.62 L/(>1000)	7.420 7.420	0.76 L/(>1000)	7.420 7.420	4.08 L/(>1000)	7.212 7.420	1.40 L/(>1000)
N33/N1907	7.420 7.420	3.52 L/(>1000)	7.420 7.420	0.78 L/(>1000)	7.420 7.420	3.97 L/(>1000)	7.212 7.420	1.40 L/(>1000)
N1831/N1901	60.220 60.220	3.60 L/(>1000)	60.220 60.220	7.12 L/(>1000)	7.928 60.220	1.52 L/(>1000)	60.220 60.220	9.20 L/(>1000)
N1832/N1902	60.220 60.220	3.66 L/867.0	60.637 55.220	3.11 L/(>1000)	7.720 60.220	3.45 L/888.7	55.220 55.220	3.16 L/(>1000)
N1833/N1903	60.220 60.220	3.82 L/830.7	122.095 125.845	9.62 L/(>1000)	7.720 60.220	3.18 L/959.6	122.095 125.845	11.51 L/(>1000)
N1834/N1904	94.595 7.928	0.78 L/(>1000)	117.720 67.720	3.08 L/(>1000)	10.012 7.928	0.67 L/(>1000)	117.720 67.720	3.52 L/(>1000)
N1835/N1905	7.720 12.720	1.27 L/(>1000)	117.720 27.720	4.74 L/(>1000)	7.928 12.720	1.53 L/(>1000)	117.720 27.720	5.45 L/(>1000)
N1836/N1906	12.720 12.720	3.01 L/994.7	92.720 117.720	2.48 L/(>1000)	7.720 12.720	3.45 L/999.1	92.720 117.720	3.02 L/(>1000)
N1837/N1907	12.720 12.720	2.78 L/(>1000)	122.095 125.845	9.69 L/(>1000)	7.720 12.720	3.18 L/(>1000)	122.095 125.845	11.60 L/(>1000)
N1833/N1837	1.042 0.625	1.14 L/(>1000)	40.833 65.000	8.15 L/(>1000)	0.833 0.625	1.22 L/(>1000)	36.250 64.792	11.92 L/(>1000)
N1932/N1908	7.420 7.420	9.19 L/(>1000)	7.212 7.212	1.77 L/(>1000)	7.420 7.420	10.44 L/(>1000)	7.212 7.212	1.90 L/(>1000)
N1933/N1909	7.420 7.420	9.16 L/(>1000)	7.212 7.212	1.78 L/(>1000)	7.420 7.420	10.31 L/(>1000)	7.212 7.212	1.90 L/(>1000)
N1934/N1910	7.420 7.420	8.64 L/(>1000)	7.212 7.212	1.72 L/(>1000)	7.420 7.420	9.52 L/(>1000)	7.212 7.212	1.82 L/(>1000)
N1935/N1911	7.420 7.420	7.99 L/(>1000)	7.212 7.212	1.64 L/(>1000)	7.420 7.420	8.63 L/(>1000)	7.212 7.212	1.74 L/(>1000)
N1936/N1912	7.420 7.420	7.82 L/(>1000)	7.212 7.212	1.56 L/(>1000)	7.420 7.420	8.35 L/(>1000)	7.212 7.212	1.65 L/(>1000)
N1937/N1913	7.420 7.420	7.76 L/(>1000)	7.003 7.003	1.47 L/(>1000)	7.420 7.420	8.25 L/(>1000)	7.003 7.003	1.56 L/(>1000)
N1938/N1914	7.420 7.420	7.68 L/(>1000)	7.003 7.003	1.41 L/(>1000)	7.420 7.420	8.13 L/(>1000)	7.003 7.003	1.50 L/(>1000)
N1939/N1915	7.420 7.420	7.65 L/(>1000)	7.003 7.003	1.35 L/(>1000)	7.420 7.420	8.09 L/(>1000)	7.003 7.003	1.47 L/(>1000)
N1940/N1916	7.420 7.420	7.65 L/(>1000)	7.003 7.003	1.30 L/(>1000)	7.420 7.420	8.08 L/(>1000)	7.003 7.003	1.45 L/(>1000)
N1941/N1917	7.420 7.420	7.62 L/(>1000)	7.003 7.003	1.25 L/(>1000)	7.420 7.420	8.04 L/(>1000)	7.003 7.003	1.42 L/(>1000)
N1942/N1918	7.420 7.420	6.78 L/(>1000)	7.003 7.003	1.19 L/(>1000)	7.420 7.212	7.11 L/(>1000)	7.003 7.003	1.38 L/(>1000)
N1943/N1931	7.420 7.420	6.63 L/(>1000)	7.003 7.003	1.20 L/(>1000)	7.420 7.212	6.94 L/(>1000)	7.003 7.003	1.42 L/(>1000)
N1944/N1930	7.420 7.420	7.75 L/(>1000)	7.003 7.003	1.16 L/(>1000)	7.420 7.420	8.19 L/(>1000)	7.003 7.003	1.40 L/(>1000)
N1945/N1929	7.420 7.420	7.68 L/(>1000)	7.003 7.003	1.12 L/(>1000)	7.420 7.420	8.11 L/(>1000)	7.003 7.003	1.39 L/(>1000)
N1946/N1928	7.420 7.420	7.67 L/(>1000)	7.003 7.003	1.07 L/(>1000)	7.420 7.420	8.10 L/(>1000)	7.003 7.003	1.37 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1947/N1927	7.420 7.420	7.68 L/(>1000)	7.003 7.003	1.02 L/(>1000)	7.420 7.420	8.12 L/(>1000)	7.003 7.003	1.35 L/(>1000)
N1948/N1926	7.420 7.420	7.66 L/(>1000)	7.003 7.003	0.97 L/(>1000)	7.420 7.420	8.10 L/(>1000)	7.003 6.795	1.33 L/(>1000)
N1949/N1925	7.420 7.420	7.78 L/(>1000)	6.795 7.003	0.89 L/(>1000)	7.420 7.420	8.26 L/(>1000)	7.003 7.003	1.28 L/(>1000)
N1950/N1924	7.420 7.420	7.81 L/(>1000)	7.003 7.003	0.85 L/(>1000)	7.420 7.420	8.32 L/(>1000)	7.212 7.003	1.32 L/(>1000)
N1951/N1923	7.420 7.420	7.90 L/(>1000)	7.003 7.003	0.82 L/(>1000)	7.420 7.420	8.49 L/(>1000)	7.212 7.003	1.39 L/(>1000)
N1952/N1922	7.420 7.420	8.08 L/(>1000)	7.003 7.420	0.79 L/(>1000)	7.420 7.420	8.80 L/(>1000)	7.212 7.420	1.46 L/(>1000)
N1953/N1921	7.420 7.420	8.35 L/(>1000)	7.420 7.420	0.78 L/(>1000)	7.420 7.420	9.34 L/(>1000)	7.212 7.420	1.53 L/(>1000)
N1954/N1920	7.420 7.420	8.80 L/(>1000)	7.420 7.420	0.84 L/(>1000)	7.420 7.420	10.17 L/(>1000)	7.212 7.420	1.53 L/(>1000)
N1955/N1919	7.420 7.420	5.92 L/(>1000)	7.420 7.420	0.82 L/(>1000)	7.420 7.420	6.83 L/(>1000)	7.212 7.420	1.47 L/(>1000)
N1957/N1956	7.420 7.420	9.19 L/(>1000)	7.212 7.212	1.74 L/(>1000)	7.420 7.420	10.44 L/(>1000)	7.212 7.212	1.88 L/(>1000)
N1959/N1958	7.420 7.420	9.15 L/(>1000)	7.212 7.212	1.76 L/(>1000)	7.420 7.420	10.30 L/(>1000)	7.212 7.212	1.88 L/(>1000)
N1961/N1960	7.420 7.420	8.64 L/(>1000)	7.212 7.212	1.70 L/(>1000)	7.420 7.420	9.52 L/(>1000)	7.212 7.212	1.80 L/(>1000)
N1963/N1962	7.420 7.420	7.99 L/(>1000)	7.212 7.212	1.62 L/(>1000)	7.420 7.420	8.62 L/(>1000)	7.212 7.212	1.72 L/(>1000)
N1965/N1964	7.420 7.420	7.82 L/(>1000)	7.212 7.212	1.54 L/(>1000)	7.420 7.420	8.35 L/(>1000)	7.212 7.212	1.64 L/(>1000)
N1967/N1966	7.420 7.420	7.76 L/(>1000)	7.212 7.212	1.46 L/(>1000)	7.420 7.420	8.25 L/(>1000)	7.212 7.212	1.55 L/(>1000)
N1969/N1968	7.420 7.420	7.67 L/(>1000)	7.212 7.212	1.39 L/(>1000)	7.420 7.420	8.13 L/(>1000)	7.212 7.003	1.49 L/(>1000)
N1971/N1970	7.420 7.420	7.65 L/(>1000)	7.003 7.003	1.33 L/(>1000)	7.420 7.420	8.09 L/(>1000)	7.003 7.003	1.45 L/(>1000)
N1973/N1972	7.420 7.420	7.64 L/(>1000)	7.003 7.003	1.28 L/(>1000)	7.420 7.420	8.08 L/(>1000)	7.003 7.003	1.42 L/(>1000)
N1975/N1974	7.420 7.420	7.64 L/(>1000)	7.003 7.003	1.23 L/(>1000)	7.420 7.420	8.06 L/(>1000)	7.003 7.003	1.40 L/(>1000)
N1977/N1976	7.420 7.420	7.74 L/(>1000)	7.003 7.003	1.18 L/(>1000)	7.420 7.420	8.18 L/(>1000)	7.003 7.003	1.37 L/(>1000)
N1979/N1978	7.420 7.420	7.70 L/(>1000)	7.003 7.003	1.15 L/(>1000)	7.420 7.420	8.12 L/(>1000)	7.003 7.003	1.38 L/(>1000)
N1983/N1982	7.420 7.420	7.67 L/(>1000)	7.003 7.003	1.05 L/(>1000)	7.420 7.420	8.10 L/(>1000)	7.003 7.003	1.33 L/(>1000)
N1985/N1984	7.420 7.420	7.66 L/(>1000)	7.003 7.003	1.01 L/(>1000)	7.420 7.420	8.10 L/(>1000)	7.003 7.003	1.32 L/(>1000)
N1987/N1986	7.420 7.420	7.68 L/(>1000)	7.003 7.003	0.97 L/(>1000)	7.420 7.420	8.12 L/(>1000)	7.003 7.003	1.30 L/(>1000)
N1989/N1988	7.420 7.420	7.66 L/(>1000)	6.795 6.795	0.92 L/(>1000)	7.420 7.420	8.10 L/(>1000)	7.003 6.795	1.28 L/(>1000)
N1991/N1990	7.420 7.420	7.78 L/(>1000)	6.795 7.003	0.84 L/(>1000)	7.420 7.420	8.26 L/(>1000)	7.003 6.795	1.24 L/(>1000)
N1995/N1994	7.420 7.420	7.90 L/(>1000)	7.003 7.003	0.80 L/(>1000)	7.420 7.420	8.48 L/(>1000)	7.212 7.003	1.38 L/(>1000)
N1997/N1996	7.420 7.420	8.07 L/(>1000)	6.795 7.420	0.77 L/(>1000)	7.420 7.420	8.80 L/(>1000)	7.212 7.212	1.45 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1999/N1998	7.420 7.420	8.33 L/(>1000)	7.420 7.420	0.80 L/(>1000)	7.420 7.420	9.31 L/(>1000)	7.212 7.420	1.52 L/(>1000)
N2001/N2000	7.420 7.420	8.82 L/(>1000)	7.420 7.420	0.87 L/(>1000)	7.420 7.420	10.19 L/(>1000)	7.212 7.420	1.53 L/(>1000)
N2003/N2002	7.420 7.420	5.90 L/(>1000)	7.420 7.420	0.84 L/(>1000)	7.420 7.420	6.80 L/(>1000)	7.212 7.420	1.47 L/(>1000)
N1831/N1835	63.542 72.083	0.54 L/(>1000)	36.250 7.500	2.20 L/(>1000)	71.875 72.083	0.50 L/(>1000)	36.250 7.500	2.94 L/(>1000)
N1830/N1834	66.250 72.292	0.46 L/(>1000)	36.458 71.875	0.55 L/(>1000)	71.875 72.292	0.18 L/(>1000)	32.083 68.750	0.69 L/(>1000)
N1832/N1836	56.458 56.458	0.93 L/(>1000)	7.500 65.000	6.90 L/(>1000)	15.833 15.833	0.53 L/(>1000)	7.500 65.000	7.85 L/(>1000)
N1899/N1838	7.420 7.420	5.44 L/(>1000)	7.003 7.003	1.74 L/(>1000)	7.420 7.420	6.17 L/(>1000)	7.003 7.003	1.81 L/(>1000)
N2055/N1839	7.212 7.212	5.61 L/(>1000)	7.420 7.420	3.03 L/(>1000)	7.212 7.212	6.36 L/(>1000)	7.420 7.420	3.16 L/(>1000)
N2056/N1840	7.420 7.420	5.50 L/(>1000)	8.710 8.710	9.62 L/754.4	7.420 7.420	6.23 L/(>1000)	8.710 8.710	10.86 L/765.9
N2057/N1841	7.212 7.212	5.62 L/(>1000)	7.420 7.420	1.83 L/(>1000)	7.212 7.212	6.36 L/(>1000)	7.212 7.212	2.03 L/(>1000)
N2058/N1842	7.420 7.420	5.26 L/(>1000)	7.420 7.420	1.28 L/(>1000)	7.420 7.420	5.96 L/(>1000)	7.212 7.212	1.66 L/(>1000)
N2059/N1843	7.212 7.212	5.23 L/(>1000)	3.045 3.045	1.62 L/(>1000)	7.212 7.212	5.92 L/(>1000)	3.253 2.837	1.79 L/(>1000)
N2060/N1844	7.420 7.420	4.68 L/(>1000)	3.045 3.045	1.80 L/(>1000)	7.420 7.420	5.29 L/(>1000)	3.670 3.253	1.99 L/(>1000)
N2061/N1845	7.212 7.212	4.44 L/(>1000)	3.253 3.253	1.86 L/(>1000)	7.212 7.212	5.02 L/(>1000)	3.878 3.253	2.37 L/(>1000)
N2062/N1846	7.420 7.420	3.74 L/(>1000)	3.045 3.045	1.84 L/(>1000)	7.420 7.420	4.23 L/(>1000)	4.087 3.045	2.58 L/(>1000)
N2063/N1847	7.212 7.212	3.31 L/(>1000)	2.837 2.837	1.79 L/(>1000)	7.212 7.212	3.74 L/(>1000)	5.337 2.837	2.71 L/(>1000)
N2064/N1848	7.420 7.420	2.51 L/(>1000)	2.837 6.378	1.74 L/(>1000)	7.420 7.420	2.84 L/(>1000)	5.128 6.170	2.87 L/(>1000)
N2065/N1849	7.212 7.212	2.03 L/(>1000)	6.378 6.378	2.11 L/(>1000)	7.212 7.212	2.41 L/(>1000)	5.545 6.587	3.12 L/(>1000)
N2066/N1850	7.420 7.420	1.42 L/(>1000)	6.378 6.378	2.07 L/(>1000)	7.420 7.212	1.86 L/(>1000)	5.128 6.587	3.22 L/(>1000)
N2067/N1851	7.212 7.212	0.89 L/(>1000)	6.170 6.170	2.51 L/(>1000)	7.212 7.212	1.48 L/(>1000)	5.545 6.378	3.51 L/(>1000)
N2068/N1866	7.212 7.212	0.88 L/(>1000)	6.170 6.170	2.53 L/(>1000)	7.212 7.212	1.48 L/(>1000)	5.545 6.378	3.52 L/(>1000)
N2069/N1865	7.420 7.420	1.42 L/(>1000)	6.378 6.378	2.09 L/(>1000)	7.420 7.212	1.87 L/(>1000)	5.337 6.587	3.24 L/(>1000)
N2070/N1864	7.212 7.212	2.03 L/(>1000)	6.378 6.378	2.13 L/(>1000)	7.212 7.212	2.42 L/(>1000)	5.545 6.378	3.13 L/(>1000)
N2071/N1863	7.420 7.420	2.51 L/(>1000)	2.837 6.378	1.73 L/(>1000)	7.420 7.420	2.85 L/(>1000)	5.128 6.170	2.87 L/(>1000)
N2072/N1862	7.212 7.212	3.32 L/(>1000)	2.837 2.837	1.78 L/(>1000)	7.212 7.212	3.76 L/(>1000)	5.337 3.045	2.70 L/(>1000)
N2073/N1861	7.420 7.420	3.75 L/(>1000)	3.045 3.045	1.83 L/(>1000)	7.420 7.420	4.25 L/(>1000)	4.087 3.045	2.57 L/(>1000)
N2074/N1860	7.212 7.212	4.44 L/(>1000)	3.253 3.253	1.84 L/(>1000)	7.212 7.212	5.03 L/(>1000)	3.878 3.045	2.36 L/(>1000)
N2075/N1859	7.420 7.420	4.68 L/(>1000)	3.045 3.045	1.78 L/(>1000)	7.420 7.420	5.31 L/(>1000)	3.670 3.253	1.98 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2076/N1858	7.212 7.212	5.24 L/(>1000)	3.045 3.045	1.61 L/(>1000)	7.212 7.212	5.93 L/(>1000)	3.253 2.837	1.77 L/(>1000)
N2077/N1857	7.420 7.420	5.27 L/(>1000)	7.420 7.420	1.30 L/(>1000)	7.420 7.420	5.97 L/(>1000)	7.212 7.420	1.67 L/(>1000)
N2078/N1856	7.212 7.212	5.63 L/(>1000)	7.420 7.420	1.80 L/(>1000)	7.212 7.212	6.37 L/(>1000)	7.212 7.420	2.02 L/(>1000)
N2079/N1855	7.420 7.420	5.51 L/(>1000)	8.710 8.710	9.61 L/752.7	7.420 7.420	6.24 L/(>1000)	8.710 8.710	10.85 L/763.9
N2080/N1854	7.212 7.212	5.62 L/(>1000)	7.420 7.420	2.99 L/(>1000)	7.212 7.212	6.37 L/(>1000)	7.420 7.420	3.13 L/(>1000)
N1896/N1853	7.420 7.420	5.44 L/(>1000)	7.003 7.003	1.72 L/(>1000)	7.420 7.420	6.17 L/(>1000)	7.003 7.003	1.79 L/(>1000)
N1903/N1907	0.833 0.417	0.75 L/(>1000)	36.458 36.458	93.99 L/709.3	0.833 0.417	0.79 L/(>1000)	36.458 36.458	110.91 L/728.3
N1901/N1905	16.458 0.417	0.59 L/(>1000)	30.208 30.208	19.71 L/(>1000)	0.625 0.417	0.39 L/(>1000)	30.208 41.875	24.96 L/(>1000)
N1900/N1904	33.750 0.208	0.50 L/(>1000)	38.958 38.958	10.83 L/(>1000)	0.625 0.208	0.16 L/(>1000)	39.375 38.333	14.01 L/(>1000)
N1902/N1906	13.542 72.292	1.03 L/(>1000)	38.958 17.500	13.08 L/689.1	13.333 72.292	0.69 L/(>1000)	38.958 17.500	15.78 L/691.8
N2114/N2440	7.212 7.212	3.83 L/(>1000)	7.635 7.635	1.29 L/(>1000)	7.212 7.212	4.31 L/(>1000)	7.212 7.850	2.12 L/(>1000)
N2115/N2441	7.420 7.420	3.76 L/(>1000)	7.003 7.003	7.71 L/(>1000)	7.420 7.420	4.25 L/(>1000)	7.003 7.003	9.06 L/(>1000)
N2116/N2442	7.212 7.212	3.89 L/(>1000)	5.753 5.753	13.08 L/764.2	7.212 7.212	4.41 L/(>1000)	4.920 5.753	16.01 L/767.7
N2118/N2443	7.212 7.212	3.89 L/(>1000)	5.753 5.753	27.77 L/360.1	7.212 7.212	4.40 L/(>1000)	5.753 5.753	32.47 L/365.0
N2119/N2444	7.420 7.420	3.44 L/(>1000)	6.378 6.378	37.03 L/270.0	7.420 7.420	3.87 L/(>1000)	6.378 6.378	43.66 L/276.5
N2120/N2445	7.212 7.212	3.40 L/(>1000)	5.753 5.753	40.75 L/245.4	7.212 7.212	3.82 L/(>1000)	5.753 5.753	47.76 L/249.5
N2121/N2446	7.420 7.420	2.88 L/(>1000)	6.378 6.378	48.72 L/205.3	7.420 7.420	3.23 L/(>1000)	6.378 6.378	57.33 L/209.7
N2122/N2447	7.212 7.212	2.72 L/(>1000)	5.753 5.753	51.23 L/195.2	7.212 7.212	3.03 L/(>1000)	5.753 5.753	59.98 L/198.2
N2123/N2448	7.420 7.420	2.28 L/(>1000)	6.170 6.170	57.39 L/174.3	7.420 7.420	2.59 L/(>1000)	6.170 6.170	67.36 L/176.7
N2124/N2449	7.212 7.212	2.10 L/(>1000)	5.753 5.753	58.96 L/169.6	7.212 7.212	2.50 L/(>1000)	5.753 5.753	69.03 L/170.0
N2125/N2450	7.420 7.420	1.65 L/(>1000)	6.170 6.170	65.76 L/152.1	7.420 7.420	2.10 L/(>1000)	6.170 6.170	77.19 L/152.6
N2126/N2451	7.003 7.003	1.48 L/(>1000)	5.962 5.962	65.10 L/153.6	7.003 7.003	2.02 L/(>1000)	5.962 5.962	76.13 L/155.8
N2127/N2452	7.212 7.212	0.91 L/(>1000)	5.962 5.962	67.53 L/148.1	7.212 7.212	1.55 L/(>1000)	5.962 5.962	79.07 L/150.4
N2128/N2453	7.212 7.212	0.81 L/(>1000)	5.962 5.962	67.61 L/147.9	7.212 7.212	1.47 L/(>1000)	5.962 5.962	79.15 L/150.2
N2129/N2454	7.212 7.212	1.24 L/(>1000)	5.962 5.962	65.25 L/153.3	7.212 7.212	1.79 L/(>1000)	5.962 5.962	76.30 L/155.4
N2130/N2455	7.420 7.420	1.51 L/(>1000)	6.170 6.170	65.80 L/152.0	7.420 7.420	1.97 L/(>1000)	6.170 6.170	77.23 L/152.5
N2131/N2456	7.212 7.212	1.87 L/(>1000)	5.753 5.753	59.06 L/169.3	7.212 7.212	2.30 L/(>1000)	5.753 5.753	69.13 L/169.5
N2132/N2457	7.420 7.420	2.14 L/(>1000)	6.170 6.170	57.44 L/174.1	7.420 7.420	2.46 L/(>1000)	6.170 6.170	67.41 L/176.5

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2133/N2458	7.212 7.212	2.48 L/(>1000)	5.753 5.753	51.39 L/194.6	7.212 7.420	2.75 L/(>1000)	5.753 5.753	60.13 L/197.5
N2134/N2459	7.420 7.420	2.73 L/(>1000)	6.378 6.378	48.80 L/204.9	7.420 7.420	3.05 L/(>1000)	6.378 6.378	57.42 L/209.3
N2135/N2460	7.212 7.212	3.13 L/(>1000)	5.753 5.753	41.05 L/243.6	7.212 7.212	3.51 L/(>1000)	5.753 5.753	48.08 L/247.6
N2136/N2461	7.420 7.420	3.29 L/(>1000)	6.378 6.378	37.21 L/268.7	7.420 7.420	3.70 L/(>1000)	6.378 5.753	43.85 L/274.9
N2137/N2462	7.212 7.212	3.66 L/(>1000)	5.753 5.753	28.12 L/355.6	7.212 7.212	4.13 L/(>1000)	5.753 5.753	32.87 L/360.4
N2138/N2463	7.420 7.420	3.59 L/(>1000)	6.378 6.378	23.05 L/433.8	7.420 7.420	4.05 L/(>1000)	6.378 6.795	27.12 L/442.3
N2139/N2464	7.212 7.212	3.77 L/(>1000)	5.753 5.753	13.36 L/748.2	7.212 7.212	4.26 L/(>1000)	5.128 5.753	16.28 L/750.9
N2140/N2465	7.420 7.420	3.65 L/(>1000)	7.003 7.003	7.81 L/(>1000)	7.420 7.420	4.12 L/(>1000)	7.003 7.212	9.17 L/(>1000)
N2141/N2466	7.212 7.212	3.79 L/(>1000)	7.635 7.635	1.32 L/(>1000)	7.212 7.212	4.26 L/(>1000)	7.212 7.635	2.14 L/(>1000)
N1760/N2142	2.210 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N1688/N2142	1.326 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)
N1688/N2143	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N1616/N2143	2.431 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N1616/N2144	0.442 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N1544/N2144	2.873 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N1544/N2145	0.884 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N1472/N2145	1.105 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N1472/N2146	2.652 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)
N1400/N2146	0.663 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N1400/N2147	0.663 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N1328/N2147	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N1328/N2148	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N1256/N2148	1.768 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)
N1256/N2149	0.442 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N1184/N2149	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N1184/N2150	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N1112/N2150	0.221 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N1112/N2151	3.315 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1040/N2151	1.768 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N1040/N2152	1.547 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2292/N1017	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2292/N51	2.210 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N104/N2153	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N104/N2154	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N176/N2154	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N176/N2155	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N248/N2155	0.442 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N248/N2156	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N320/N2156	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N320/N2157	2.431 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N392/N2157	1.768 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N392/N2158	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N464/N2158	1.326 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N464/N2159	2.652 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N536/N2159	1.768 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N536/N2160	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N608/N2160	1.547 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N608/N2161	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N680/N2161	2.210 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N680/N2162	3.094 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N752/N2162	2.652 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N752/N2163	0.221 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N824/N2163	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N824/N2164	2.652 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N896/N2164	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N896/N2165	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1760/N1879	2.771 -	0.00 L/(>1000)	1.847 -	0.00 L/(>1000)	0.462 -	0.00 L/(>1000)	2.078 -	0.00 L/(>1000)
N1832/N1809	3.002 -	0.00 L/(>1000)	3.002 -	0.00 L/(>1000)	3.463 -	0.00 L/(>1000)	3.002 -	0.00 L/(>1000)
N2166/N1809	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2166/N1737	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2167/N1737	2.210 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2167/N1665	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2168/N1665	1.326 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2168/N1593	2.431 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2169/N1593	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2169/N1521	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2170/N1521	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2170/N1449	2.210 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2171/N1449	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2171/N1377	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N2172/N1377	1.326 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2172/N1305	3.094 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2173/N1305	2.431 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2173/N1233	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2174/N1233	1.105 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2174/N1161	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2175/N1161	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2175/N1089	2.210 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2176/N1089	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N968/N2439	1.768 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N37/N2439	2.431 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2177/N153	2.431 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2178/N153	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2178/N225	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2179/N225	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2179/N297	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2180/N297	1.547 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2180/N369	1.105 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2181/N369	2.210 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2181/N441	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2182/N441	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2182/N513	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2183/N513	1.989 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2183/N585	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2184/N585	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2184/N657	1.768 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2185/N657	3.094 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N2185/N729	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2186/N729	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2186/N801	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2187/N801	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2187/N873	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2188/N873	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2188/N945	1.768 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2189/N945	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2189/N2086	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N1902/N2165	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2004/N2142	4.503 4.503	1.08 L/(>1000)	2.837 2.837	1.01 L/(>1000)	4.503 4.295	1.27 L/(>1000)	2.837 2.837	1.12 L/(>1000)
N2005/N2143	4.503 4.503	1.05 L/(>1000)	2.837 2.837	0.87 L/(>1000)	4.503 4.503	1.22 L/(>1000)	2.837 2.837	0.95 L/(>1000)
N2006/N2144	4.503 4.503	0.98 L/(>1000)	2.628 2.628	0.76 L/(>1000)	4.503 4.503	1.13 L/(>1000)	2.628 2.628	0.81 L/(>1000)
N2007/N2145	4.503 4.503	0.91 L/(>1000)	2.628 2.628	0.67 L/(>1000)	4.503 4.503	1.03 L/(>1000)	2.628 2.628	0.72 L/(>1000)
N2008/N2146	4.503 4.503	0.90 L/(>1000)	2.628 2.628	0.60 L/(>1000)	4.503 4.503	1.00 L/(>1000)	2.628 2.628	0.64 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2009/N2147	4.503 4.503	0.89 L/(>1000)	2.628 2.628	0.54 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 2.628	0.58 L/(>1000)
N2010/N2148	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.48 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 2.628	0.52 L/(>1000)
N2011/N2149	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.42 L/(>1000)	4.503 4.503	0.97 L/(>1000)	2.628 2.628	0.46 L/(>1000)
N2012/N2150	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.38 L/(>1000)	4.503 4.503	0.97 L/(>1000)	2.628 2.628	0.43 L/(>1000)
N2013/N2151	4.503 4.503	0.87 L/(>1000)	1.412 1.412	0.34 L/(>1000)	4.503 4.503	0.97 L/(>1000)	2.628 1.412	0.41 L/(>1000)
N2014/N2152	4.295 4.295	0.97 L/(>1000)	2.628 2.628	0.34 L/(>1000)	4.295 4.295	1.06 L/(>1000)	2.628 2.628	0.42 L/(>1000)
N2015/N2153	4.295 4.295	0.99 L/(>1000)	2.628 2.628	0.36 L/(>1000)	4.295 4.295	1.07 L/(>1000)	1.412 2.420	0.39 L/(>1000)
N2016/N2154	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.35 L/(>1000)	4.503 4.503	0.98 L/(>1000)	1.412 2.628	0.39 L/(>1000)
N2017/N2155	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.32 L/(>1000)	4.503 4.503	0.97 L/(>1000)	1.210 2.628	0.38 L/(>1000)
N2018/N2156	4.503 4.503	0.88 L/(>1000)	1.210 1.210	0.29 L/(>1000)	4.503 4.503	0.97 L/(>1000)	1.210 1.210	0.37 L/(>1000)
N2019/N2157	4.503 4.503	0.88 L/(>1000)	1.210 1.210	0.27 L/(>1000)	4.503 4.503	0.98 L/(>1000)	1.210 1.210	0.36 L/(>1000)
N2020/N2158	4.503 4.503	0.89 L/(>1000)	1.210 1.210	0.24 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 1.008	0.36 L/(>1000)
N2021/N2159	4.503 4.503	0.89 L/(>1000)	4.712 1.008	0.24 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 1.008	0.40 L/(>1000)
N2022/N2160	4.503 4.503	0.90 L/(>1000)	4.712 4.712	0.29 L/(>1000)	4.503 4.503	1.00 L/(>1000)	2.628 4.712	0.44 L/(>1000)
N2023/N2161	4.503 4.503	0.90 L/(>1000)	4.712 4.712	0.37 L/(>1000)	4.503 4.503	1.01 L/(>1000)	2.628 4.712	0.49 L/(>1000)
N2024/N2162	4.503 4.503	0.92 L/(>1000)	4.712 4.712	0.45 L/(>1000)	4.503 4.503	1.04 L/(>1000)	2.628 4.712	0.55 L/(>1000)
N2025/N2163	4.503 4.503	0.96 L/(>1000)	4.712 4.712	0.53 L/(>1000)	4.503 4.503	1.11 L/(>1000)	2.628 4.712	0.62 L/(>1000)
N2026/N2164	4.295 4.295	1.06 L/(>1000)	4.503 4.712	0.67 L/(>1000)	4.295 4.503	1.28 L/(>1000)	2.628 4.712	0.73 L/(>1000)
N2027/N2165	1.210 0.807	0.24 L/(>1000)	4.920 7.003	0.88 L/(>1000)	2.837 0.807	0.27 L/(>1000)	4.920 7.003	0.97 L/(>1000)
N2054/N2190	4.503 4.503	1.08 L/(>1000)	2.837 2.837	1.04 L/(>1000)	4.503 4.295	1.27 L/(>1000)	2.837 2.837	1.15 L/(>1000)
N2053/N2191	4.503 4.503	1.05 L/(>1000)	2.837 2.837	0.90 L/(>1000)	4.503 4.503	1.22 L/(>1000)	2.837 2.837	0.98 L/(>1000)
N2052/N2192	4.503 4.503	0.98 L/(>1000)	2.628 2.628	0.78 L/(>1000)	4.503 4.503	1.13 L/(>1000)	2.628 2.628	0.84 L/(>1000)
N2051/N2193	4.503 4.503	0.91 L/(>1000)	2.628 2.628	0.70 L/(>1000)	4.503 4.503	1.03 L/(>1000)	2.628 2.628	0.75 L/(>1000)
N2050/N2194	4.503 4.503	0.90 L/(>1000)	2.628 2.628	0.63 L/(>1000)	4.503 4.503	1.00 L/(>1000)	2.628 2.628	0.68 L/(>1000)
N2049/N2195	4.503 4.503	0.89 L/(>1000)	2.628 2.628	0.58 L/(>1000)	4.503 4.503	0.99 L/(>1000)	2.628 2.628	0.62 L/(>1000)
N2048/N2196	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.52 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 2.628	0.56 L/(>1000)
N2047/N2197	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.48 L/(>1000)	4.503 4.503	0.97 L/(>1000)	2.628 2.628	0.51 L/(>1000)
N2046/N2198	4.503 4.503	0.88 L/(>1000)	2.628 2.628	0.44 L/(>1000)	4.503 4.503	0.97 L/(>1000)	2.628 2.628	0.47 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2045/N2199	4.503 4.503	0.89 L/(>1000)	2.628 2.628	0.41 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 2.628	0.44 L/(>1000)
N2044/N2200	4.503 4.503	0.90 L/(>1000)	2.628 2.628	0.38 L/(>1000)	4.503 4.503	0.99 L/(>1000)	2.628 2.628	0.43 L/(>1000)
N2042/N2201	4.503 4.503	0.89 L/(>1000)	2.628 2.628	0.32 L/(>1000)	4.503 4.503	0.99 L/(>1000)	2.628 2.628	0.39 L/(>1000)
N2041/N2202	4.503 4.503	0.89 L/(>1000)	1.412 1.412	0.30 L/(>1000)	4.503 4.503	0.98 L/(>1000)	1.412 1.412	0.38 L/(>1000)
N2040/N2203	4.503 4.503	0.89 L/(>1000)	1.210 1.210	0.28 L/(>1000)	4.503 4.503	0.98 L/(>1000)	1.210 1.210	0.37 L/(>1000)
N2039/N2204	4.503 4.503	0.88 L/(>1000)	1.210 1.210	0.26 L/(>1000)	4.503 4.503	0.98 L/(>1000)	1.210 1.210	0.36 L/(>1000)
N2038/N2205	4.503 4.503	0.88 L/(>1000)	1.210 1.210	0.24 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 1.210	0.37 L/(>1000)
N2037/N2206	4.503 4.503	0.89 L/(>1000)	1.210 1.008	0.23 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 1.008	0.40 L/(>1000)
N2036/N2207	4.503 4.503	0.89 L/(>1000)	4.712 1.210	0.24 L/(>1000)	4.503 4.503	0.98 L/(>1000)	2.628 1.210	0.43 L/(>1000)
N2035/N2208	4.503 4.503	0.90 L/(>1000)	2.837 4.712	0.30 L/(>1000)	4.503 4.503	1.00 L/(>1000)	2.628 4.712	0.47 L/(>1000)
N2034/N2209	4.503 4.503	0.90 L/(>1000)	2.837 4.712	0.37 L/(>1000)	4.503 4.503	1.01 L/(>1000)	2.628 4.712	0.52 L/(>1000)
N2033/N2210	4.503 4.503	0.91 L/(>1000)	2.837 4.712	0.46 L/(>1000)	4.503 4.503	1.04 L/(>1000)	2.628 4.712	0.58 L/(>1000)
N2032/N2211	4.503 4.503	0.95 L/(>1000)	3.045 4.712	0.56 L/(>1000)	4.503 4.503	1.10 L/(>1000)	2.628 4.712	0.65 L/(>1000)
N2031/N2212	4.295 4.295	1.07 L/(>1000)	3.253 4.712	0.68 L/(>1000)	4.295 4.503	1.28 L/(>1000)	2.628 3.253	0.75 L/(>1000)
N2030/N2213	1.210 0.807	0.23 L/(>1000)	4.920 7.003	0.89 L/(>1000)	2.837 0.807	0.27 L/(>1000)	4.920 7.003	0.97 L/(>1000)
N2213/N1906	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2112/N2214	0.663 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N1823/N2215	1.989 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)
N1751/N2215	0.221 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)
N1751/N2216	1.105 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N1679/N2216	1.547 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N1679/N2217	1.547 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	0.884 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N1607/N2217	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N1607/N2218	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N1535/N2218	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N1535/N2219	1.326 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N1463/N2219	2.652 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)
N1463/N2220	1.989 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1391/N2220	2.210 -	0.00 L/(>1000)	0.884 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	0.884 -	0.00 L/(>1000)
N1391/N2221	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N1319/N2221	1.326 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N1319/N2222	1.326 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N1247/N2222	1.547 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N1247/N2223	2.431 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)
N1175/N2223	2.873 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N1175/N2224	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N1103/N2224	0.884 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N1103/N2225	2.431 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N1031/N2225	2.210 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N65/N2226	2.873 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N167/N2226	1.768 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N167/N2227	3.315 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N239/N2228	1.326 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N311/N2228	2.652 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N311/N2229	0.663 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)
N383/N2229	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N383/N2230	3.094 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N455/N2231	1.768 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N527/N2231	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N527/N2232	2.431 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N599/N2232	0.884 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)
N599/N2233	1.326 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N671/N2234	1.326 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N743/N2234	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N743/N2235	1.105 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N815/N2235	2.431 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N815/N2236	1.547 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)
N887/N2236	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N887/N2237	2.652 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N959/N2237	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N959/N2214	2.431 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N1823/N1836	1.847 -	0.00 L/(>1000)	0.924 -	0.00 L/(>1000)	1.847 -	0.00 L/(>1000)	0.924 -	0.00 L/(>1000)
N1893/N1765	1.616 -	0.00 L/(>1000)	2.540 -	0.00 L/(>1000)	1.616 -	0.00 L/(>1000)	2.078 -	0.00 L/(>1000)
N2190/N1765	1.989 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2190/N1693	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2191/N1693	3.094 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2191/N1621	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2192/N1621	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2192/N1549	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	0.663 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2193/N1549	0.663 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2193/N1477	1.768 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2194/N1477	1.547 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2194/N1405	0.221 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2195/N1405	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2195/N1333	1.105 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2196/N1333	3.315 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2196/N1261	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2197/N1261	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2197/N1189	1.989 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2198/N1189	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2198/N1117	3.315 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2199/N1117	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2199/N1045	1.105 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2200/N1045	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2200/N973	1.768 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2201/N34	0.663 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2201/N109	1.547 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2202/N109	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2203/N181	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2203/N253	2.210 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2204/N253	2.873 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2204/N325	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)
N2205/N325	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2206/N397	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2206/N469	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2207/N469	2.652 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)
N2207/N541	1.989 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2208/N541	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2209/N613	3.315 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)
N2209/N685	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.547 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2210/N685	1.989 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2210/N757	3.094 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)
N2211/N757	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2211/N829	1.547 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2212/N829	2.873 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N2212/N901	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N2213/N901	0.884 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	0.884 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N671/N2233	2.431 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)
N2208/N613	2.431 -	0.00 L/(>1000)	0.884 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)
N455/N2230	2.210 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.431 -	0.00 L/(>1000)
N2205/N397	3.315 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N239/N2227	3.315 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.326 -	0.00 L/(>1000)	1.989 -	0.00 L/(>1000)

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Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2202/N181	3.315 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	3.315 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N1993/N1992	7.420 7.420	7.81 L/(>1000)	7.003 7.003	0.82 L/(>1000)	7.420 7.420	8.32 L/(>1000)	7.212 7.003	1.31 L/(>1000)
N2029/N2028	7.420 7.420	7.74 L/(>1000)	7.003 7.003	1.16 L/(>1000)	7.420 7.420	8.16 L/(>1000)	7.003 7.003	1.37 L/(>1000)
N1981/N1980	7.420 7.420	7.69 L/(>1000)	7.003 7.003	1.09 L/(>1000)	7.420 7.420	8.12 L/(>1000)	7.003 7.003	1.34 L/(>1000)
N2043/N2239	4.503 4.503	0.90 L/(>1000)	2.628 2.628	0.35 L/(>1000)	4.503 4.503	1.00 L/(>1000)	2.628 2.628	0.41 L/(>1000)
N2239/N34	2.873 -	0.00 L/(>1000)	3.094 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	2.873 -	0.00 L/(>1000)
N2239/N973	2.210 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)	2.210 -	0.00 L/(>1000)	1.768 -	0.00 L/(>1000)
N65/N2238	2.652 -	0.00 L/(>1000)	0.221 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)
N1031/N2238	0.221 -	0.00 L/(>1000)	2.652 -	0.00 L/(>1000)	0.442 -	0.00 L/(>1000)	1.105 -	0.00 L/(>1000)
N1809/N1878	1.847 3.002	0.79 L/(>1000)	1.154 1.154	2.57 L/(>1000)	2.540 3.002	0.96 L/(>1000)	0.924 0.924	2.02 L/(>1000)
N1878/N1807	1.385 1.385	1.73 L/(>1000)	0.924 0.924	4.78 L/452.9	0.924 0.924	1.39 L/(>1000)	0.924 0.924	6.23 L/455.0
N1807/N1877	2.078 2.078	1.69 L/(>1000)	0.924 0.924	8.13 L/280.6	2.078 2.078	1.19 L/(>1000)	0.924 0.924	8.74 L/283.3
N1877/N1805	1.847 1.847	0.85 L/(>1000)	0.693 0.693	8.83 L/220.8	1.616 1.847	1.09 L/(>1000)	0.924 0.693	10.80 L/226.9
N1805/N1875	1.385 1.385	0.76 L/(>1000)	0.924 0.924	12.55 L/168.6	2.771 3.233	0.48 L/(>1000)	0.924 0.924	13.99 L/170.3
N1875/N1803	1.385 1.385	0.82 L/(>1000)	0.693 0.693	12.41 L/151.3	0.924 3.463	0.31 L/(>1000)	0.924 0.693	14.68 L/153.0
N1803/N1873	1.385 1.385	0.86 L/(>1000)	0.924 0.924	15.97 L/127.4	0.924 3.233	0.43 L/(>1000)	0.924 0.924	17.94 L/128.3
N1873/N1801	1.847 1.847	0.72 L/(>1000)	0.693 0.693	15.19 L/120.7	2.771 3.463	0.21 L/(>1000)	0.693 0.693	17.84 L/120.9
N1801/N1871	1.385 1.385	0.86 L/(>1000)	0.924 0.924	18.50 L/107.5	0.924 3.233	0.42 L/(>1000)	0.924 0.924	20.86 L/108.0
N1871/N1799	1.847 1.847	0.71 L/(>1000)	0.693 0.693	17.26 L/106.2	0.924 0.924	0.08 L/(>1000)	0.693 0.693	20.23 L/107.7
N1799/N1869	1.385 1.385	0.80 L/(>1000)	0.924 0.924	19.25 L/100.5	0.693 3.463	0.35 L/(>1000)	0.693 0.693	21.73 L/101.1
N1869/N1797	2.078 2.078	0.76 L/(>1000)	3.002 3.002	19.30 L/98.8	2.771 2.771	0.22 L/(>1000)	3.002 2.771	22.00 L/99.1
N1797/N1867	1.847 1.616	0.73 L/(>1000)	0.924 0.924	19.74 L/97.3	2.771 3.463	0.26 L/(>1000)	0.693 0.924	22.44 L/97.6
N1867/N1810	2.078 2.078	0.80 L/(>1000)	2.771 2.771	19.81 L/97.0	2.771 0.231	0.28 L/(>1000)	3.002 2.771	22.50 L/97.3
N1796/N1880	1.616 1.616	0.81 L/(>1000)	0.924 0.924	19.77 L/97.1	0.924 3.463	0.29 L/(>1000)	0.693 0.924	22.46 L/97.4
N1880/N1811	1.847 2.078	0.73 L/(>1000)	2.771 2.771	19.57 L/97.8	0.924 0.231	0.26 L/(>1000)	3.002 2.771	22.26 L/98.2
N1811/N1882	1.616 1.616	0.76 L/(>1000)	0.693 0.693	19.17 L/99.2	0.924 0.924	0.22 L/(>1000)	0.693 0.924	21.85 L/99.6
N1882/N1813	2.309 2.309	0.81 L/(>1000)	2.771 2.771	19.23 L/100.6	3.002 0.231	0.35 L/(>1000)	3.002 3.002	21.71 L/101.1
N1813/N1884	1.847 1.847	0.71 L/(>1000)	3.002 3.002	17.25 L/106.2	2.771 2.771	0.08 L/(>1000)	3.002 3.002	20.23 L/107.7

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1884/N1815	2.309 2.309	0.85 L/(>1000)	2.771 2.771	18.45 L/107.7	2.771 0.462	0.42 L/(>1000)	2.771 2.771	20.83 L/108.0
N1815/N1886	1.847 1.847	0.72 L/(>1000)	3.002 3.002	15.20 L/120.7	0.924 0.231	0.22 L/(>1000)	3.002 3.002	17.85 L/121.0
N1886/N1817	2.309 2.309	0.86 L/(>1000)	2.771 2.771	15.95 L/127.5	2.771 0.462	0.43 L/(>1000)	2.771 2.771	17.93 L/128.2
N1817/N1888	2.309 2.309	0.82 L/(>1000)	3.002 3.002	12.41 L/151.3	2.771 0.231	0.31 L/(>1000)	2.771 3.002	14.68 L/152.9
N1888/N1819	2.309 2.309	0.77 L/(>1000)	2.771 2.771	12.58 L/168.3	0.924 0.462	0.48 L/(>1000)	2.771 2.771	14.04 L/170.1
N1819/N1890	1.847 1.847	0.85 L/(>1000)	3.002 3.002	8.83 L/220.6	2.078 1.847	1.10 L/(>1000)	2.771 3.002	10.78 L/226.6
N1890/N1821	1.616 1.616	1.70 L/(>1000)	2.771 2.771	8.19 L/279.0	1.616 1.616	1.19 L/(>1000)	2.771 2.771	8.82 L/281.1
N1821/N1892	2.309 2.309	1.72 L/(>1000)	2.771 2.771	4.78 L/452.0	2.771 2.771	1.39 L/(>1000)	2.771 2.771	6.22 L/453.4
N1892/N1823	1.847 0.693	0.79 L/(>1000)	2.540 2.540	2.55 L/(>1000)	1.154 0.693	0.96 L/(>1000)	2.771 2.771	1.99 L/(>1000)
N1809/N1735	3.536 3.536	10.03 L/704.8	1.768 1.768	0.58 L/(>1000)	2.652 0.442	4.85 L/(>1000)	1.768 1.768	0.67 L/(>1000)
N1735/N1805	3.536 3.536	10.08 L/701.5	5.303 5.303	0.10 L/(>1000)	4.861 4.861	1.33 L/(>1000)	5.303 5.303	0.11 L/(>1000)
N1805/N1731	3.536 3.536	10.50 L/673.7	1.768 1.768	0.14 L/(>1000)	2.652 2.652	2.31 L/(>1000)	1.768 1.768	0.11 L/(>1000)
N1731/N1801	3.536 3.536	10.61 L/666.3	5.303 5.303	0.31 L/(>1000)	4.419 4.419	2.27 L/(>1000)	5.303 5.303	0.37 L/(>1000)
N1801/N1727	3.536 3.536	10.25 L/689.7	5.303 5.303	0.28 L/(>1000)	2.210 2.210	1.39 L/(>1000)	5.303 5.303	0.33 L/(>1000)
N1727/N1797	3.536 3.536	10.48 L/674.9	1.768 1.768	0.26 L/(>1000)	1.768 1.768	1.35 L/(>1000)	1.768 1.768	0.29 L/(>1000)
N1797/N1724	2.795 2.795	4.86 L/(>1000)	1.048 1.048	0.20 L/(>1000)	2.446 2.096	2.65 L/(>1000)	1.398 1.398	0.26 L/(>1000)
N1724/N1810	2.795 2.795	4.91 L/(>1000)	1.398 1.398	0.07 L/(>1000)	3.494 3.843	3.17 L/(>1000)	1.398 1.398	0.08 L/(>1000)
N1810/N1739	2.795 2.795	4.90 L/(>1000)	1.398 1.398	0.25 L/(>1000)	2.096 1.747	3.03 L/(>1000)	1.398 1.398	0.27 L/(>1000)
N1737/N1807	3.536 3.536	10.14 L/697.5	5.303 5.303	0.22 L/(>1000)	2.652 0.442	3.97 L/(>1000)	5.303 5.303	0.25 L/(>1000)
N1807/N1733	3.536 3.536	10.29 L/687.2	2.210 1.768	0.19 L/(>1000)	3.536 3.536	2.24 L/(>1000)	2.210 1.768	0.25 L/(>1000)
N1733/N1803	3.536 3.536	10.55 L/670.3	5.303 5.303	0.14 L/(>1000)	4.419 4.419	2.09 L/(>1000)	4.861 5.303	0.22 L/(>1000)
N1803/N1729	3.536 3.536	10.49 L/673.9	1.768 1.768	0.22 L/(>1000)	2.652 2.652	2.19 L/(>1000)	5.745 1.326	0.25 L/(>1000)
N1729/N1799	3.536 3.536	10.35 L/683.0	5.303 5.303	0.24 L/(>1000)	3.094 3.094	0.94 L/(>1000)	5.303 5.303	0.31 L/(>1000)
N1799/N1725	3.536 3.536	10.69 L/661.4	1.768 1.768	0.20 L/(>1000)	3.536 3.536	0.70 L/(>1000)	1.768 1.326	0.23 L/(>1000)
N1725/N1796	2.795 2.795	4.84 L/(>1000)	4.193 4.193	0.28 L/(>1000)	3.494 3.843	2.64 L/(>1000)	4.193 4.193	0.31 L/(>1000)
N1796/N1738	2.795 2.795	4.90 L/(>1000)	4.193 4.193	0.06 L/(>1000)	2.096 1.747	3.06 L/(>1000)	3.843 4.193	0.06 L/(>1000)
N1738/N1811	2.795 2.795	4.82 L/(>1000)	1.048 1.048	0.21 L/(>1000)	3.144 3.494	2.28 L/(>1000)	4.542 1.048	0.26 L/(>1000)
N1739/N1813	3.536 3.536	10.29 L/686.9	5.303 5.303	0.20 L/(>1000)	1.768 1.768	0.29 L/(>1000)	5.303 5.745	0.22 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1813/N1743	3.536 3.536	10.60 L/667.0	1.768 1.768	0.23 L/(>1000)	4.419 4.419	0.95 L/(>1000)	1.768 1.326	0.30 L/(>1000)
N1743/N1817	3.536 3.536	10.58 L/668.2	5.303 5.303	0.24 L/(>1000)	4.419 4.419	2.05 L/(>1000)	5.745 5.303	0.26 L/(>1000)
N1817/N1747	3.536 3.536	10.63 L/664.9	4.861 1.768	0.12 L/(>1000)	2.652 2.652	1.91 L/(>1000)	2.210 1.768	0.19 L/(>1000)
N1747/N1821	3.536 3.536	10.31 L/686.0	4.861 5.303	0.16 L/(>1000)	3.977 3.977	2.05 L/(>1000)	4.419 5.303	0.23 L/(>1000)
N1821/N1751	3.536 3.536	10.17 L/695.0	1.768 1.768	0.22 L/(>1000)	4.419 6.629	4.12 L/(>1000)	2.210 1.768	0.25 L/(>1000)
N1749/N1823	3.536 3.536	10.01 L/706.7	5.303 5.303	0.59 L/(>1000)	4.419 6.629	4.59 L/(>1000)	5.303 5.303	0.68 L/(>1000)
N1819/N1749	3.536 3.536	10.19 L/694.1	1.768 1.768	0.10 L/(>1000)	2.210 2.210	1.34 L/(>1000)	1.768 1.768	0.10 L/(>1000)
N1745/N1819	3.536 3.536	10.60 L/667.2	5.303 5.303	0.15 L/(>1000)	4.419 4.419	2.28 L/(>1000)	5.303 5.303	0.12 L/(>1000)
N1815/N1745	3.536 3.536	10.69 L/661.5	1.768 1.768	0.29 L/(>1000)	2.652 2.652	2.06 L/(>1000)	1.768 1.768	0.35 L/(>1000)
N1741/N1815	3.536 3.536	10.15 L/696.3	1.768 1.768	0.28 L/(>1000)	5.303 5.303	1.28 L/(>1000)	1.768 1.768	0.33 L/(>1000)
N1811/N1741	3.536 3.536	10.84 L/652.5	5.303 5.303	0.26 L/(>1000)	4.861 4.861	1.58 L/(>1000)	5.303 5.303	0.29 L/(>1000)
N945/N2113	3.536 3.536	14.14 L/500.0	4.861 4.861	0.46 L/(>1000)	3.094 3.094	5.58 L/(>1000)	4.861 4.861	0.58 L/(>1000)
N2113/N941	3.536 3.536	11.37 L/621.7	2.210 2.210	1.04 L/(>1000)	2.652 3.536	13.53 L/623.0	2.210 2.210	1.24 L/(>1000)
N941/N2091	2.652 2.652	15.34 L/413.2	4.861 4.861	0.33 L/(>1000)	1.768 1.768	9.17 L/681.6	4.861 4.861	0.38 L/(>1000)
N2091/N937	3.094 1.326	10.82 L/503.7	3.977 3.977	0.30 L/(>1000)	2.210 1.326	13.18 L/504.6	3.977 3.977	0.37 L/(>1000)
N937/N2095	2.652 2.652	13.33 L/408.0	3.536 3.536	0.21 L/(>1000)	1.768 1.768	8.29 L/607.0	3.094 3.536	0.26 L/(>1000)
N2095/N933	4.861 4.861	10.37 L/464.3	3.977 3.977	1.05 L/(>1000)	1.768 0.884	10.11 L/470.7	4.419 4.419	1.25 L/(>1000)
N933/N2098	1.398 1.398	7.57 L/437.5	1.398 1.398	0.55 L/(>1000)	4.542 4.542	7.64 L/450.9	1.398 1.398	0.64 L/(>1000)
N2098/N946	4.193 4.193	11.34 L/323.9	2.446 2.446	0.43 L/(>1000)	4.193 4.193	11.30 L/325.0	2.446 2.446	0.53 L/(>1000)
N946/N2100	1.398 1.398	11.12 L/321.9	3.843 3.843	2.17 L/(>1000)	1.398 1.398	11.04 L/323.8	3.843 3.843	2.61 L/(>1000)
N2086/N943	3.536 3.536	10.86 L/650.9	2.210 2.210	1.56 L/(>1000)	3.094 2.652	10.25 L/730.3	2.210 2.210	1.86 L/(>1000)
N943/N2089	3.094 3.094	17.66 L/400.4	4.419 4.419	0.38 L/(>1000)	2.210 2.210	11.20 L/657.3	4.419 4.419	0.45 L/(>1000)
N2089/N939	3.536 1.326	11.15 L/603.4	2.652 2.652	0.54 L/(>1000)	2.210 1.326	13.60 L/605.7	2.652 2.652	0.65 L/(>1000)
N939/N2093	2.652 2.652	14.22 L/407.0	4.419 4.419	0.51 L/(>1000)	1.768 1.768	8.70 L/632.4	4.419 4.419	0.59 L/(>1000)
N2093/N935	4.861 4.861	12.09 L/392.7	4.419 4.419	0.33 L/(>1000)	1.768 0.884	10.13 L/431.4	4.419 4.419	0.36 L/(>1000)
N935/N2097	2.210 2.210	17.94 L/304.0	4.861 4.861	2.19 L/(>1000)	1.768 1.768	14.07 L/379.0	4.861 4.861	2.66 L/(>1000)
N2097/N932	4.193 4.193	11.06 L/323.2	1.747 1.747	2.14 L/(>1000)	4.193 4.193	10.98 L/325.1	1.747 1.747	2.57 L/(>1000)
N932/N2099	1.398 1.398	11.33 L/325.0	3.144 3.144	0.45 L/(>1000)	1.398 1.398	11.28 L/326.0	3.144 3.494	0.55 L/(>1000)

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2099/N947	4.193 4.193	7.28 L/451.4	4.193 4.193	0.55 L/(>1000)	1.398 1.048	7.66 L/456.3	4.193 4.193	0.64 L/(>1000)
N2100/N949	4.861 4.861	18.29 L/301.7	2.210 2.210	2.19 L/(>1000)	5.303 5.303	14.43 L/375.4	2.210 2.210	2.66 L/(>1000)
N949/N2104	2.210 2.210	12.18 L/388.0	2.652 2.652	0.33 L/(>1000)	5.303 6.187	10.35 L/424.2	2.652 2.652	0.36 L/(>1000)
N2104/N953	4.419 4.419	15.00 L/394.6	2.652 2.652	0.50 L/(>1000)	5.303 5.303	9.46 L/603.4	2.652 2.652	0.58 L/(>1000)
N953/N2108	3.536 5.745	11.06 L/585.5	4.419 4.419	0.56 L/(>1000)	4.861 5.745	13.30 L/585.7	4.419 4.419	0.67 L/(>1000)
N2108/N957	3.977 3.977	19.62 L/360.4	3.536 3.536	0.55 L/(>1000)	4.861 4.861	13.47 L/544.7	3.536 3.536	0.64 L/(>1000)
N957/N2112	3.536 3.536	10.61 L/666.3	4.419 4.419	1.79 L/(>1000)	4.419 4.419	8.92 L/845.6	4.419 4.419	2.13 L/(>1000)
N2110/N959	3.536 3.536	14.33 L/493.4	1.768 1.768	0.34 L/(>1000)	3.977 3.977	5.78 L/(>1000)	2.210 1.768	0.49 L/(>1000)
N955/N2110	3.536 3.536	11.23 L/629.4	4.861 4.861	0.90 L/(>1000)	4.419 3.536	12.92 L/640.3	4.861 4.861	1.07 L/(>1000)
N2106/N955	4.419 4.419	16.18 L/399.5	1.768 1.768	0.27 L/(>1000)	4.861 4.861	10.05 L/640.3	1.768 1.768	0.31 L/(>1000)
N951/N2106	3.977 5.745	10.77 L/493.1	3.094 3.094	0.26 L/(>1000)	4.861 5.745	13.03 L/494.1	3.536 3.094	0.32 L/(>1000)
N2102/N951	4.419 4.419	14.05 L/394.1	3.977 3.977	0.20 L/(>1000)	5.303 5.303	9.00 L/578.1	3.977 3.977	0.25 L/(>1000)
N947/N2102	3.977 6.187	9.98 L/465.6	3.094 3.094	1.10 L/(>1000)	5.303 6.187	10.49 L/468.4	3.094 2.652	1.30 L/(>1000)
N873/N943	3.977 3.977	10.10 L/619.2	4.861 4.861	0.49 L/(>1000)	1.326 0.442	2.62 L/(>1000)	4.861 4.861	0.57 L/(>1000)
N943/N869	3.094 3.094	11.56 L/611.9	3.536 3.536	0.19 L/(>1000)	1.768 1.768	3.61 L/(>1000)	2.210 3.094	0.19 L/(>1000)
N869/N939	4.419 4.419	22.33 L/316.7	3.536 3.536	0.35 L/(>1000)	4.861 4.861	16.84 L/436.6	3.977 3.977	0.39 L/(>1000)
N939/N865	3.094 3.094	22.21 L/318.4	1.768 1.768	0.46 L/(>1000)	2.210 2.210	16.91 L/434.9	1.768 1.768	0.53 L/(>1000)
N865/N935	3.977 3.977	21.46 L/329.5	3.536 5.745	0.12 L/(>1000)	4.861 4.861	15.33 L/478.5	5.303 5.745	0.19 L/(>1000)
N935/N861	3.094 3.094	22.74 L/310.9	1.768 1.768	0.67 L/(>1000)	2.652 2.210	16.48 L/445.9	2.210 2.210	0.80 L/(>1000)
N861/N932	3.494 3.494	17.69 L/316.1	4.193 4.193	0.18 L/(>1000)	3.843 3.843	16.98 L/330.3	4.193 4.193	0.20 L/(>1000)
N932/N874	2.096 2.096	17.06 L/327.8	1.398 1.398	0.16 L/(>1000)	1.747 1.747	16.38 L/343.1	1.398 1.398	0.18 L/(>1000)
N874/N947	3.494 3.494	21.42 L/261.0	3.494 3.494	0.66 L/(>1000)	3.843 3.494	21.78 L/264.9	3.494 3.144	0.78 L/(>1000)
N945/N871	3.536 3.536	9.52 L/742.6	1.768 1.768	0.57 L/(>1000)	2.210 0.442	3.12 L/(>1000)	1.768 1.768	0.64 L/(>1000)
N871/N941	3.977 3.977	19.42 L/364.1	4.861 4.861	0.34 L/(>1000)	4.861 4.861	12.78 L/574.0	4.861 4.861	0.40 L/(>1000)
N941/N867	3.094 3.094	17.89 L/395.3	2.210 2.210	0.32 L/(>1000)	2.210 2.210	11.74 L/630.4	2.210 2.210	0.36 L/(>1000)
N867/N937	4.419 4.419	24.94 L/283.6	2.652 2.652	0.35 L/(>1000)	4.861 4.861	20.01 L/365.7	2.652 2.652	0.41 L/(>1000)
N937/N863	3.094 3.094	27.30 L/259.0	2.210 2.210	0.62 L/(>1000)	2.652 2.652	22.56 L/325.9	2.210 2.210	0.75 L/(>1000)
N863/N933	3.977 3.977	29.58 L/239.1	4.861 4.861	1.01 L/(>1000)	4.419 4.419	25.17 L/291.4	4.861 4.861	1.18 L/(>1000)

Listados

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N933/N860	2.096 2.096	21.05 L/265.6	2.795 2.795	0.63 L/(>1000)	1.747 2.096	21.35 L/267.4	2.795 2.795	0.75 L/(>1000)
N860/N946	3.494 3.494	16.95 L/329.8	3.494 3.494	0.07 L/(>1000)	3.843 3.843	16.28 L/345.3	3.843 3.494	0.08 L/(>1000)
N946/N875	2.096 2.096	17.54 L/318.7	1.398 1.398	0.28 L/(>1000)	1.747 1.747	16.86 L/332.7	1.398 1.398	0.31 L/(>1000)
N947/N877	3.094 3.094	29.98 L/235.8	2.210 2.210	1.16 L/(>1000)	2.652 2.652	25.65 L/285.8	2.210 2.210	1.36 L/(>1000)
N877/N951	3.977 3.977	26.79 L/263.9	4.861 4.861	0.51 L/(>1000)	4.419 4.419	21.93 L/335.6	4.419 4.861	0.62 L/(>1000)
N951/N881	2.652 2.652	24.62 L/287.2	4.861 5.303	0.40 L/(>1000)	2.210 2.210	19.56 L/374.3	4.861 5.303	0.45 L/(>1000)
N881/N955	3.977 3.977	17.54 L/403.0	4.419 4.419	0.22 L/(>1000)	4.861 4.861	11.22 L/660.2	4.861 3.977	0.24 L/(>1000)
N955/N885	3.094 3.094	18.94 L/373.3	2.210 2.210	0.20 L/(>1000)	2.210 2.210	12.16 L/603.7	2.210 2.210	0.24 L/(>1000)
N885/N959	3.536 3.536	9.53 L/741.7	5.303 5.303	0.64 L/(>1000)	4.861 6.629	3.01 L/(>1000)	5.303 5.303	0.72 L/(>1000)
N957/N887	3.536 3.536	9.90 L/714.6	2.210 2.210	0.68 L/(>1000)	5.303 6.629	3.31 L/(>1000)	2.210 2.210	0.78 L/(>1000)
N883/N957	3.536 3.536	10.50 L/673.7	3.977 3.977	0.41 L/(>1000)	5.303 5.303	2.11 L/(>1000)	4.419 4.419	0.43 L/(>1000)
N953/N883	3.094 3.094	22.19 L/318.6	3.977 3.977	0.38 L/(>1000)	2.210 2.210	16.54 L/444.9	3.977 4.419	0.40 L/(>1000)
N879/N953	3.977 3.977	21.74 L/325.3	5.303 5.303	0.41 L/(>1000)	4.861 4.861	16.31 L/451.6	5.303 5.303	0.47 L/(>1000)
N949/N879	3.094 3.094	21.35 L/331.3	5.303 5.303	0.17 L/(>1000)	2.210 2.210	15.16 L/484.0	1.768 1.326	0.23 L/(>1000)
N875/N949	3.977 3.977	22.41 L/315.6	4.861 4.861	0.65 L/(>1000)	4.419 4.861	16.15 L/454.2	4.861 4.861	0.78 L/(>1000)
N1782/N1712	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)
N1712/N1786	3.539 3.539	1258.05 L/5.6	3.539 3.539	2106.71 L/3.4	3.539 3.539	1736.61 L/5.6	3.539 3.539	2876.05 L/3.4
N1786/N1716	3.539 3.539	1179.02 L/6.0	3.539 3.539	2065.34 L/3.4	3.539 3.539	1570.68 L/6.2	3.539 3.539	2785.67 L/3.5
N1716/N1790	3.539 3.539	1257.76 L/5.6	3.539 3.539	2111.62 L/3.4	3.539 3.539	1736.33 L/5.7	3.539 3.539	2882.98 L/3.4
N1790/N1720	3.539 3.539	1179.49 L/6.0	3.539 3.539	2062.50 L/3.4	3.539 3.539	1571.13 L/6.2	3.539 3.539	2781.64 L/3.5
N1720/N1794	3.539 3.539	1258.19 L/5.6	3.539 3.539	2108.89 L/3.4	3.539 3.539	1736.96 L/5.7	3.539 3.539	2879.15 L/3.4
N1794/N1709	3.127 3.127	608.09 L/10.3	3.127 3.127	1071.92 L/5.8	3.127 3.127	806.66 L/10.6	3.127 3.127	1442.56 L/6.0
N1779/N1709	3.127 3.127	654.83 L/9.6	3.127 3.127	1098.81 L/5.7	3.127 3.127	904.68 L/9.7	3.127 3.127	1499.30 L/5.7
N1705/N1779	3.539 3.539	1178.84 L/6.0	3.539 3.539	2063.04 L/3.4	3.539 3.539	1570.27 L/6.2	3.539 3.539	2782.33 L/3.5
N1775/N1705	3.539 3.539	1257.55 L/5.6	3.539 3.539	2108.40 L/3.4	3.539 3.539	1736.10 L/5.7	3.539 3.539	2878.52 L/3.4
N1701/N1775	3.539 3.539	1179.29 L/6.0	3.539 3.539	2065.78 L/3.4	3.539 3.539	1570.92 L/6.2	3.539 3.539	2786.15 L/3.5
N1771/N1701	3.539 3.539	1258.06 L/5.6	3.539 3.539	2111.24 L/3.4	3.539 3.539	1736.65 L/5.7	3.539 3.539	2882.53 L/3.4
N1697/N1771	3.539 3.539	1179.02 L/6.0	3.539 3.539	2060.85 L/3.4	3.539 3.539	1570.67 L/6.1	3.539 3.539	2779.22 L/3.5

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1767/N1697	6.193 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N1695/N1769	3.981 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)
N1769/N1699	3.539 3.539	1257.57 L/5.6	3.539 3.539	2111.90 L/3.4	3.539 3.539	1736.09 L/5.6	3.539 3.539	2882.15 L/3.4
N1699/N1773	3.539 3.539	1179.19 L/6.0	3.539 3.539	2065.41 L/3.4	3.539 3.539	1570.86 L/6.2	3.539 3.539	2785.67 L/3.5
N1773/N1703	3.539 3.539	1257.66 L/5.6	3.539 3.539	2111.79 L/3.4	3.539 3.539	1736.21 L/5.7	3.539 3.539	2883.23 L/3.4
N1703/N1777	3.539 3.539	1179.74 L/6.0	3.539 3.539	2064.57 L/3.4	3.539 3.539	1571.47 L/6.2	3.539 3.539	2784.17 L/3.5
N1777/N1707	3.539 3.539	1258.40 L/5.6	3.539 3.539	2110.74 L/3.4	3.539 3.539	1737.22 L/5.7	3.539 3.539	2881.46 L/3.4
N1707/N1781	3.127 3.127	607.90 L/10.3	3.127 3.127	1071.65 L/5.8	3.127 3.127	806.44 L/10.6	3.127 3.127	1442.24 L/6.0
N1722/N1781	3.127 3.127	655.05 L/9.5	3.127 3.127	1098.56 L/5.7	3.127 3.127	904.94 L/9.7	3.127 3.127	1499.00 L/5.7
N1792/N1722	3.539 3.539	1178.67 L/6.0	3.539 3.539	2064.90 L/3.4	3.539 3.539	1570.09 L/6.2	3.539 3.539	2784.65 L/3.5
N1718/N1792	3.539 3.539	1257.35 L/5.6	3.539 3.539	2110.43 L/3.4	3.539 3.539	1735.85 L/5.7	3.539 3.539	2881.01 L/3.4
N1788/N1718	3.539 3.539	1179.36 L/6.0	3.539 3.539	2065.86 L/3.4	3.539 3.539	1571.00 L/6.2	3.539 3.539	2786.33 L/3.5
N1714/N1788	3.539 3.539	1257.89 L/5.6	3.539 3.539	2111.23 L/3.4	3.539 3.539	1736.45 L/5.7	3.539 3.539	2882.48 L/3.4
N1784/N1714	3.539 3.539	1179.47 L/6.0	3.539 3.539	2066.00 L/3.4	3.539 3.539	1571.14 L/6.1	3.539 3.539	2785.27 L/3.5
N1710/N1784	3.981 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)
N1350/N1424	4.866 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)
N1422/N1352	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)
N1352/N1426	3.539 3.539	883.09 L/8.0	3.539 3.539	1496.59 L/4.7	3.539 3.539	1143.00 L/8.0	3.539 3.539	1909.70 L/4.8
N1424/N1354	3.539 3.539	856.32 L/8.3	3.539 3.539	1483.72 L/4.8	3.539 3.539	1059.67 L/8.3	3.539 3.539	1864.42 L/4.8
N1354/N1428	3.539 3.539	883.32 L/8.0	3.539 3.539	1504.85 L/4.7	3.539 3.539	1143.27 L/8.6	3.539 3.539	1920.12 L/4.9
N1426/N1356	3.539 3.539	856.15 L/8.3	3.539 3.539	1489.82 L/4.8	3.539 3.539	1059.51 L/8.3	3.539 3.539	1872.05 L/4.9
N1356/N1430	3.539 3.539	883.07 L/8.0	3.539 3.539	1504.28 L/4.7	3.539 3.539	1143.02 L/8.6	3.539 3.539	1919.35 L/4.9
N1428/N1358	3.539 3.539	856.50 L/8.3	3.539 3.539	1487.41 L/4.8	3.539 3.539	1059.85 L/8.3	3.539 3.539	1868.95 L/4.9
N1358/N1432	3.539 3.539	882.62 L/8.0	3.539 3.539	1498.10 L/4.7	3.539 3.539	1142.53 L/8.6	3.539 3.539	1911.43 L/5.0
N1430/N1360	3.539 3.539	856.79 L/8.3	3.539 3.539	1481.83 L/4.8	3.539 3.539	1060.18 L/8.3	3.539 3.539	1861.73 L/4.9
N1432/N1362	3.539 3.539	856.18 L/8.3	3.539 3.539	1481.00 L/4.8	3.539 3.539	1059.46 L/8.3	3.539 3.539	1860.97 L/4.9
N1360/N1434	3.539 3.539	883.20 L/8.0	3.539 3.539	1496.35 L/4.7	3.539 3.539	1143.19 L/8.6	3.539 3.539	1909.36 L/5.0
N1407/N1337	6.636 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1335/N1409	4.424 -	0.00 L/(>1000)	4.866 -	0.00 L/(>1000)	4.424 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N1409/N1339	3.539 3.539	883.17 L/8.0	3.539 3.539	1499.00 L/4.7	3.539 3.539	1143.11 L/8.0	3.539 3.539	1912.84 L/4.7
N1337/N1411	3.539 3.539	856.40 L/8.3	3.539 3.539	1481.31 L/4.8	3.539 3.539	1059.77 L/8.3	3.539 3.539	1861.28 L/4.8
N1339/N1413	3.539 3.539	856.18 L/8.3	3.539 3.539	1489.56 L/4.8	3.539 3.539	1059.54 L/8.3	3.539 3.539	1871.69 L/4.9
N1411/N1341	3.539 3.539	883.35 L/8.0	3.539 3.539	1505.11 L/4.7	3.539 3.539	1143.31 L/8.6	3.539 3.539	1920.47 L/4.9
N1413/N1343	3.539 3.539	882.99 L/8.0	3.539 3.539	1502.71 L/4.7	3.539 3.539	1142.92 L/8.6	3.539 3.539	1917.37 L/5.0
N1341/N1415	3.539 3.539	856.42 L/8.3	3.539 3.539	1488.98 L/4.8	3.539 3.539	1059.75 L/8.3	3.539 3.539	1870.92 L/4.9
N1415/N1345	3.539 3.539	882.70 L/8.0	3.539 3.539	1497.13 L/4.7	3.539 3.539	1142.60 L/8.6	3.539 3.539	1910.17 L/5.0
N1343/N1417	3.539 3.539	856.88 L/8.3	3.539 3.539	1482.80 L/4.8	3.539 3.539	1060.29 L/8.3	3.539 3.539	1862.99 L/4.9
N1417/N1347	3.539 3.539	883.31 L/8.0	3.539 3.539	1496.28 L/4.7	3.539 3.539	1143.34 L/8.6	3.539 3.539	1909.39 L/5.0
N1345/N1419	3.539 3.539	856.29 L/8.3	3.539 3.539	1481.06 L/4.8	3.539 3.539	1059.58 L/8.3	3.539 3.539	1860.94 L/4.9
N1419/N1349	3.127 3.127	430.41 L/14.5	3.127 3.127	733.38 L/8.5	3.127 3.127	598.59 L/15.0	3.127 3.127	1000.64 L/9.1
N1347/N1421	3.127 3.127	418.82 L/14.9	3.127 3.127	726.95 L/8.6	3.127 3.127	548.63 L/16.0	3.127 3.127	971.79 L/9.5
N1362/N1421	3.127 3.127	430.39 L/14.5	3.127 3.127	733.28 L/8.5	3.127 3.127	598.58 L/15.0	3.127 3.127	1000.50 L/9.1
N1434/N1349	3.127 3.127	418.80 L/14.9	3.127 3.127	727.04 L/8.6	3.127 3.127	548.62 L/16.0	3.127 3.127	971.92 L/9.5
N990/N1064	6.193 -	0.00 L/(>1000)	4.866 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	4.866 -	0.00 L/(>1000)
N1062/N992	3.981 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N992/N1066	3.539 3.539	883.16 L/8.0	3.539 3.539	1499.24 L/4.7	3.539 3.539	1143.10 L/8.0	3.539 3.539	1913.09 L/4.7
N1064/N994	3.539 3.539	856.22 L/8.3	3.539 3.539	1483.87 L/4.8	3.539 3.539	1059.56 L/8.3	3.539 3.539	1864.61 L/4.8
N994/N1068	3.539 3.539	883.45 L/8.0	3.539 3.539	1507.66 L/4.7	3.539 3.539	1143.44 L/8.6	3.539 3.539	1923.70 L/4.9
N1066/N996	3.539 3.539	856.05 L/8.3	3.539 3.539	1492.36 L/4.7	3.539 3.539	1059.38 L/8.3	3.539 3.539	1875.28 L/4.9
N996/N1070	3.539 3.539	883.12 L/8.0	3.539 3.539	1505.37 L/4.7	3.539 3.539	1143.08 L/8.6	3.539 3.539	1920.76 L/4.9
N1068/N998	3.539 3.539	856.37 L/8.3	3.539 3.539	1490.13 L/4.7	3.539 3.539	1059.70 L/8.3	3.539 3.539	1872.38 L/4.9
N998/N1072	3.539 3.539	882.58 L/8.0	3.539 3.539	1498.19 L/4.7	3.539 3.539	1142.49 L/8.6	3.539 3.539	1911.53 L/5.0
N1070/N1000	3.539 3.539	856.73 L/8.3	3.539 3.539	1482.74 L/4.8	3.539 3.539	1060.12 L/8.3	3.539 3.539	1862.92 L/4.9
N1072/N1002	3.539 3.539	856.16 L/8.3	3.539 3.539	1480.90 L/4.8	3.539 3.539	1059.45 L/8.3	3.539 3.539	1860.85 L/4.9
N1000/N1074	3.539 3.539	883.16 L/8.0	3.539 3.539	1496.10 L/4.7	3.539 3.539	1143.16 L/8.6	3.539 3.539	1909.15 L/5.0
N1047/N977	6.193 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)

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Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N975/N1049	4.866 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)	4.866 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N1049/N979	3.539 3.539	883.29 L/8.0	3.539 3.539	1499.18 L/4.7	3.539 3.539	1143.25 L/8.0	3.539 3.539	1913.05 L/4.7
N977/N1051	3.539 3.539	856.36 L/8.3	3.539 3.539	1483.93 L/4.8	3.539 3.539	1059.70 L/8.3	3.539 3.539	1864.65 L/4.8
N979/N1053	3.539 3.539	856.04 L/8.3	3.539 3.539	1492.35 L/4.7	3.539 3.539	1059.37 L/8.3	3.539 3.539	1875.26 L/4.9
N1051/N981	3.539 3.539	883.43 L/8.0	3.539 3.539	1507.65 L/4.7	3.539 3.539	1143.42 L/8.6	3.539 3.539	1923.71 L/4.9
N1053/N983	3.539 3.539	883.10 L/8.0	3.539 3.539	1505.44 L/4.7	3.539 3.539	1143.06 L/8.6	3.539 3.539	1920.83 L/4.9
N981/N1055	3.539 3.539	856.36 L/8.3	3.539 3.539	1490.05 L/4.8	3.539 3.539	1059.69 L/8.3	3.539 3.539	1872.31 L/4.9
N1055/N985	3.539 3.539	882.77 L/8.0	3.539 3.539	1498.06 L/4.7	3.539 3.539	1142.66 L/8.6	3.539 3.539	1911.38 L/5.0
N983/N1057	3.539 3.539	856.93 L/8.3	3.539 3.539	1482.87 L/4.8	3.539 3.539	1060.35 L/8.3	3.539 3.539	1863.08 L/4.9
N1057/N987	3.539 3.539	883.32 L/8.0	3.539 3.539	1496.22 L/4.7	3.539 3.539	1143.35 L/8.6	3.539 3.539	1909.30 L/5.0
N985/N1059	3.539 3.539	856.31 L/8.3	3.539 3.539	1480.79 L/4.8	3.539 3.539	1059.59 L/8.3	3.539 3.539	1860.71 L/4.9
N1059/N989	3.127 3.127	430.40 L/14.5	3.127 3.127	733.15 L/8.5	3.127 3.127	598.59 L/15.0	3.127 3.127	1000.40 L/9.1
N987/N1061	3.127 3.127	418.81 L/14.9	3.127 3.127	726.82 L/8.6	3.127 3.127	548.63 L/16.0	3.127 3.127	971.69 L/9.5
N1002/N1061	3.127 3.127	430.40 L/14.5	3.127 3.127	733.16 L/8.5	3.127 3.127	598.59 L/15.0	3.127 3.127	1000.41 L/9.1
N1074/N989	3.127 3.127	418.81 L/14.9	3.127 3.127	726.80 L/8.6	3.127 3.127	548.63 L/16.0	3.127 3.127	971.67 L/9.5
N198/N128	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)
N126/N200	6.193 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)
N200/N130	3.539 3.539	883.05 L/8.0	3.539 3.539	1496.72 L/4.7	3.539 3.539	1142.96 L/8.0	3.539 3.539	1909.91 L/4.8
N128/N202	3.539 3.539	856.27 L/8.3	3.539 3.539	1483.57 L/4.8	3.539 3.539	1059.62 L/8.3	3.539 3.539	1864.21 L/4.8
N202/N132	3.539 3.539	883.34 L/8.0	3.539 3.539	1504.94 L/4.7	3.539 3.539	1143.30 L/8.6	3.539 3.539	1920.25 L/4.9
N130/N204	3.539 3.539	856.15 L/8.3	3.539 3.539	1489.80 L/4.8	3.539 3.539	1059.51 L/8.3	3.539 3.539	1872.01 L/4.9
N204/N134	3.539 3.539	883.06 L/8.0	3.539 3.539	1504.32 L/4.7	3.539 3.539	1143.01 L/8.6	3.539 3.539	1919.43 L/4.9
N132/N206	3.539 3.539	856.50 L/8.3	3.539 3.539	1487.43 L/4.8	3.539 3.539	1059.86 L/8.3	3.539 3.539	1868.95 L/4.9
N206/N136	3.539 3.539	882.56 L/8.0	3.539 3.539	1498.07 L/4.7	3.539 3.539	1142.47 L/8.6	3.539 3.539	1911.38 L/5.0
N134/N208	3.539 3.539	856.75 L/8.3	3.539 3.539	1481.92 L/4.8	3.539 3.539	1060.15 L/8.3	3.539 3.539	1861.89 L/4.9
N136/N210	3.539 3.539	856.15 L/8.3	3.539 3.539	1480.93 L/4.8	3.539 3.539	1059.43 L/8.3	3.539 3.539	1860.86 L/4.9
N208/N138	3.539 3.539	883.17 L/8.0	3.539 3.539	1496.39 L/4.7	3.539 3.539	1143.17 L/8.6	3.539 3.539	1909.47 L/5.0
N111/N185	6.193 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	4.866 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N183/N113	4.424 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	4.424 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N113/N187	3.539 3.539	883.20 L/8.0	3.539 3.539	1498.86 L/4.7	3.539 3.539	1143.14 L/8.0	3.539 3.539	1912.64 L/4.7
N185/N115	3.539 3.539	856.41 L/8.3	3.539 3.539	1481.41 L/4.8	3.539 3.539	1059.78 L/8.3	3.539 3.539	1861.46 L/4.8
N187/N117	3.539 3.539	856.17 L/8.3	3.539 3.539	1489.64 L/4.8	3.539 3.539	1059.53 L/8.3	3.539 3.539	1871.82 L/4.9
N115/N189	3.539 3.539	883.34 L/8.0	3.539 3.539	1505.08 L/4.7	3.539 3.539	1143.30 L/8.6	3.539 3.539	1920.43 L/4.9
N117/N191	3.539 3.539	882.98 L/8.0	3.539 3.539	1502.70 L/4.7	3.539 3.539	1142.91 L/8.6	3.539 3.539	1917.36 L/5.0
N189/N119	3.539 3.539	856.42 L/8.3	3.539 3.539	1489.03 L/4.8	3.539 3.539	1059.76 L/8.3	3.539 3.539	1871.01 L/4.9
N119/N193	3.539 3.539	882.72 L/8.0	3.539 3.539	1497.20 L/4.7	3.539 3.539	1142.61 L/8.6	3.539 3.539	1910.30 L/5.0
N191/N121	3.539 3.539	856.91 L/8.3	3.539 3.539	1482.78 L/4.8	3.539 3.539	1060.32 L/8.3	3.539 3.539	1862.96 L/4.9
N121/N195	3.539 3.539	883.37 L/8.0	3.539 3.539	1496.21 L/4.7	3.539 3.539	1143.40 L/8.6	3.539 3.539	1909.28 L/5.0
N193/N123	3.539 3.539	856.31 L/8.3	3.539 3.539	1481.11 L/4.8	3.539 3.539	1059.59 L/8.3	3.539 3.539	1861.07 L/4.9
N123/N197	3.127 3.127	430.40 L/14.5	3.127 3.127	733.35 L/8.5	3.127 3.127	598.59 L/15.0	3.127 3.127	1000.61 L/9.1
N195/N125	3.127 3.127	418.81 L/14.9	3.127 3.127	726.91 L/8.6	3.127 3.127	548.62 L/16.0	3.127 3.127	971.77 L/9.5
N210/N125	3.127 3.127	430.39 L/14.5	3.127 3.127	733.24 L/8.5	3.127 3.127	598.59 L/15.0	3.127 3.127	1000.48 L/9.1
N138/N197	3.127 3.127	418.80 L/14.9	3.127 3.127	727.00 L/8.6	3.127 3.127	548.62 L/16.0	3.127 3.127	971.89 L/9.5
N558/N488	6.636 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)
N486/N560	6.193 -	0.00 L/(>1000)	3.981 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)
N560/N490	3.539 3.539	883.09 L/8.0	3.539 3.539	1499.26 L/4.7	3.539 3.539	1143.03 L/8.0	3.539 3.539	1913.18 L/4.7
N488/N562	3.539 3.539	856.15 L/8.3	3.539 3.539	1483.84 L/4.8	3.539 3.539	1059.48 L/8.3	3.539 3.539	1864.49 L/4.8
N562/N492	3.539 3.539	883.47 L/8.0	3.539 3.539	1507.67 L/4.7	3.539 3.539	1143.46 L/8.6	3.539 3.539	1923.73 L/4.9
N490/N564	3.539 3.539	856.05 L/8.3	3.539 3.539	1492.33 L/4.7	3.539 3.539	1059.39 L/8.3	3.539 3.539	1875.19 L/4.9
N564/N494	3.539 3.539	883.10 L/8.0	3.539 3.539	1505.35 L/4.7	3.539 3.539	1143.06 L/8.6	3.539 3.539	1920.75 L/4.9
N492/N566	3.539 3.539	856.38 L/8.3	3.539 3.539	1490.12 L/4.7	3.539 3.539	1059.70 L/8.3	3.539 3.539	1872.34 L/4.9
N566/N496	3.539 3.539	882.51 L/8.0	3.539 3.539	1498.21 L/4.7	3.539 3.539	1142.43 L/8.6	3.539 3.539	1911.50 L/5.0
N494/N568	3.539 3.539	856.68 L/8.3	3.539 3.539	1482.76 L/4.8	3.539 3.539	1060.07 L/8.3	3.539 3.539	1862.97 L/4.9
N496/N570	3.539 3.539	856.11 L/8.3	3.539 3.539	1480.99 L/4.8	3.539 3.539	1059.41 L/8.3	3.539 3.539	1860.86 L/4.9
N568/N498	3.539 3.539	883.14 L/8.0	3.539 3.539	1496.13 L/4.7	3.539 3.539	1143.14 L/8.6	3.539 3.539	1909.22 L/5.0
N471/N545	6.193 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	5.308 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N543/N473	6.636 -	0.00 L/(>1000)	4.424 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	4.424 -	0.00 L/(>1000)
N473/N547	3.539 3.539	883.33 L/8.0	3.539 3.539	1499.15 L/4.7	3.539 3.539	1143.29 L/8.0	3.539 3.539	1912.94 L/4.7
N545/N475	3.539 3.539	856.37 L/8.3	3.539 3.539	1483.95 L/4.8	3.539 3.539	1059.72 L/8.3	3.539 3.539	1864.74 L/4.8
N547/N477	3.539 3.539	856.04 L/8.3	3.539 3.539	1492.39 L/4.7	3.539 3.539	1059.36 L/8.3	3.539 3.539	1875.31 L/4.9
N475/N549	3.539 3.539	883.45 L/8.0	3.539 3.539	1507.62 L/4.7	3.539 3.539	1143.44 L/8.6	3.539 3.539	1923.61 L/4.9
N477/N551	3.539 3.539	883.10 L/8.0	3.539 3.539	1505.41 L/4.7	3.539 3.539	1143.07 L/8.6	3.539 3.539	1920.76 L/4.9
N549/N479	3.539 3.539	856.38 L/8.3	3.539 3.539	1490.07 L/4.8	3.539 3.539	1059.70 L/8.3	3.539 3.539	1872.33 L/4.9
N479/N553	3.539 3.539	882.79 L/8.0	3.539 3.539	1498.05 L/4.7	3.539 3.539	1142.69 L/8.6	3.539 3.539	1911.39 L/5.0
N551/N481	3.539 3.539	856.98 L/8.3	3.539 3.539	1482.93 L/4.8	3.539 3.539	1060.38 L/8.3	3.539 3.539	1863.08 L/4.9
N481/N555	3.539 3.539	883.37 L/8.0	3.539 3.539	1496.28 L/4.7	3.539 3.539	1143.39 L/8.6	3.539 3.539	1909.28 L/5.0
N553/N483	3.539 3.539	856.34 L/8.3	3.539 3.539	1480.84 L/4.8	3.539 3.539	1059.62 L/8.3	3.539 3.539	1860.80 L/4.9
N483/N557	3.127 3.127	430.39 L/14.5	3.127 3.127	733.21 L/8.5	3.127 3.127	598.59 L/15.0	3.127 3.127	1000.45 L/9.1
N555/N485	3.127 3.127	418.79 L/14.9	3.127 3.127	726.87 L/8.6	3.127 3.127	548.61 L/16.0	3.127 3.127	971.74 L/9.5
N570/N485	3.127 3.127	430.42 L/14.5	3.127 3.127	733.20 L/8.5	3.127 3.127	598.60 L/15.0	3.127 3.127	1000.45 L/9.1
N498/N557	3.127 3.127	418.81 L/14.9	3.127 3.127	726.87 L/8.6	3.127 3.127	548.63 L/16.0	3.127 3.127	971.73 L/9.5
N2190/N1782	1.390 1.390	1.76 L/(>1000)	2.548 2.548	0.50 L/(>1000)	1.390 1.390	1.99 L/(>1000)	2.779 2.779	0.47 L/(>1000)
N2190/N1710	1.621 1.621	1.94 L/(>1000)	2.779 0.695	0.27 L/(>1000)	1.621 1.621	2.20 L/(>1000)	0.926 0.695	0.35 L/(>1000)
N2191/N1638	1.621 1.621	1.92 L/(>1000)	2.779 0.695	0.25 L/(>1000)	1.621 1.621	2.12 L/(>1000)	0.926 0.695	0.31 L/(>1000)
N2191/N1710	1.390 1.390	1.86 L/(>1000)	2.548 2.548	0.28 L/(>1000)	1.390 1.390	2.10 L/(>1000)	2.779 2.779	0.21 L/(>1000)
N2192/N1566	1.621 1.621	1.71 L/(>1000)	0.695 0.695	0.21 L/(>1000)	1.621 1.621	1.85 L/(>1000)	0.926 0.695	0.31 L/(>1000)
N2192/N1638	1.390 1.390	1.86 L/(>1000)	2.548 2.548	0.32 L/(>1000)	1.390 1.390	2.07 L/(>1000)	2.779 2.779	0.26 L/(>1000)
N2193/N1494	1.621 1.621	1.66 L/(>1000)	2.779 0.695	0.22 L/(>1000)	1.621 1.621	1.77 L/(>1000)	0.926 0.695	0.28 L/(>1000)
N2193/N1566	1.390 1.390	1.68 L/(>1000)	2.548 2.548	0.31 L/(>1000)	1.390 1.390	1.81 L/(>1000)	2.779 2.779	0.24 L/(>1000)
N2194/N1422	1.621 1.621	1.65 L/(>1000)	2.779 0.695	0.21 L/(>1000)	1.621 1.621	1.74 L/(>1000)	0.926 0.695	0.27 L/(>1000)
N2194/N1494	1.390 1.390	1.64 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.75 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2195/N1350	1.621 1.621	1.68 L/(>1000)	0.695 0.695	0.20 L/(>1000)	1.621 1.621	1.78 L/(>1000)	0.926 0.695	0.29 L/(>1000)
N2195/N1422	1.390 1.390	1.60 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.69 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2196/N1278	1.621 1.621	1.65 L/(>1000)	2.779 0.695	0.21 L/(>1000)	1.621 1.621	1.75 L/(>1000)	0.926 0.695	0.27 L/(>1000)

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2196/N1350	1.390 1.390	1.55 L/(>1000)	2.548 2.548	0.34 L/(>1000)	1.390 1.390	1.62 L/(>1000)	2.779 2.779	0.27 L/(>1000)
N2197/N1206	1.621 1.621	1.64 L/(>1000)	2.779 0.695	0.21 L/(>1000)	1.621 1.621	1.73 L/(>1000)	0.926 0.695	0.26 L/(>1000)
N2197/N1278	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.779 2.779	0.23 L/(>1000)
N2198/N1134	1.621 1.621	1.64 L/(>1000)	2.779 0.695	0.20 L/(>1000)	1.621 1.621	1.73 L/(>1000)	0.926 0.695	0.26 L/(>1000)
N2198/N1206	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.64 L/(>1000)	2.779 2.779	0.23 L/(>1000)
N2199/N1062	1.621 1.621	1.61 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.390	1.69 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2199/N1134	1.390 1.390	1.58 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.779 2.779	0.23 L/(>1000)
N2200/N990	1.621 1.621	1.67 L/(>1000)	2.779 0.695	0.18 L/(>1000)	1.621 1.390	1.77 L/(>1000)	0.926 0.695	0.26 L/(>1000)
N2200/N1062	1.390 1.390	1.59 L/(>1000)	2.548 2.548	0.27 L/(>1000)	1.390 1.390	1.67 L/(>1000)	2.779 0.463	0.19 L/(>1000)
N2239/N80	1.390 1.390	1.64 L/(>1000)	2.548 2.779	0.23 L/(>1000)	1.390 1.390	1.72 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2239/N990	1.390 1.390	1.55 L/(>1000)	2.548 2.548	0.33 L/(>1000)	1.390 1.390	1.61 L/(>1000)	2.779 2.779	0.27 L/(>1000)
N2201/N126	1.621 1.621	1.66 L/(>1000)	2.548 2.779	0.23 L/(>1000)	1.621 1.621	1.75 L/(>1000)	0.926 0.695	0.23 L/(>1000)
N2201/N80	1.390 1.390	1.58 L/(>1000)	2.548 2.548	0.28 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.779 2.779	0.21 L/(>1000)
N2202/N198	1.621 1.621	1.69 L/(>1000)	2.548 0.695	0.19 L/(>1000)	1.621 1.621	1.78 L/(>1000)	0.926 0.695	0.25 L/(>1000)
N2202/N126	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.28 L/(>1000)	1.390 1.390	1.64 L/(>1000)	2.779 2.779	0.21 L/(>1000)
N2203/N270	1.621 1.621	1.67 L/(>1000)	2.548 0.695	0.22 L/(>1000)	1.621 1.621	1.76 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2203/N198	1.390 1.390	1.54 L/(>1000)	2.548 2.548	0.33 L/(>1000)	1.390 1.390	1.60 L/(>1000)	2.779 2.779	0.27 L/(>1000)
N2204/N342	1.621 1.621	1.66 L/(>1000)	2.548 0.695	0.22 L/(>1000)	1.621 1.621	1.75 L/(>1000)	0.926 0.695	0.23 L/(>1000)
N2204/N270	1.390 1.390	1.56 L/(>1000)	2.548 2.548	0.29 L/(>1000)	1.390 1.390	1.63 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2205/N414	1.621 1.621	1.67 L/(>1000)	2.548 0.695	0.22 L/(>1000)	1.621 1.621	1.76 L/(>1000)	0.926 0.695	0.23 L/(>1000)
N2205/N342	1.390 1.390	1.56 L/(>1000)	2.548 2.548	0.29 L/(>1000)	1.390 1.390	1.63 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2206/N486	1.621 1.621	1.65 L/(>1000)	2.548 2.779	0.26 L/(>1000)	1.621 1.621	1.74 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2206/N414	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.29 L/(>1000)	1.390 1.390	1.64 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2207/N558	1.621 1.621	1.71 L/(>1000)	2.548 0.695	0.20 L/(>1000)	1.621 1.621	1.82 L/(>1000)	0.926 0.695	0.23 L/(>1000)
N2207/N486	1.390 1.390	1.59 L/(>1000)	2.548 2.779	0.25 L/(>1000)	1.621 1.390	1.66 L/(>1000)	0.926 0.695	0.20 L/(>1000)
N2208/N630	1.621 1.621	1.72 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.621	1.84 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2208/N558	1.390 1.390	1.54 L/(>1000)	2.548 2.548	0.32 L/(>1000)	1.390 1.390	1.61 L/(>1000)	2.779 2.779	0.26 L/(>1000)
N2209/N702	1.621 1.621	1.74 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.621	1.87 L/(>1000)	0.926 0.695	0.21 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2209/N630	1.390 1.390	1.58 L/(>1000)	2.548 2.779	0.27 L/(>1000)	1.390 1.390	1.67 L/(>1000)	3.011 0.695	0.21 L/(>1000)
N2210/N774	1.621 1.621	1.78 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.621	1.96 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2210/N702	1.390 1.390	1.60 L/(>1000)	2.779 2.779	0.27 L/(>1000)	1.390 1.390	1.71 L/(>1000)	3.011 2.779	0.23 L/(>1000)
N2211/N846	1.621 1.621	1.85 L/(>1000)	2.548 0.695	0.23 L/(>1000)	1.621 1.390	2.10 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2211/N774	1.390 1.390	1.63 L/(>1000)	2.779 2.779	0.28 L/(>1000)	1.390 1.390	1.77 L/(>1000)	3.011 0.695	0.24 L/(>1000)
N2212/N918	1.390 1.390	1.89 L/(>1000)	1.853 1.853	0.22 L/(>1000)	1.390 1.390	2.20 L/(>1000)	1.390 1.621	0.38 L/(>1000)
N2212/N846	1.621 1.621	1.77 L/(>1000)	2.779 0.695	0.28 L/(>1000)	1.621 1.621	2.00 L/(>1000)	0.926 0.695	0.30 L/(>1000)
N2164/N903	1.390 1.390	1.86 L/(>1000)	1.853 1.853	0.22 L/(>1000)	1.390 1.390	2.17 L/(>1000)	1.390 1.853	0.40 L/(>1000)
N2164/N831	1.621 1.621	1.78 L/(>1000)	2.779 0.695	0.28 L/(>1000)	1.621 1.621	2.01 L/(>1000)	0.926 0.695	0.29 L/(>1000)
N2163/N831	1.621 1.621	1.85 L/(>1000)	2.548 0.695	0.24 L/(>1000)	1.621 1.390	2.10 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2163/N759	1.390 1.390	1.64 L/(>1000)	2.779 2.779	0.28 L/(>1000)	1.390 1.390	1.78 L/(>1000)	3.011 2.779	0.24 L/(>1000)
N2162/N759	1.621 1.621	1.77 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.621	1.95 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2162/N687	1.390 1.390	1.61 L/(>1000)	2.548 2.779	0.27 L/(>1000)	1.390 1.390	1.71 L/(>1000)	3.011 2.779	0.22 L/(>1000)
N2161/N687	1.621 1.621	1.73 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.621	1.86 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2161/N615	1.390 1.390	1.59 L/(>1000)	2.548 2.779	0.28 L/(>1000)	1.390 1.390	1.67 L/(>1000)	2.779 2.779	0.21 L/(>1000)
N2160/N615	1.621 1.621	1.71 L/(>1000)	2.548 2.779	0.24 L/(>1000)	1.621 1.621	1.83 L/(>1000)	0.926 0.695	0.22 L/(>1000)
N2160/N543	1.390 1.390	1.55 L/(>1000)	2.548 2.548	0.32 L/(>1000)	1.390 1.390	1.62 L/(>1000)	2.779 2.779	0.26 L/(>1000)
N2159/N543	1.621 1.621	1.71 L/(>1000)	2.548 0.695	0.20 L/(>1000)	1.621 1.621	1.81 L/(>1000)	0.926 0.695	0.23 L/(>1000)
N2159/N471	1.390 1.390	1.59 L/(>1000)	2.548 2.779	0.25 L/(>1000)	1.621 1.390	1.67 L/(>1000)	0.926 0.695	0.20 L/(>1000)
N2158/N471	1.621 1.621	1.65 L/(>1000)	2.548 2.779	0.26 L/(>1000)	1.621 1.621	1.73 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2158/N399	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.29 L/(>1000)	1.390 1.390	1.64 L/(>1000)	2.779 2.779	0.23 L/(>1000)
N2157/N399	1.621 1.621	1.67 L/(>1000)	2.548 0.695	0.22 L/(>1000)	1.621 1.621	1.76 L/(>1000)	0.926 0.695	0.23 L/(>1000)
N2157/N327	1.390 1.390	1.56 L/(>1000)	2.548 2.548	0.29 L/(>1000)	1.390 1.390	1.63 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2156/N327	1.621 1.621	1.66 L/(>1000)	2.548 0.695	0.22 L/(>1000)	1.621 1.621	1.75 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2156/N255	1.390 1.390	1.56 L/(>1000)	2.548 2.548	0.29 L/(>1000)	1.390 1.390	1.63 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2155/N255	1.621 1.621	1.67 L/(>1000)	2.548 0.695	0.22 L/(>1000)	1.621 1.621	1.76 L/(>1000)	0.926 0.695	0.24 L/(>1000)
N2155/N183	1.390 1.390	1.54 L/(>1000)	2.548 2.548	0.32 L/(>1000)	1.390 1.390	1.60 L/(>1000)	2.779 2.779	0.26 L/(>1000)
N2154/N183	1.621 1.621	1.69 L/(>1000)	2.548 0.695	0.19 L/(>1000)	1.621 1.621	1.79 L/(>1000)	0.926 0.695	0.25 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2154/N111	1.390 1.390	1.57 L/(>1000)	2.548 2.779	0.25 L/(>1000)	1.390 1.390	1.64 L/(>1000)	0.926 0.695	0.19 L/(>1000)
N2153/N111	1.621 1.621	1.55 L/(>1000)	2.548 2.779	0.25 L/(>1000)	1.621 1.621	1.63 L/(>1000)	0.926 0.695	0.21 L/(>1000)
N2153/N66	1.621 1.621	1.57 L/(>1000)	2.548 2.779	0.30 L/(>1000)	1.621 1.621	1.64 L/(>1000)	2.779 0.695	0.22 L/(>1000)
N2152/N975	1.621 1.621	1.66 L/(>1000)	0.695 0.695	0.22 L/(>1000)	1.621 1.621	1.75 L/(>1000)	0.926 0.695	0.31 L/(>1000)
N2152/N1047	1.621 1.621	1.52 L/(>1000)	2.548 2.548	0.28 L/(>1000)	1.621 1.621	1.59 L/(>1000)	2.779 2.779	0.20 L/(>1000)
N2151/N1047	1.621 1.621	1.62 L/(>1000)	2.779 0.695	0.21 L/(>1000)	1.621 1.621	1.70 L/(>1000)	0.926 0.695	0.26 L/(>1000)
N2151/N1119	1.390 1.390	1.58 L/(>1000)	2.548 2.548	0.31 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.779 2.779	0.24 L/(>1000)
N2150/N1119	1.621 1.621	1.64 L/(>1000)	2.779 0.695	0.20 L/(>1000)	1.621 1.621	1.73 L/(>1000)	0.926 0.695	0.26 L/(>1000)
N2150/N1191	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.31 L/(>1000)	1.390 1.390	1.64 L/(>1000)	2.779 2.779	0.23 L/(>1000)
N2149/N1191	1.621 1.621	1.64 L/(>1000)	2.779 0.695	0.21 L/(>1000)	1.621 1.621	1.73 L/(>1000)	0.926 0.695	0.26 L/(>1000)
N2149/N1263	1.390 1.390	1.57 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.65 L/(>1000)	2.779 2.779	0.23 L/(>1000)
N2148/N1263	1.621 1.621	1.65 L/(>1000)	2.779 0.695	0.21 L/(>1000)	1.621 1.621	1.74 L/(>1000)	0.926 0.695	0.27 L/(>1000)
N2148/N1335	1.390 1.390	1.55 L/(>1000)	2.548 2.548	0.34 L/(>1000)	1.390 1.390	1.63 L/(>1000)	2.779 2.779	0.27 L/(>1000)
N2147/N1335	1.621 1.621	1.68 L/(>1000)	0.695 0.695	0.20 L/(>1000)	1.621 1.621	1.77 L/(>1000)	0.926 0.695	0.29 L/(>1000)
N2147/N1407	1.390 1.390	1.60 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.69 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2146/N1407	1.621 1.621	1.65 L/(>1000)	2.779 0.695	0.22 L/(>1000)	1.621 1.621	1.74 L/(>1000)	0.926 0.695	0.27 L/(>1000)
N2146/N1479	1.390 1.390	1.64 L/(>1000)	2.548 2.548	0.30 L/(>1000)	1.390 1.390	1.75 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2145/N1479	1.621 1.621	1.66 L/(>1000)	2.779 0.695	0.22 L/(>1000)	1.621 1.621	1.76 L/(>1000)	0.926 0.695	0.28 L/(>1000)
N2145/N1551	1.390 1.390	1.68 L/(>1000)	2.548 2.548	0.31 L/(>1000)	1.390 1.390	1.81 L/(>1000)	2.779 2.779	0.24 L/(>1000)
N2144/N1551	1.621 1.621	1.71 L/(>1000)	0.695 0.695	0.21 L/(>1000)	1.621 1.621	1.85 L/(>1000)	0.926 0.695	0.31 L/(>1000)
N2144/N1623	1.390 1.390	1.86 L/(>1000)	2.548 2.548	0.32 L/(>1000)	1.390 1.390	2.07 L/(>1000)	2.779 2.779	0.26 L/(>1000)
N2143/N1623	1.621 1.621	1.92 L/(>1000)	2.779 0.695	0.25 L/(>1000)	1.621 1.621	2.12 L/(>1000)	0.926 0.695	0.31 L/(>1000)
N2143/N1695	1.390 1.390	1.86 L/(>1000)	2.548 2.548	0.28 L/(>1000)	1.390 1.390	2.10 L/(>1000)	2.779 2.779	0.22 L/(>1000)
N2142/N1695	1.621 1.621	1.94 L/(>1000)	2.779 0.695	0.27 L/(>1000)	1.621 1.621	2.20 L/(>1000)	0.926 0.695	0.34 L/(>1000)
N2142/N1767	1.390 1.390	1.76 L/(>1000)	2.548 2.548	0.50 L/(>1000)	1.390 1.390	1.98 L/(>1000)	2.779 2.779	0.47 L/(>1000)
N918/N848	5.751 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.636 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)
N846/N920	6.193 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N920/N850	3.539 3.539	1257.16 L/5.6	3.539 3.539	2102.00 L/3.4	3.539 3.539	1735.68 L/5.6	3.539 3.539	2871.06 L/3.4

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N848/N922	3.539 3.539	1179.67 L/6.0	3.539 3.539	2053.73 L/3.4	3.539 3.539	1571.43 L/6.1	3.539 3.539	2770.98 L/3.5
N922/N852	3.539 3.539	1256.71 L/5.6	3.539 3.539	2102.95 L/3.4	3.539 3.539	1735.09 L/5.7	3.539 3.539	2873.27 L/3.4
N850/N924	3.539 3.539	1178.52 L/6.0	3.539 3.539	2055.34 L/3.4	3.539 3.539	1570.04 L/6.2	3.539 3.539	2774.29 L/3.5
N924/N854	3.539 3.539	1256.37 L/5.6	3.539 3.539	2102.14 L/3.4	3.539 3.539	1734.79 L/5.7	3.539 3.539	2872.62 L/3.4
N852/N926	3.539 3.539	1178.45 L/6.0	3.539 3.539	2053.51 L/3.4	3.539 3.539	1569.94 L/6.2	3.539 3.539	2772.72 L/3.5
N926/N856	3.539 3.539	1258.26 L/5.6	3.539 3.539	2096.61 L/3.4	3.539 3.539	1736.97 L/5.7	3.539 3.539	2866.04 L/3.4
N854/N928	3.539 3.539	1180.20 L/6.0	3.539 3.539	2057.09 L/3.4	3.539 3.539	1572.05 L/6.2	3.539 3.539	2775.74 L/3.5
N856/N930	3.539 3.539	1180.65 L/6.0	3.539 3.539	2051.26 L/3.5	3.539 3.539	1572.47 L/6.2	3.539 3.539	2770.24 L/3.5
N928/N858	3.539 3.539	1259.19 L/5.6	3.539 3.539	2103.03 L/3.4	3.539 3.539	1738.17 L/5.7	3.539 3.539	2872.87 L/3.4
N831/N905	4.866 -	0.00 L/(>1000)	3.539 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)	5.751 -	0.00 L/(>1000)
N903/N833	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)	6.193 -	0.00 L/(>1000)
N833/N907	3.539 3.539	1257.42 L/5.6	3.539 3.539	2099.63 L/3.4	3.539 3.539	1735.90 L/5.6	3.539 3.539	2867.84 L/3.4
N905/N835	3.539 3.539	1179.98 L/6.0	3.539 3.539	2056.14 L/3.4	3.539 3.539	1571.73 L/6.1	3.539 3.539	2774.21 L/3.5
N907/N837	3.539 3.539	1180.43 L/6.0	3.539 3.539	2057.08 L/3.4	3.539 3.539	1572.33 L/6.2	3.539 3.539	2776.42 L/3.5
N835/N909	3.539 3.539	1258.58 L/5.6	3.539 3.539	2101.28 L/3.4	3.539 3.539	1737.33 L/5.7	3.539 3.539	2871.20 L/3.4
N837/N911	3.539 3.539	1258.69 L/5.6	3.539 3.539	2099.42 L/3.4	3.539 3.539	1737.49 L/5.7	3.539 3.539	2869.59 L/3.4
N909/N839	3.539 3.539	1180.87 L/6.0	3.539 3.539	2056.32 L/3.4	3.539 3.539	1572.83 L/6.2	3.539 3.539	2775.82 L/3.5
N839/N913	3.539 3.539	1256.94 L/5.6	3.539 3.539	2102.97 L/3.4	3.539 3.539	1735.38 L/5.7	3.539 3.539	2872.59 L/3.4
N911/N841	3.539 3.539	1178.87 L/6.0	3.539 3.539	2050.80 L/3.5	3.539 3.539	1570.44 L/6.2	3.539 3.539	2769.25 L/3.5
N841/N915	3.539 3.539	1256.68 L/5.6	3.539 3.539	2097.13 L/3.4	3.539 3.539	1735.34 L/5.7	3.539 3.539	2867.07 L/3.4
N913/N843	3.539 3.539	1177.97 L/6.0	3.539 3.539	2057.18 L/3.4	3.539 3.539	1569.32 L/6.2	3.539 3.539	2776.06 L/3.5
N843/N917	3.127 3.127	655.57 L/9.5	3.127 3.127	1093.68 L/5.7	3.127 3.127	905.53 L/9.7	3.127 3.127	1493.85 L/5.7
N915/N845	3.127 3.127	609.89 L/10.3	3.127 3.127	1058.96 L/5.9	3.127 3.127	808.81 L/10.5	3.127 3.127	1428.46 L/6.1
N930/N845	3.127 3.127	653.32 L/9.6	3.127 3.127	1085.73 L/5.8	3.127 3.127	903.11 L/9.7	3.127 3.127	1485.05 L/5.8
N858/N917	3.127 3.127	607.39 L/10.3	3.127 3.127	1066.82 L/5.9	3.127 3.127	805.90 L/10.6	3.127 3.127	1437.08 L/6.0
N1897/N2082	60.220 0.389	5.30 L/(>1000)	60.428 60.220	7.26 L/(>1000)	60.220 0.389	5.54 L/(>1000)	60.220 60.220	9.45 L/(>1000)
N1879/N2086	62.720 55.220	4.16 L/(>1000)	60.220 125.845	5.24 L/(>1000)	62.720 55.220	3.99 L/(>1000)	60.220 125.845	5.54 L/(>1000)
N1895/N2085	122.512 0.389	0.94 L/(>1000)	117.720 102.720	3.96 L/(>1000)	122.512 0.389	1.20 L/(>1000)	117.720 102.720	4.55 L/(>1000)

Listados

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Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1894/N2083	122.928 0.389	2.30 L/(>1000)	117.720 12.720	5.92 L/(>1000)	122.720 0.389	2.86 L/(>1000)	117.720 12.720	6.82 L/(>1000)
N1893/N2112	92.720 117.720	3.88 L/(>1000)	122.512 125.845	4.06 L/(>1000)	92.720 117.720	3.91 L/(>1000)	122.512 125.845	4.98 L/(>1000)
N1769/N905	59.063 114.063	4.08 L/(>1000)	27.500 2.188	13.79 L/514.3	58.750 114.063	5.56 L/(>1000)	27.813 2.188	21.90 L/515.8
N1807/N943	57.500 92.188	5.22 L/(>1000)	31.875 118.125	11.16 L/(>1000)	57.188 92.188	5.12 L/(>1000)	31.563 118.125	19.70 L/(>1000)
N1807/N1697	5.123 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N1663/N1697	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)
N1663/N1553	4.025 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N1519/N1553	5.489 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)
N1519/N1409	4.025 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N1375/N1409	3.293 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)
N1375/N1265	4.025 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1231/N1265	3.659 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)
N1231/N1121	3.659 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1087/N1121	4.025 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N1087/N977	5.489 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N49/N977	5.123 -	0.00 L/(>1000)	1.830 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)
N1735/N1769	2.927 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)
N1735/N1625	5.489 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1591/N1625	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1591/N1481	5.489 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N1447/N1481	5.489 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N1447/N1337	2.195 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)
N1303/N1337	4.391 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)
N1303/N1193	3.293 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N1159/N1193	4.757 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N1159/N1049	5.489 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)
N1015/N1049	3.659 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N1015/N68	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N49/N113	3.659 -	0.00 L/(>1000)	1.098 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N223/N113	4.757 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N223/N257	4.757 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N367/N257	5.123 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N367/N401	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N511/N401	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N511/N545	4.025 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N655/N545	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N655/N689	5.123 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N799/N689	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N799/N833	5.489 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N943/N833	4.025 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N151/N68	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N151/N185	4.391 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N295/N185	4.025 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)
N295/N329	4.757 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)
N439/N329	2.561 -	0.00 L/(>1000)	1.830 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	1.830 -	0.00 L/(>1000)
N439/N473	3.659 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N583/N473	5.123 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)
N583/N617	3.659 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N727/N617	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N727/N761	5.489 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N871/N761	3.659 -	0.00 L/(>1000)	1.830 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)
N871/N905	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N1777/N913	60.625 60.625	2.41 L/(>1000)	27.500 2.813	46.90 L/593.5	60.625 60.625	3.24 L/(>1000)	27.813 2.813	78.04 L/593.7
N1799/N935	52.500 52.500	4.80 L/(>1000)	31.250 118.125	43.29 L/421.6	52.500 52.500	5.51 L/(>1000)	31.563 118.125	76.58 L/423.7
N1799/N1705	5.763 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)
N1655/N1705	4.116 -	0.00 L/(>1000)	1.235 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1655/N1561	4.116 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)
N1511/N1561	4.528 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N1511/N1417	5.351 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N1367/N1417	4.116 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1367/N1273	2.058 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N1223/N1273	5.763 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1223/N1129	4.940 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N1079/N1129	6.175 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)
N1079/N985	4.940 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N41/N985	5.763 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1727/N1777	5.763 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N1727/N1633	4.940 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N1583/N1633	5.763 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N1583/N1489	3.705 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	1.235 -	0.00 L/(>1000)
N1439/N1489	4.940 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N1439/N1345	5.351 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N1295/N1345	4.940 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N1295/N1201	2.881 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1151/N1201	6.175 -	0.00 L/(>1000)	1.235 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1151/N1057	5.763 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1007/N1057	3.705 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1007/N76	6.175 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)
N41/N121	6.175 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N215/N121	3.293 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)
N215/N265	3.705 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N359/N265	5.351 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N359/N409	3.293 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)
N503/N409	4.940 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N503/N553	3.705 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N647/N553	2.058 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N647/N697	4.116 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)
N791/N697	5.351 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N791/N841	4.528 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N935/N841	3.293 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N143/N76	2.470 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N143/N193	5.763 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N287/N193	4.940 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)
N287/N337	6.175 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N431/N337	4.940 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N431/N481	3.293 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N575/N481	3.293 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N575/N625	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N719/N625	4.528 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N719/N769	3.293 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N863/N769	3.705 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N863/N913	6.175 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)
N1784/N920	88.750 114.063	3.54 L/(>1000)	27.500 2.188	13.73 L/513.0	88.750 114.063	5.07 L/(>1000)	27.813 2.188	21.89 L/514.4
N1821/N957	88.750 52.500	4.76 L/(>1000)	31.875 118.125	11.10 L/(>1000)	31.563 52.500	4.67 L/(>1000)	31.563 118.125	19.69 L/(>1000)
N1792/N928	59.063 58.750	2.18 L/(>1000)	27.500 2.813	46.84 L/593.8	59.063 58.750	3.04 L/(>1000)	27.813 2.813	78.03 L/593.9
N1813/N949	92.500 52.500	4.68 L/(>1000)	31.250 118.125	43.24 L/418.9	92.500 52.500	5.52 L/(>1000)	31.563 118.125	76.56 L/420.9
N1669/N1720	6.175 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N1669/N1576	5.351 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)
N1525/N1576	6.175 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1525/N1432	4.116 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1741/N1648	5.763 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1597/N1648	1.647 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1597/N1504	4.116 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)
N1453/N1504	3.705 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1381/N1288	3.705 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N1237/N1288	5.351 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)
N1237/N1144	2.470 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N1093/N1144	5.351 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)
N1309/N1360	4.940 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N1309/N1216	6.175 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	1.235 -	0.00 L/(>1000)
N1165/N1216	4.940 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1165/N1072	5.763 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N55/N1000	5.351 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N1021/N90	5.763 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)
N55/N136	5.351 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N157/N90	4.940 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N1093/N1000	3.705 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N1021/N1072	6.175 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N1381/N1432	6.175 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N1453/N1360	6.175 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N1813/N1720	2.058 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)
N1741/N1792	4.940 -	0.00 L/(>1000)	1.235 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)
N229/N136	1.647 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N229/N280	5.763 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N373/N280	5.763 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N373/N424	5.763 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)
N517/N424	4.528 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)
N517/N568	5.351 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	1.647 -	0.00 L/(>1000)
N661/N568	5.351 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)
N661/N712	2.881 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N805/N712	4.116 -	0.00 L/(>1000)	6.175 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N805/N856	5.351 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)
N949/N856	4.528 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N157/N208	4.116 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N301/N208	4.940 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)
N301/N352	3.705 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	0.412 -	0.00 L/(>1000)
N445/N352	2.470 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)
N445/N496	2.881 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)
N589/N496	6.175 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)	3.705 -	0.00 L/(>1000)	2.470 -	0.00 L/(>1000)
N589/N640	6.175 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	4.940 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)
N733/N640	4.528 -	0.00 L/(>1000)	2.881 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	4.116 -	0.00 L/(>1000)
N733/N784	4.528 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N877/N784	4.528 -	0.00 L/(>1000)	2.058 -	0.00 L/(>1000)	4.528 -	0.00 L/(>1000)	0.823 -	0.00 L/(>1000)
N877/N928	1.647 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)	5.351 -	0.00 L/(>1000)	5.763 -	0.00 L/(>1000)
N1821/N1712	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N1677/N1712	4.757 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N1677/N1568	4.757 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1533/N1568	3.293 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1533/N1424	2.927 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N1389/N1424	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1389/N1280	3.659 -	0.00 L/(>1000)	1.830 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N1245/N1280	4.391 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N1245/N1136	5.489 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1101/N1136	5.123 -	0.00 L/(>1000)	0.366 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N1101/N992	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N63/N992	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1749/N1784	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1749/N1640	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	1.098 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1605/N1640	4.025 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	1.464 -	0.00 L/(>1000)
N1605/N1496	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1461/N1496	5.123 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1461/N1352	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)
N1317/N1352	5.123 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N1317/N1208	3.659 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)	0.366 -	0.00 L/(>1000)
N1173/N1208	4.757 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N1173/N1064	0.732 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N1029/N1064	4.757 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)
N1029/N82	4.757 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	1.830 -	0.00 L/(>1000)
N63/N128	5.489 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N237/N128	4.025 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N237/N272	5.123 -	0.00 L/(>1000)	0.366 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)
N381/N272	4.757 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)
N381/N416	5.489 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N525/N416	4.391 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N525/N560	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)
N669/N560	5.123 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	2.927 -	0.00 L/(>1000)
N669/N704	4.757 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N813/N704	3.659 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N813/N848	5.489 -	0.00 L/(>1000)	4.025 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	3.293 -	0.00 L/(>1000)
N957/N848	5.123 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N165/N82	4.391 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N165/N200	5.489 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)
N309/N200	4.391 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N309/N344	4.757 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)
N453/N344	5.123 -	0.00 L/(>1000)	1.098 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	0.732 -	0.00 L/(>1000)
N453/N488	5.123 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N597/N488	2.195 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)
N597/N632	4.391 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)
N741/N632	1.830 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	5.489 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)
N741/N776	5.123 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)	4.391 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)
N885/N776	3.659 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)	3.659 -	0.00 L/(>1000)	2.195 -	0.00 L/(>1000)
N885/N920	4.391 -	0.00 L/(>1000)	5.123 -	0.00 L/(>1000)	4.757 -	0.00 L/(>1000)	2.561 -	0.00 L/(>1000)
N47/N149	4.063 4.063	0.93 L/(>1000)	2.188 2.188	1.09 L/(>1000)	4.063 3.750	1.19 L/(>1000)	1.875 1.563	0.88 L/(>1000)
N45/N147	3.750 3.750	0.11 L/(>1000)	1.250 1.250	1.38 L/(>1000)	4.063 4.063	0.14 L/(>1000)	1.250 1.250	1.36 L/(>1000)
N43/N145	0.938 0.938	0.87 L/(>1000)	1.563 1.563	1.35 L/(>1000)	0.938 0.938	1.09 L/(>1000)	1.250 1.250	1.26 L/(>1000)
N39/N141	1.250 1.250	0.12 L/(>1000)	2.813 2.813	1.44 L/(>1000)	1.250 1.250	0.18 L/(>1000)	2.813 2.813	1.30 L/(>1000)
N53/N155	1.250 1.250	0.33 L/(>1000)	2.813 2.813	1.44 L/(>1000)	1.250 1.250	0.41 L/(>1000)	2.813 2.813	1.30 L/(>1000)
N57/N159	0.938 0.938	0.67 L/(>1000)	1.563 1.563	1.33 L/(>1000)	0.938 0.938	0.91 L/(>1000)	1.250 1.250	1.23 L/(>1000)
N59/N161	4.063 4.063	0.31 L/(>1000)	1.250 1.250	1.34 L/(>1000)	4.063 4.063	0.34 L/(>1000)	1.250 1.250	1.33 L/(>1000)
N61/N163	4.063 4.063	1.17 L/(>1000)	2.188 2.188	1.05 L/(>1000)	4.063 4.063	1.44 L/(>1000)	1.875 1.875	0.84 L/(>1000)
N1517/N1445	4.063 4.063	0.95 L/(>1000)	2.188 2.188	1.07 L/(>1000)	4.063 4.063	1.18 L/(>1000)	1.875 1.875	0.85 L/(>1000)
N1515/N1443	4.063 4.063	0.18 L/(>1000)	1.250 1.250	1.37 L/(>1000)	4.063 4.063	0.18 L/(>1000)	1.250 1.250	1.34 L/(>1000)
N1513/N1441	0.938 0.938	0.84 L/(>1000)	1.563 1.563	1.36 L/(>1000)	0.938 0.938	1.08 L/(>1000)	1.250 1.250	1.25 L/(>1000)
N1509/N1437	1.250 1.250	0.23 L/(>1000)	2.813 2.813	1.38 L/(>1000)	1.250 1.250	0.31 L/(>1000)	2.813 2.813	1.21 L/(>1000)
N1523/N1451	1.250 1.250	0.23 L/(>1000)	2.813 2.813	1.38 L/(>1000)	1.250 1.250	0.31 L/(>1000)	2.813 2.813	1.21 L/(>1000)
N1527/N1455	0.938 0.938	0.84 L/(>1000)	1.563 1.563	1.36 L/(>1000)	0.938 1.250	1.08 L/(>1000)	1.250 1.250	1.25 L/(>1000)
N1529/N1457	4.063 4.063	0.19 L/(>1000)	1.250 1.250	1.37 L/(>1000)	4.063 4.063	0.18 L/(>1000)	1.250 1.250	1.34 L/(>1000)
N1531/N1459	4.063 4.063	0.96 L/(>1000)	2.188 2.188	1.07 L/(>1000)	4.063 4.063	1.18 L/(>1000)	1.875 1.875	0.85 L/(>1000)
N2240/N2177	2.431 2.431	0.16 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.431 2.431	0.18 L/(>1000)	2.210 2.210	0.37 L/(>1000)
N2241/N2240	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.10 L/(>1000)	0.625 1.875	0.02 L/(>1000)	0.625 0.417	0.14 L/(>1000)
N2242/N2241	2.873 2.873	0.06 L/(>1000)	1.547 1.547	0.19 L/(>1000)	0.884 2.873	0.07 L/(>1000)	1.326 1.326	0.09 L/(>1000)
N2243/N2242	1.667 1.667	0.02 L/(>1000)	1.875 1.875	0.13 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.417	0.13 L/(>1000)
N2015/N2243	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.18 L/(>1000)	1.305 1.087	0.21 L/(>1000)	1.305 1.087	0.25 L/(>1000)
N2244/N2178	2.431 2.431	0.13 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.15 L/(>1000)	2.210 2.210	0.39 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2245/N2244	0.625 0.625	0.01 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2246/N2245	2.873 2.873	0.05 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 0.663	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2247/N2246	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2016/N2247	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2248/N2179	2.210 2.210	0.10 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.210 2.210	0.13 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2249/N2248	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2250/N2249	0.884 0.884	0.05 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 0.884	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2251/N2250	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2017/N2251	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2252/N2180	2.210 2.210	0.10 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.210	0.13 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2253/N2252	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2254/N2253	2.873 2.873	0.04 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 2.873	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2255/N2254	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2018/N2255	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2256/N2181	2.210 2.210	0.09 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.210	0.12 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2257/N2256	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2258/N2257	2.652 2.652	0.04 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2259/N2258	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2019/N2259	1.305 1.305	0.15 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2260/N2182	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.431 2.210	0.11 L/(>1000)	2.210 2.210	0.38 L/(>1000)
N2261/N2260	0.625 0.625	0.03 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2262/N2261	2.652 2.652	0.04 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 2.652	0.05 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2263/N2262	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2020/N2263	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2264/N2183	2.431 2.431	0.11 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2265/N2264	1.875 1.875	0.01 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 1.875	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2266/N2265	2.652 2.652	0.06 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2267/N2266	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)

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Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2021/N2267	1.087 1.087	0.15 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2268/N2184	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 1.989	0.11 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2269/N2268	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2270/N2269	2.652 2.652	0.05 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2271/N2270	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2022/N2271	1.087 1.087	0.15 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.21 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2272/N2185	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.210	0.13 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2273/N2272	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.11 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N2274/N2273	2.652 2.652	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2275/N2274	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 1.875	0.14 L/(>1000)
N2023/N2275	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2276/N2186	2.431 2.431	0.07 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.13 L/(>1000)	2.210 2.210	0.40 L/(>1000)
N2277/N2276	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.11 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N2278/N2277	2.652 2.652	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2279/N2278	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 1.875	0.14 L/(>1000)
N2024/N2279	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N2280/N2187	2.210 2.652	0.06 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.210 2.652	0.11 L/(>1000)	2.210 2.210	0.40 L/(>1000)
N2281/N2280	1.875 1.875	0.03 L/(>1000)	0.625 0.625	0.11 L/(>1000)	1.875 1.875	0.05 L/(>1000)	0.625 0.625	0.16 L/(>1000)
N2282/N2281	2.652 2.652	0.07 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2283/N2282	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 1.875	0.15 L/(>1000)
N2025/N2283	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N2284/N2188	2.652 2.652	0.09 L/(>1000)	1.989 1.989	0.49 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.44 L/(>1000)
N2285/N2284	1.875 1.875	0.04 L/(>1000)	0.625 0.625	0.11 L/(>1000)	1.875 1.875	0.04 L/(>1000)	0.625 0.625	0.17 L/(>1000)
N2286/N2285	2.431 2.431	0.11 L/(>1000)	1.547 1.547	0.19 L/(>1000)	2.431 2.431	0.12 L/(>1000)	1.105 1.105	0.11 L/(>1000)
N2287/N2286	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.15 L/(>1000)
N2026/N2287	1.087 1.087	0.13 L/(>1000)	1.087 1.087	0.19 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N2288/N2189	1.326 1.326	0.36 L/(>1000)	2.210 2.210	0.38 L/(>1000)	1.326 1.326	0.41 L/(>1000)	2.431 2.431	0.32 L/(>1000)
N2289/N2288	1.875 1.875	0.26 L/(>1000)	1.042 0.417	0.05 L/(>1000)	1.875 1.875	0.31 L/(>1000)	0.625 0.417	0.08 L/(>1000)

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Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2290/N2289	2.652 2.652	0.15 L/(>1000)	1.768 1.768	0.12 L/(>1000)	2.652 2.652	0.18 L/(>1000)	2.431 2.431	0.10 L/(>1000)
N2291/N2290	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.08 L/(>1000)	1.875 1.875	0.20 L/(>1000)	0.625 1.875	0.06 L/(>1000)
N2027/N2291	2.392 2.392	0.16 L/(>1000)	1.957 1.957	0.11 L/(>1000)	1.522 2.392	0.25 L/(>1000)	1.522 1.957	0.20 L/(>1000)
N2293/N2292	2.652 2.652	0.04 L/(>1000)	1.989 1.989	0.50 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.989 1.989	0.26 L/(>1000)
N2294/N2293	1.875 1.875	0.03 L/(>1000)	1.250 1.250	0.19 L/(>1000)	1.875 1.875	0.03 L/(>1000)	1.042 1.250	0.23 L/(>1000)
N2295/N2176	2.431 2.431	0.10 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.431 2.431	0.13 L/(>1000)	2.210 2.210	0.37 L/(>1000)
N2296/N2295	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.10 L/(>1000)	0.625 1.875	0.02 L/(>1000)	0.625 0.417	0.14 L/(>1000)
N2297/N2296	2.652 2.652	0.07 L/(>1000)	1.547 1.547	0.19 L/(>1000)	2.652 2.652	0.09 L/(>1000)	1.326 1.326	0.09 L/(>1000)
N2298/N2297	1.667 1.667	0.01 L/(>1000)	1.875 1.875	0.13 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 0.417	0.13 L/(>1000)
N2014/N2298	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.19 L/(>1000)	1.087 1.087	0.23 L/(>1000)	1.305 1.087	0.25 L/(>1000)
N2299/N2175	2.210 2.210	0.09 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.210 2.210	0.12 L/(>1000)	2.210 2.210	0.37 L/(>1000)
N2300/N2299	0.625 0.625	0.03 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2301/N2300	2.873 2.873	0.05 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 2.873	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2302/N2301	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2013/N2302	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2303/N2174	2.431 2.431	0.12 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.38 L/(>1000)
N2304/N2303	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2305/N2304	2.873 2.873	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 2.873	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2306/N2305	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2012/N2306	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.23 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2307/N2173	2.431 2.431	0.13 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2308/N2307	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2309/N2308	2.873 2.873	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 2.873	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2310/N2309	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2011/N2310	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2311/N2172	2.431 2.431	0.14 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.15 L/(>1000)	2.210 2.210	0.38 L/(>1000)
N2312/N2311	0.625 0.625	0.02 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2313/N2312	0.663 0.663	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.663 0.663	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)

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Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2314/N2313	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2010/N2314	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2315/N2171	2.431 2.431	0.16 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.17 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2316/N2315	0.625 0.625	0.01 L/(>1000)	0.417 0.417	0.10 L/(>1000)	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2317/N2316	0.663 0.663	0.07 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 0.663	0.08 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2318/N2317	1.875 0.625	0.00 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 0.625	0.01 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2009/N2318	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2319/N2170	2.431 2.431	0.14 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.15 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2320/N2319	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.11 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N2321/N2320	0.884 0.884	0.07 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.884 0.884	0.08 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2322/N2321	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.14 L/(>1000)
N2008/N2322	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2323/N2169	2.431 2.431	0.16 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.431 2.431	0.17 L/(>1000)	2.210 2.210	0.39 L/(>1000)
N2324/N2323	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.11 L/(>1000)	1.875 0.625	0.02 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N2325/N2324	0.884 0.884	0.08 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.884 0.884	0.08 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2326/N2325	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.01 L/(>1000)	0.625 1.875	0.14 L/(>1000)
N2007/N2326	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2327/N2168	2.431 2.431	0.17 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.431 2.431	0.18 L/(>1000)	2.210 2.210	0.41 L/(>1000)
N2328/N2327	1.875 1.875	0.02 L/(>1000)	0.625 0.625	0.12 L/(>1000)	1.875 1.875	0.04 L/(>1000)	0.625 0.625	0.16 L/(>1000)
N2329/N2328	0.884 0.884	0.09 L/(>1000)	1.547 1.547	0.18 L/(>1000)	0.884 0.884	0.09 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2330/N2329	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.625 1.875	0.15 L/(>1000)
N2006/N2330	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.087 1.305	0.23 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N2331/N2167	2.210 2.210	0.15 L/(>1000)	1.989 1.989	0.49 L/(>1000)	2.210 2.210	0.17 L/(>1000)	2.210 2.210	0.43 L/(>1000)
N2332/N2331	1.875 1.875	0.05 L/(>1000)	0.625 0.625	0.12 L/(>1000)	1.875 1.875	0.05 L/(>1000)	0.625 0.625	0.17 L/(>1000)
N2333/N2332	0.884 0.884	0.08 L/(>1000)	1.547 1.547	0.18 L/(>1000)	0.884 0.884	0.09 L/(>1000)	1.105 1.105	0.10 L/(>1000)
N2334/N2333	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.03 L/(>1000)	0.625 1.875	0.16 L/(>1000)
N2005/N2334	1.305 1.305	0.22 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.24 L/(>1000)	1.305 1.087	0.31 L/(>1000)
N2335/N2166	2.431 2.431	0.21 L/(>1000)	1.989 1.989	0.50 L/(>1000)	2.210 2.431	0.22 L/(>1000)	2.210 2.210	0.44 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2336/N2335	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.12 L/(>1000)	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.17 L/(>1000)
N2337/N2336	0.884 0.884	0.10 L/(>1000)	1.547 1.547	0.19 L/(>1000)	0.884 0.884	0.11 L/(>1000)	1.105 1.105	0.11 L/(>1000)
N2338/N2337	0.625 0.625	0.01 L/(>1000)	1.875 1.875	0.15 L/(>1000)	0.625 0.625	0.01 L/(>1000)	0.625 1.875	0.16 L/(>1000)
N2004/N2338	1.305 1.305	0.21 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 0.870	0.30 L/(>1000)
N2339/N2226	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.46 L/(>1000)	2.431 2.210	0.11 L/(>1000)	2.210 2.210	0.37 L/(>1000)
N2339/N2340	1.875 1.875	0.04 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.04 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2341/N2340	0.884 0.884	0.04 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 0.884	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2341/N2342	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2042/N2342	1.305 1.305	0.17 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2343/N2227	2.431 2.431	0.13 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.15 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2343/N2344	1.875 1.875	0.01 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2345/N2344	2.652 2.652	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2345/N2346	0.625 0.625	0.00 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 0.625	0.13 L/(>1000)
N2041/N2346	1.087 1.087	0.16 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2347/N2228	2.210 2.210	0.10 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.210 2.210	0.12 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2347/N2348	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2349/N2348	2.873 2.873	0.04 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.873 2.873	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2349/N2350	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2040/N2350	1.305 1.305	0.16 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2351/N2229	2.210 2.210	0.09 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.210	0.12 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2351/N2352	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2353/N2352	2.652 2.652	0.05 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2353/N2354	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2039/N2354	1.087 1.087	0.16 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.087	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2355/N2230	2.210 2.210	0.09 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.210	0.12 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2355/N2356	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2357/N2356	2.652 2.652	0.05 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2357/N2358	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2038/N2358	1.087 1.087	0.15 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.087	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2359/N2231	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.210	0.11 L/(>1000)	2.210 2.210	0.35 L/(>1000)
N2359/N2360	1.875 1.875	0.03 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.03 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2361/N2360	2.652 2.652	0.04 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.663 2.652	0.05 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2361/N2362	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 0.625	0.13 L/(>1000)
N2037/N2362	1.305 1.305	0.15 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2363/N2232	2.431 2.431	0.10 L/(>1000)	1.989 1.989	0.46 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2363/N2364	0.625 0.625	0.01 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 0.625	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2365/N2364	2.652 2.652	0.07 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.652	0.08 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2365/N2366	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2036/N2366	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2367/N2233	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.46 L/(>1000)	2.431 2.210	0.11 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2367/N2368	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.03 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2369/N2368	2.652 2.652	0.05 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.652	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2369/N2370	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 0.625	0.13 L/(>1000)
N2035/N2370	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2371/N2234	2.210 2.210	0.07 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.210	0.13 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2371/N2372	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.11 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2373/N2372	2.652 2.652	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2373/N2374	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 1.875	0.01 L/(>1000)	1.875 0.625	0.14 L/(>1000)
N2034/N2374	1.087 1.087	0.14 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2375/N2235	2.431 2.431	0.07 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.13 L/(>1000)	2.210 2.210	0.37 L/(>1000)
N2375/N2376	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.11 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2377/N2376	2.652 2.652	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2377/N2378	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 1.875	0.01 L/(>1000)	1.875 0.625	0.14 L/(>1000)
N2033/N2378	1.087 1.087	0.13 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.087 1.087	0.19 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N2379/N2236	2.210 2.652	0.06 L/(>1000)	1.989 1.989	0.44 L/(>1000)	2.210 2.652	0.12 L/(>1000)	2.210 2.210	0.37 L/(>1000)
N2379/N2380	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.11 L/(>1000)	0.625 0.625	0.05 L/(>1000)	1.875 1.875	0.16 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2381/N2380	2.431 2.431	0.06 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.652	0.07 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2381/N2382	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.875 0.625	0.15 L/(>1000)
N2032/N2382	1.087 1.087	0.13 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.087	0.20 L/(>1000)	1.305 0.870	0.31 L/(>1000)
N2383/N2237	2.652 2.652	0.10 L/(>1000)	1.989 1.989	0.49 L/(>1000)	2.431 2.652	0.15 L/(>1000)	2.210 2.210	0.44 L/(>1000)
N2383/N2384	0.625 0.625	0.05 L/(>1000)	1.875 1.875	0.12 L/(>1000)	0.625 0.625	0.05 L/(>1000)	1.875 1.875	0.17 L/(>1000)
N2385/N2384	2.431 2.431	0.11 L/(>1000)	1.547 1.547	0.19 L/(>1000)	2.431 2.431	0.12 L/(>1000)	1.105 1.105	0.11 L/(>1000)
N2385/N2386	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 0.625	0.15 L/(>1000)
N2031/N2386	1.087 1.087	0.12 L/(>1000)	1.087 1.087	0.19 L/(>1000)	1.305 1.087	0.19 L/(>1000)	1.305 1.087	0.29 L/(>1000)
N2387/N2214	1.326 1.326	0.36 L/(>1000)	2.210 2.210	0.35 L/(>1000)	1.326 1.326	0.42 L/(>1000)	2.431 2.431	0.30 L/(>1000)
N2387/N2388	0.625 0.625	0.27 L/(>1000)	1.458 2.083	0.05 L/(>1000)	0.625 0.625	0.32 L/(>1000)	1.875 2.083	0.08 L/(>1000)
N2389/N2388	2.652 2.652	0.16 L/(>1000)	1.768 1.768	0.12 L/(>1000)	2.652 2.652	0.18 L/(>1000)	2.431 2.431	0.09 L/(>1000)
N2389/N2390	0.625 0.625	0.17 L/(>1000)	0.625 0.625	0.08 L/(>1000)	0.625 0.625	0.20 L/(>1000)	0.625 0.625	0.05 L/(>1000)
N2030/N2390	2.392 2.392	0.16 L/(>1000)	1.957 1.957	0.11 L/(>1000)	1.522 2.392	0.25 L/(>1000)	1.522 1.957	0.20 L/(>1000)
N2391/N2238	2.431 2.431	0.12 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.431 2.431	0.13 L/(>1000)	2.210 2.210	0.38 L/(>1000)
N2391/N2392	1.875 1.875	0.01 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2393/N2392	2.873 2.873	0.05 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.873 2.873	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2393/N2394	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.13 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2043/N2394	1.305 1.305	0.17 L/(>1000)	1.087 1.087	0.19 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.26 L/(>1000)
N2395/N2225	2.431 2.431	0.14 L/(>1000)	1.989 1.989	0.47 L/(>1000)	2.431 2.431	0.15 L/(>1000)	2.210 2.210	0.38 L/(>1000)
N2395/N2396	1.875 1.875	0.01 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2397/N2396	2.873 2.873	0.06 L/(>1000)	1.547 1.547	0.18 L/(>1000)	2.652 2.873	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2397/N2398	0.625 0.625	0.00 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2044/N2398	1.305 1.305	0.17 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.21 L/(>1000)	1.305 1.087	0.27 L/(>1000)
N2399/N2224	2.431 2.431	0.12 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.13 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2399/N2400	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2401/N2400	0.663 0.663	0.05 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.663 0.663	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2401/N2402	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2045/N2402	1.305 1.305	0.18 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.27 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2403/N2223	2.431 2.431	0.13 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2403/N2404	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2405/N2404	0.663 0.663	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.663 0.884	0.06 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2405/N2406	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2046/N2406	1.305 1.305	0.18 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2407/N2222	2.431 2.431	0.13 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.14 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2407/N2408	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2409/N2408	0.884 0.884	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.663 0.884	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2409/N2410	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2047/N2410	1.305 1.305	0.19 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2411/N2221	2.431 2.431	0.14 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.15 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2411/N2412	1.875 1.875	0.02 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2413/N2412	0.884 0.884	0.06 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.884 0.884	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2413/N2414	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2048/N2414	1.305 1.305	0.19 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2415/N2220	2.431 2.431	0.16 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.17 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2415/N2416	1.875 1.875	0.01 L/(>1000)	2.083 2.083	0.10 L/(>1000)	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N2417/N2416	0.884 0.884	0.07 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.884 0.884	0.07 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2417/N2418	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 2.083	0.13 L/(>1000)
N2049/N2418	1.305 1.305	0.19 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2419/N2219	2.431 2.431	0.14 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.210	0.15 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2419/N2420	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.11 L/(>1000)	1.875 1.875	0.03 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2421/N2420	0.884 0.884	0.07 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.884 0.884	0.08 L/(>1000)	1.105 1.105	0.08 L/(>1000)
N2421/N2422	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 0.625	0.14 L/(>1000)
N2050/N2422	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2423/N2218	2.431 2.431	0.16 L/(>1000)	1.989 1.989	0.45 L/(>1000)	2.431 2.431	0.17 L/(>1000)	2.210 2.210	0.36 L/(>1000)
N2423/N2424	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.11 L/(>1000)	0.625 1.875	0.02 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2425/N2424	0.884 0.884	0.08 L/(>1000)	1.547 1.547	0.17 L/(>1000)	0.884 0.884	0.08 L/(>1000)	1.105 1.105	0.09 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2425/N2426	0.625 0.625	0.01 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.01 L/(>1000)	1.875 0.625	0.14 L/(>1000)
N2051/N2426	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.20 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.28 L/(>1000)
N2427/N2217	2.431 2.431	0.17 L/(>1000)	1.989 1.989	0.46 L/(>1000)	2.431 2.431	0.18 L/(>1000)	2.210 2.210	0.38 L/(>1000)
N2427/N2428	0.625 0.625	0.02 L/(>1000)	1.875 1.875	0.12 L/(>1000)	0.625 0.625	0.04 L/(>1000)	1.875 1.875	0.16 L/(>1000)
N2429/N2428	0.884 0.884	0.09 L/(>1000)	1.547 1.547	0.18 L/(>1000)	0.884 0.884	0.10 L/(>1000)	1.105 1.105	0.09 L/(>1000)
N2429/N2430	0.625 0.625	0.02 L/(>1000)	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.875 0.625	0.15 L/(>1000)
N2052/N2430	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N2431/N2216	2.210 2.210	0.15 L/(>1000)	1.989 1.989	0.48 L/(>1000)	2.210 2.210	0.16 L/(>1000)	2.210 2.210	0.42 L/(>1000)
N2431/N2432	0.625 0.625	0.05 L/(>1000)	1.875 1.875	0.12 L/(>1000)	0.625 0.625	0.05 L/(>1000)	1.875 1.875	0.17 L/(>1000)
N2433/N2432	0.884 0.884	0.08 L/(>1000)	1.547 1.547	0.18 L/(>1000)	0.884 0.884	0.09 L/(>1000)	1.105 1.105	0.10 L/(>1000)
N2433/N2434	0.625 0.625	0.03 L/(>1000)	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.875 0.625	0.16 L/(>1000)
N2053/N2434	1.305 1.305	0.22 L/(>1000)	1.087 1.087	0.22 L/(>1000)	1.305 1.305	0.23 L/(>1000)	1.305 0.870	0.31 L/(>1000)
N2435/N2215	2.431 2.431	0.21 L/(>1000)	1.989 1.989	0.50 L/(>1000)	2.210 2.431	0.22 L/(>1000)	2.210 2.210	0.44 L/(>1000)
N2435/N2436	1.875 1.875	0.01 L/(>1000)	1.875 1.875	0.12 L/(>1000)	1.875 1.875	0.02 L/(>1000)	1.875 1.875	0.17 L/(>1000)
N2437/N2436	0.884 0.884	0.10 L/(>1000)	1.547 1.547	0.19 L/(>1000)	0.884 0.884	0.11 L/(>1000)	1.105 1.105	0.11 L/(>1000)
N2437/N2438	1.875 1.875	0.01 L/(>1000)	0.625 0.625	0.15 L/(>1000)	1.875 1.875	0.01 L/(>1000)	1.875 0.625	0.16 L/(>1000)
N2054/N2438	1.305 1.305	0.20 L/(>1000)	1.087 1.087	0.21 L/(>1000)	1.305 1.305	0.22 L/(>1000)	1.305 1.087	0.30 L/(>1000)
N2177/N2153	0.625 0.625	0.06 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.07 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2178/N2154	1.250 1.250	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.250 1.250	0.03 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2179/N2155	1.875 1.875	0.04 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.05 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2180/N2156	1.875 1.875	0.02 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.03 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2181/N2157	1.875 1.875	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.03 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2182/N2158	0.625 0.625	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.833 1.042	0.14 L/(>1000)
N2183/N2159	0.833 0.625	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.833 1.042	0.03 L/(>1000)	0.833 1.042	0.14 L/(>1000)
N2184/N2160	1.875 1.875	0.04 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.05 L/(>1000)	0.833 1.042	0.14 L/(>1000)
N2185/N2161	1.458 1.667	0.02 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.458 1.667	0.03 L/(>1000)	0.833 1.042	0.15 L/(>1000)
N2186/N2162	0.625 0.625	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.833 1.042	0.14 L/(>1000)
N2187/N2163	0.625 0.625	0.06 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.08 L/(>1000)	0.833 1.042	0.16 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2188/N2164	0.625 0.625	0.14 L/(>1000)	1.042 1.042	0.16 L/(>1000)	0.625 0.625	0.16 L/(>1000)	1.042 1.042	0.17 L/(>1000)
N2189/N2165	1.875 1.875	0.13 L/(>1000)	1.042 1.042	0.26 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.042 1.042	0.25 L/(>1000)
N2292/N2439	1.875 1.875	0.04 L/(>1000)	0.833 0.833	0.25 L/(>1000)	1.875 1.875	0.05 L/(>1000)	0.833 0.833	0.11 L/(>1000)
N2176/N2152	0.625 0.625	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.04 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2175/N2151	0.625 0.625	0.04 L/(>1000)	1.042 1.042	0.13 L/(>1000)	0.625 0.625	0.05 L/(>1000)	0.833 1.042	0.13 L/(>1000)
N2174/N2150	1.875 1.875	0.02 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2173/N2149	1.875 1.875	0.02 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.02 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2172/N2148	1.875 1.875	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.875 1.875	0.04 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2171/N2147	1.875 1.875	0.02 L/(>1000)	1.042 1.042	0.14 L/(>1000)	1.667 1.667	0.02 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2170/N2146	0.625 0.625	0.04 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.04 L/(>1000)	0.833 0.833	0.13 L/(>1000)
N2169/N2145	0.625 0.625	0.03 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.03 L/(>1000)	0.833 1.042	0.14 L/(>1000)
N2168/N2144	0.625 0.625	0.04 L/(>1000)	1.042 1.042	0.14 L/(>1000)	0.625 0.625	0.04 L/(>1000)	1.042 1.042	0.14 L/(>1000)
N2167/N2143	0.625 0.625	0.10 L/(>1000)	1.042 1.042	0.15 L/(>1000)	0.625 0.625	0.11 L/(>1000)	1.042 0.833	0.14 L/(>1000)
N2166/N2142	0.625 0.625	0.12 L/(>1000)	1.042 1.042	0.16 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.042 1.042	0.16 L/(>1000)
N2201/N2226	1.875 1.875	0.06 L/(>1000)	1.458 1.458	0.12 L/(>1000)	1.875 1.875	0.06 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2202/N2227	1.250 1.250	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.250 1.250	0.03 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2203/N2228	0.625 0.625	0.04 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.05 L/(>1000)	1.667 1.458	0.11 L/(>1000)
N2204/N2229	0.625 0.625	0.02 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2205/N2230	0.625 0.625	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.03 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2206/N2231	1.875 1.875	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.875 1.875	0.03 L/(>1000)	1.667 1.458	0.11 L/(>1000)
N2207/N2232	1.667 1.667	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.667 1.458	0.03 L/(>1000)	1.667 1.458	0.12 L/(>1000)
N2208/N2233	0.625 0.625	0.04 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.05 L/(>1000)	1.667 1.458	0.12 L/(>1000)
N2209/N2234	1.042 0.833	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.042 0.833	0.03 L/(>1000)	1.667 1.458	0.12 L/(>1000)
N2210/N2235	1.875 1.875	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.042 1.667	0.04 L/(>1000)	1.667 1.458	0.12 L/(>1000)
N2211/N2236	1.875 1.875	0.06 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.875 1.875	0.08 L/(>1000)	1.667 1.458	0.13 L/(>1000)
N2212/N2237	1.875 1.875	0.15 L/(>1000)	1.458 1.458	0.13 L/(>1000)	1.875 1.875	0.17 L/(>1000)	1.458 1.458	0.15 L/(>1000)
N2213/N2214	0.625 0.625	0.13 L/(>1000)	1.458 1.458	0.24 L/(>1000)	0.625 0.625	0.16 L/(>1000)	1.458 1.458	0.23 L/(>1000)
N2239/N2238	0.833 0.833	0.03 L/(>1000)	1.458 1.458	0.12 L/(>1000)	0.833 0.833	0.03 L/(>1000)	1.667 1.667	0.11 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2200/N2225	1.250 1.250	0.02 L/(>1000)	1.458 1.458	0.12 L/(>1000)	1.250 1.250	0.02 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2199/N2224	1.875 1.875	0.02 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 1.875	0.02 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2198/N2223	0.625 0.625	0.02 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2197/N2222	0.625 0.625	0.02 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.02 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2196/N2221	0.625 0.625	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.625 0.625	0.04 L/(>1000)	1.667 1.458	0.11 L/(>1000)
N2195/N2220	0.625 0.625	0.02 L/(>1000)	1.458 1.458	0.11 L/(>1000)	0.833 0.833	0.02 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2194/N2219	1.875 1.875	0.04 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.875 1.875	0.04 L/(>1000)	1.667 1.667	0.11 L/(>1000)
N2193/N2218	1.875 1.875	0.03 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.875 1.875	0.03 L/(>1000)	1.667 1.458	0.12 L/(>1000)
N2192/N2217	1.875 1.875	0.04 L/(>1000)	1.458 1.458	0.11 L/(>1000)	1.875 1.875	0.04 L/(>1000)	1.667 1.458	0.12 L/(>1000)
N2191/N2216	1.875 1.875	0.11 L/(>1000)	1.458 1.458	0.12 L/(>1000)	1.875 1.875	0.11 L/(>1000)	1.458 1.667	0.11 L/(>1000)
N2190/N2215	1.875 1.875	0.12 L/(>1000)	1.458 1.458	0.13 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.458 1.458	0.13 L/(>1000)
N1830/N1758	1.360 1.749	0.51 L/(>1000)	1.943 1.943	0.26 L/(>1000)	0.583 0.194	0.26 L/(>1000)	1.943 1.943	0.29 L/(>1000)
N1758/N2338	1.667 1.667	0.44 L/(>1000)	0.625 0.625	0.15 L/(>1000)	1.875 0.208	0.22 L/(>1000)	0.625 0.625	0.18 L/(>1000)
N2338/N1686	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.11 L/(>1000)	0.625 0.208	0.12 L/(>1000)	0.625 0.625	0.13 L/(>1000)
N1686/N2334	1.667 1.667	0.44 L/(>1000)	1.875 1.875	0.11 L/(>1000)	0.625 0.208	0.22 L/(>1000)	0.625 1.875	0.13 L/(>1000)
N2334/N1614	1.458 1.458	0.37 L/(>1000)	1.875 1.875	0.11 L/(>1000)	0.625 1.875	0.12 L/(>1000)	1.875 1.875	0.13 L/(>1000)
N1614/N2330	1.667 1.667	0.44 L/(>1000)	0.625 0.625	0.12 L/(>1000)	1.875 0.208	0.22 L/(>1000)	0.625 0.625	0.14 L/(>1000)
N2330/N1542	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.11 L/(>1000)	0.625 1.875	0.12 L/(>1000)	0.625 0.625	0.12 L/(>1000)
N1542/N2326	1.667 1.667	0.44 L/(>1000)	0.625 0.625	0.10 L/(>1000)	0.625 0.208	0.21 L/(>1000)	0.625 0.625	0.11 L/(>1000)
N2326/N1470	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.10 L/(>1000)	0.625 1.875	0.12 L/(>1000)	0.625 0.625	0.11 L/(>1000)
N1470/N2322	1.667 1.667	0.44 L/(>1000)	0.625 0.625	0.10 L/(>1000)	0.625 0.208	0.21 L/(>1000)	0.625 0.625	0.11 L/(>1000)
N2322/N1398	1.458 1.458	0.37 L/(>1000)	1.875 1.875	0.09 L/(>1000)	1.875 1.875	0.13 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N1398/N2318	1.667 1.667	0.44 L/(>1000)	0.625 0.625	0.10 L/(>1000)	1.875 0.208	0.21 L/(>1000)	0.625 0.625	0.11 L/(>1000)
N2318/N1326	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.09 L/(>1000)	1.875 1.875	0.13 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N1326/N2314	1.667 1.667	0.44 L/(>1000)	1.875 1.875	0.09 L/(>1000)	0.625 0.208	0.21 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2314/N1254	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.09 L/(>1000)	1.875 1.875	0.13 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N1254/N2310	1.667 1.667	0.43 L/(>1000)	0.625 0.625	0.09 L/(>1000)	0.625 0.208	0.20 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N2310/N1182	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.09 L/(>1000)	1.875 1.875	0.13 L/(>1000)	0.625 0.625	0.10 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1182/N2306	1.667 1.667	0.43 L/(>1000)	1.875 1.875	0.09 L/(>1000)	0.625 0.208	0.20 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2306/N1110	1.458 1.458	0.37 L/(>1000)	0.625 0.625	0.09 L/(>1000)	1.875 1.875	0.13 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N1110/N2302	1.667 1.667	0.43 L/(>1000)	1.875 1.875	0.10 L/(>1000)	0.625 0.208	0.20 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2302/N1038	1.458 1.458	0.37 L/(>1000)	1.875 1.875	0.11 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.11 L/(>1000)
N1038/N2298	1.667 1.667	0.41 L/(>1000)	1.875 1.875	0.12 L/(>1000)	0.625 0.208	0.19 L/(>1000)	1.875 1.875	0.13 L/(>1000)
N2298/N966	1.458 1.458	0.51 L/(>1000)	0.625 0.625	0.18 L/(>1000)	1.875 1.875	0.19 L/(>1000)	0.625 0.625	0.20 L/(>1000)
N101/N2243	1.458 1.458	0.44 L/(>1000)	1.875 1.875	0.18 L/(>1000)	0.625 0.208	0.21 L/(>1000)	1.875 1.875	0.20 L/(>1000)
N2243/N102	1.458 1.458	0.36 L/(>1000)	0.625 0.625	0.12 L/(>1000)	1.875 1.875	0.15 L/(>1000)	0.625 0.625	0.13 L/(>1000)
N102/N2247	1.667 1.667	0.42 L/(>1000)	0.625 0.625	0.10 L/(>1000)	1.875 0.208	0.18 L/(>1000)	0.625 0.625	0.11 L/(>1000)
N2247/N174	1.042 1.042	0.37 L/(>1000)	0.625 0.625	0.10 L/(>1000)	1.875 0.625	0.15 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N174/N2251	1.667 1.667	0.42 L/(>1000)	1.875 1.875	0.09 L/(>1000)	0.625 0.208	0.18 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2251/N246	1.042 1.042	0.37 L/(>1000)	1.875 1.875	0.09 L/(>1000)	1.875 0.625	0.16 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N246/N2255	1.667 1.667	0.41 L/(>1000)	0.625 0.625	0.09 L/(>1000)	0.625 0.208	0.18 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N2255/N318	1.042 1.042	0.37 L/(>1000)	0.625 0.625	0.09 L/(>1000)	1.875 0.625	0.16 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N318/N2259	1.667 1.667	0.41 L/(>1000)	1.875 1.875	0.09 L/(>1000)	1.875 0.208	0.18 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2259/N390	1.042 1.042	0.37 L/(>1000)	0.625 0.625	0.09 L/(>1000)	1.875 2.292	0.16 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N390/N2263	1.667 1.667	0.41 L/(>1000)	1.875 1.875	0.09 L/(>1000)	0.625 0.208	0.18 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2263/N462	1.042 1.042	0.37 L/(>1000)	1.875 1.875	0.10 L/(>1000)	1.875 2.292	0.16 L/(>1000)	1.875 1.875	0.11 L/(>1000)
N462/N2267	1.667 1.667	0.41 L/(>1000)	0.625 0.625	0.10 L/(>1000)	1.875 0.208	0.17 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N2267/N534	1.042 1.042	0.38 L/(>1000)	0.625 0.625	0.10 L/(>1000)	1.875 2.292	0.16 L/(>1000)	0.625 0.625	0.10 L/(>1000)
N534/N2271	1.667 1.667	0.41 L/(>1000)	1.875 1.875	0.09 L/(>1000)	0.625 0.208	0.18 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2271/N606	1.042 1.042	0.38 L/(>1000)	1.875 1.875	0.10 L/(>1000)	1.875 2.292	0.17 L/(>1000)	1.875 1.875	0.11 L/(>1000)
N606/N2275	1.667 1.667	0.41 L/(>1000)	1.875 1.875	0.09 L/(>1000)	1.875 0.208	0.17 L/(>1000)	1.875 1.875	0.10 L/(>1000)
N2275/N678	1.042 1.042	0.38 L/(>1000)	1.875 1.875	0.10 L/(>1000)	1.875 2.292	0.17 L/(>1000)	1.875 1.875	0.11 L/(>1000)
N678/N2279	1.667 1.667	0.40 L/(>1000)	1.875 1.875	0.10 L/(>1000)	1.875 0.208	0.17 L/(>1000)	1.875 1.875	0.11 L/(>1000)
N2279/N750	1.042 1.042	0.38 L/(>1000)	1.875 1.875	0.10 L/(>1000)	0.625 2.292	0.17 L/(>1000)	1.875 1.875	0.11 L/(>1000)
N750/N2283	1.458 1.458	0.40 L/(>1000)	1.875 1.875	0.10 L/(>1000)	0.625 0.208	0.17 L/(>1000)	1.875 1.875	0.12 L/(>1000)
N2283/N822	1.042 1.042	0.38 L/(>1000)	1.875 1.875	0.12 L/(>1000)	1.875 2.292	0.17 L/(>1000)	1.875 1.875	0.14 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N822/N2287	1.458 1.458	0.40 L/(>1000)	0.625 0.625	0.11 L/(>1000)	1.875 0.208	0.16 L/(>1000)	0.625 0.625	0.13 L/(>1000)
N2287/N894	1.042 1.042	0.38 L/(>1000)	1.875 1.875	0.11 L/(>1000)	0.625 2.292	0.17 L/(>1000)	1.875 1.875	0.14 L/(>1000)
N894/N2291	1.458 1.458	0.39 L/(>1000)	0.625 0.625	0.18 L/(>1000)	0.625 0.208	0.15 L/(>1000)	0.625 0.625	0.21 L/(>1000)
N2291/N1900	1.458 1.458	0.43 L/(>1000)	1.250 1.250	0.09 L/(>1000)	1.875 1.875	0.23 L/(>1000)	1.250 1.250	0.11 L/(>1000)
N1898/N1828	2.137 2.137	0.27 L/(>1000)	2.137 2.137	0.32 L/(>1000)	2.137 2.137	0.28 L/(>1000)	2.137 2.137	0.36 L/(>1000)
N1828/N2337	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.22 L/(>1000)	0.625 0.625	0.19 L/(>1000)	0.625 0.625	0.25 L/(>1000)
N2337/N1756	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.16 L/(>1000)	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.19 L/(>1000)
N1756/N2333	0.625 0.625	0.16 L/(>1000)	1.875 1.875	0.17 L/(>1000)	0.625 0.625	0.20 L/(>1000)	1.875 1.875	0.19 L/(>1000)
N2333/N1684	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.19 L/(>1000)
N1684/N2329	0.625 0.625	0.16 L/(>1000)	0.625 0.625	0.18 L/(>1000)	0.625 0.625	0.20 L/(>1000)	0.625 0.625	0.21 L/(>1000)
N2329/N1612	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.16 L/(>1000)	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.18 L/(>1000)
N1612/N2325	0.625 0.625	0.16 L/(>1000)	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.21 L/(>1000)	0.625 0.625	0.17 L/(>1000)
N2325/N1540	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.16 L/(>1000)
N1540/N2321	0.625 0.625	0.16 L/(>1000)	1.875 1.875	0.15 L/(>1000)	0.625 0.625	0.21 L/(>1000)	1.875 0.625	0.16 L/(>1000)
N2321/N1468	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N1468/N2317	0.625 0.625	0.16 L/(>1000)	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.21 L/(>1000)	0.625 0.625	0.16 L/(>1000)
N2317/N1396	1.875 1.875	0.21 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N1396/N2313	0.625 0.625	0.16 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.21 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2313/N1324	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N1324/N2309	0.625 0.625	0.15 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.20 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2309/N1252	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N1252/N2305	0.625 0.625	0.15 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.20 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2305/N1180	1.875 1.875	0.20 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.875 1.875	0.22 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N1180/N2301	0.625 0.625	0.15 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.20 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2301/N1108	1.875 1.875	0.20 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.17 L/(>1000)
N1108/N2297	0.625 0.625	0.15 L/(>1000)	1.875 1.875	0.16 L/(>1000)	0.625 0.625	0.21 L/(>1000)	1.875 1.875	0.18 L/(>1000)
N2297/N1036	1.875 1.875	0.24 L/(>1000)	0.833 0.833	0.27 L/(>1000)	1.875 1.875	0.25 L/(>1000)	0.625 0.833	0.29 L/(>1000)
N99/N2242	0.625 0.625	0.16 L/(>1000)	1.667 1.667	0.28 L/(>1000)	0.625 0.625	0.23 L/(>1000)	1.875 1.875	0.30 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2242/N172	1.875 1.875	0.18 L/(>1000)	0.625 0.625	0.16 L/(>1000)	1.875 1.875	0.21 L/(>1000)	0.625 0.625	0.18 L/(>1000)
N172/N2246	0.625 0.625	0.13 L/(>1000)	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.20 L/(>1000)	0.625 0.625	0.16 L/(>1000)
N2246/N244	1.875 1.875	0.19 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.875 1.875	0.21 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N244/N2250	0.625 0.625	0.13 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.20 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2250/N316	1.875 1.875	0.18 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N316/N2254	0.625 0.625	0.13 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.19 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2254/N388	1.875 1.875	0.18 L/(>1000)	1.875 1.875	0.14 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N388/N2258	0.625 0.625	0.12 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.19 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2258/N460	1.875 1.875	0.18 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.875 1.875	0.21 L/(>1000)	0.625 1.875	0.15 L/(>1000)
N460/N2262	0.625 0.625	0.12 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.625	0.19 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2262/N532	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.16 L/(>1000)
N532/N2266	0.625 0.625	0.12 L/(>1000)	0.625 0.625	0.14 L/(>1000)	0.625 0.625	0.19 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N2266/N604	1.875 1.875	0.17 L/(>1000)	0.625 0.625	0.14 L/(>1000)	1.875 1.875	0.21 L/(>1000)	0.625 0.625	0.15 L/(>1000)
N604/N2270	0.625 0.417	0.12 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.417	0.19 L/(>1000)	1.875 1.875	0.15 L/(>1000)
N2270/N676	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.16 L/(>1000)
N676/N2274	0.417 0.417	0.11 L/(>1000)	1.875 1.875	0.14 L/(>1000)	0.625 0.417	0.19 L/(>1000)	1.875 1.875	0.16 L/(>1000)
N2274/N748	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.16 L/(>1000)
N748/N2278	0.417 0.417	0.12 L/(>1000)	1.875 1.875	0.15 L/(>1000)	0.625 0.417	0.20 L/(>1000)	1.875 1.875	0.16 L/(>1000)
N2278/N820	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.15 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.17 L/(>1000)
N820/N2282	0.417 0.417	0.12 L/(>1000)	1.875 1.875	0.15 L/(>1000)	0.625 0.417	0.20 L/(>1000)	1.875 1.875	0.17 L/(>1000)
N2282/N892	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.17 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.875 1.875	0.20 L/(>1000)
N892/N2286	0.417 0.417	0.12 L/(>1000)	0.625 0.625	0.17 L/(>1000)	0.625 0.417	0.20 L/(>1000)	0.625 0.625	0.19 L/(>1000)
N2286/N964	1.875 1.875	0.18 L/(>1000)	1.875 1.875	0.16 L/(>1000)	1.875 1.875	0.22 L/(>1000)	1.875 1.875	0.19 L/(>1000)
N964/N2290	0.625 0.625	0.15 L/(>1000)	0.625 0.625	0.27 L/(>1000)	0.625 0.625	0.26 L/(>1000)	0.625 0.625	0.32 L/(>1000)
N2290/N2084	1.875 1.875	0.18 L/(>1000)	1.250 1.250	0.22 L/(>1000)	1.875 1.875	0.21 L/(>1000)	1.458 1.458	0.31 L/(>1000)
N2293/N2439	1.042 1.042	0.11 L/(>1000)	1.875 1.875	0.11 L/(>1000)	1.458 1.458	0.10 L/(>1000)	1.875 1.875	0.13 L/(>1000)
N2439/N66	1.390 1.390	1.60 L/(>1000)	1.853 1.853	0.17 L/(>1000)	1.621 1.621	1.30 L/(>1000)	1.621 1.158	0.12 L/(>1000)
N2439/N975	1.390 1.390	1.50 L/(>1000)	1.853 1.853	0.30 L/(>1000)	1.390 1.390	1.18 L/(>1000)	1.853 1.853	0.20 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1853/N1782	2.137 2.137	0.67 L/(>1000)	1.943 1.943	0.61 L/(>1000)	2.137 2.137	0.78 L/(>1000)	1.943 1.943	0.71 L/(>1000)
N1782/N1710	1.250 1.250	0.32 L/(>1000)	2.188 2.188	0.39 L/(>1000)	1.250 1.250	0.37 L/(>1000)	1.875 1.875	0.23 L/(>1000)
N1710/N1638	1.250 1.250	0.22 L/(>1000)	2.500 2.500	0.20 L/(>1000)	1.250 1.250	0.27 L/(>1000)	1.563 0.313	0.09 L/(>1000)
N1638/N1566	1.250 1.250	0.25 L/(>1000)	2.500 2.187	0.19 L/(>1000)	1.250 1.250	0.31 L/(>1000)	3.750 4.687	0.06 L/(>1000)
N1566/N1494	1.250 1.250	0.15 L/(>1000)	2.500 2.500	0.21 L/(>1000)	1.250 1.250	0.19 L/(>1000)	3.750 3.750	0.03 L/(>1000)
N1494/N1422	0.938 0.938	0.10 L/(>1000)	2.500 2.500	0.19 L/(>1000)	0.938 0.938	0.12 L/(>1000)	3.750 3.750	0.03 L/(>1000)
N1422/N1350	3.750 3.750	0.12 L/(>1000)	2.500 2.500	0.21 L/(>1000)	3.750 3.750	0.14 L/(>1000)	3.438 4.688	0.10 L/(>1000)
N1350/N1278	1.250 1.250	0.15 L/(>1000)	2.188 2.188	0.24 L/(>1000)	1.250 1.250	0.19 L/(>1000)	1.250 1.563	0.09 L/(>1000)
N1278/N1206	4.063 4.063	0.08 L/(>1000)	2.500 2.188	0.19 L/(>1000)	4.063 0.938	0.09 L/(>1000)	3.750 4.688	0.04 L/(>1000)
N1206/N1134	4.063 4.063	0.08 L/(>1000)	2.188 2.188	0.19 L/(>1000)	4.063 4.063	0.09 L/(>1000)	3.750 4.688	0.04 L/(>1000)
N1134/N1062	1.250 1.250	0.09 L/(>1000)	2.500 2.500	0.24 L/(>1000)	1.250 1.250	0.11 L/(>1000)	1.563 1.563	0.06 L/(>1000)
N1062/N990	3.125 3.125	0.11 L/(>1000)	2.500 2.500	0.21 L/(>1000)	3.125 3.125	0.14 L/(>1000)	3.125 4.375	0.12 L/(>1000)
N990/N80	1.250 1.250	0.14 L/(>1000)	2.188 2.188	0.26 L/(>1000)	1.250 1.250	0.17 L/(>1000)	1.563 1.563	0.11 L/(>1000)
N80/N126	4.063 4.063	0.20 L/(>1000)	2.500 2.500	0.19 L/(>1000)	4.063 3.750	0.22 L/(>1000)	4.063 4.063	0.03 L/(>1000)
N126/N198	3.438 3.438	0.11 L/(>1000)	2.500 2.500	0.20 L/(>1000)	3.438 3.438	0.13 L/(>1000)	3.438 4.688	0.10 L/(>1000)
N198/N270	1.250 1.250	0.17 L/(>1000)	2.188 2.188	0.24 L/(>1000)	1.250 1.250	0.20 L/(>1000)	1.250 1.563	0.09 L/(>1000)
N270/N342	4.063 4.063	0.10 L/(>1000)	2.500 2.188	0.19 L/(>1000)	4.063 4.063	0.12 L/(>1000)	3.750 4.688	0.04 L/(>1000)
N342/N414	4.063 4.063	0.11 L/(>1000)	2.188 2.188	0.19 L/(>1000)	4.063 4.063	0.13 L/(>1000)	4.063 4.688	0.04 L/(>1000)
N414/N486	1.250 1.250	0.16 L/(>1000)	2.500 2.500	0.24 L/(>1000)	1.250 1.250	0.18 L/(>1000)	1.563 1.563	0.06 L/(>1000)
N486/N558	3.438 3.438	0.12 L/(>1000)	2.500 2.500	0.21 L/(>1000)	3.438 3.438	0.14 L/(>1000)	3.125 3.438	0.13 L/(>1000)
N558/N630	1.250 1.250	0.21 L/(>1000)	2.188 2.188	0.24 L/(>1000)	1.250 1.250	0.24 L/(>1000)	1.250 1.563	0.10 L/(>1000)
N630/N702	4.063 4.063	0.13 L/(>1000)	2.188 2.188	0.19 L/(>1000)	4.063 4.063	0.14 L/(>1000)	3.750 4.688	0.05 L/(>1000)
N702/N774	4.063 4.063	0.15 L/(>1000)	2.188 2.188	0.20 L/(>1000)	4.063 4.063	0.15 L/(>1000)	3.750 4.688	0.07 L/(>1000)
N774/N846	1.250 1.250	0.22 L/(>1000)	2.500 1.875	0.20 L/(>1000)	4.063 0.938	0.27 L/(>1000)	3.750 4.688	0.09 L/(>1000)
N846/N918	1.250 1.250	0.29 L/(>1000)	3.750 3.750	0.35 L/(>1000)	1.250 1.250	0.39 L/(>1000)	3.438 3.750	0.61 L/(>1000)
N1838/N1767	2.137 2.137	0.67 L/(>1000)	1.943 1.943	0.61 L/(>1000)	2.137 2.137	0.78 L/(>1000)	1.943 1.943	0.70 L/(>1000)
N1767/N1695	1.250 1.250	0.32 L/(>1000)	2.188 2.188	0.39 L/(>1000)	1.250 1.250	0.38 L/(>1000)	1.875 1.875	0.23 L/(>1000)
N1695/N1623	1.250 1.250	0.22 L/(>1000)	2.500 2.813	0.20 L/(>1000)	1.250 1.250	0.27 L/(>1000)	1.563 0.313	0.09 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1623/N1551	1.250 1.250	0.25 L/(>1000)	2.500 2.187	0.19 L/(>1000)	1.250 1.250	0.31 L/(>1000)	3.750 4.687	0.06 L/(>1000)
N1551/N1479	1.250 1.250	0.15 L/(>1000)	2.500 2.500	0.21 L/(>1000)	1.250 1.250	0.19 L/(>1000)	3.750 3.750	0.03 L/(>1000)
N1479/N1407	0.938 0.938	0.09 L/(>1000)	2.500 2.500	0.19 L/(>1000)	0.938 0.938	0.12 L/(>1000)	3.750 3.750	0.03 L/(>1000)
N1407/N1335	3.750 3.750	0.11 L/(>1000)	2.500 2.500	0.21 L/(>1000)	3.750 3.750	0.14 L/(>1000)	3.438 4.688	0.10 L/(>1000)
N1335/N1263	1.250 1.250	0.15 L/(>1000)	2.188 2.188	0.24 L/(>1000)	1.250 1.250	0.18 L/(>1000)	1.250 1.563	0.09 L/(>1000)
N1263/N1191	0.938 0.938	0.08 L/(>1000)	2.500 2.188	0.19 L/(>1000)	0.938 0.938	0.09 L/(>1000)	3.750 4.688	0.04 L/(>1000)
N1191/N1119	4.063 4.063	0.08 L/(>1000)	2.500 2.188	0.19 L/(>1000)	0.938 0.938	0.10 L/(>1000)	3.750 4.688	0.05 L/(>1000)
N1119/N1047	1.250 1.250	0.14 L/(>1000)	2.188 2.188	0.20 L/(>1000)	1.250 1.250	0.16 L/(>1000)	1.250 4.688	0.05 L/(>1000)
N1047/N975	3.438 3.438	0.13 L/(>1000)	2.500 2.500	0.22 L/(>1000)	3.438 3.438	0.16 L/(>1000)	2.500 3.125	0.12 L/(>1000)
N975/N66	1.250 1.250	0.18 L/(>1000)	2.188 2.188	0.35 L/(>1000)	1.250 0.938	0.21 L/(>1000)	1.875 1.875	0.20 L/(>1000)
N66/N111	4.063 4.063	0.08 L/(>1000)	2.500 2.188	0.20 L/(>1000)	4.063 4.063	0.12 L/(>1000)	3.750 4.688	0.04 L/(>1000)
N111/N183	3.750 3.750	0.12 L/(>1000)	2.500 2.500	0.20 L/(>1000)	3.750 3.750	0.14 L/(>1000)	2.813 3.438	0.12 L/(>1000)
N183/N255	1.250 1.250	0.18 L/(>1000)	2.188 2.188	0.23 L/(>1000)	1.250 1.250	0.21 L/(>1000)	1.250 1.563	0.08 L/(>1000)
N255/N327	4.063 4.063	0.10 L/(>1000)	2.500 2.188	0.19 L/(>1000)	4.063 4.063	0.11 L/(>1000)	3.750 4.688	0.04 L/(>1000)
N327/N399	4.063 4.063	0.11 L/(>1000)	2.188 2.188	0.19 L/(>1000)	4.063 4.063	0.12 L/(>1000)	4.063 4.688	0.04 L/(>1000)
N399/N471	1.250 1.250	0.16 L/(>1000)	2.500 2.500	0.24 L/(>1000)	1.250 1.250	0.18 L/(>1000)	1.563 1.563	0.06 L/(>1000)
N471/N543	3.438 3.438	0.11 L/(>1000)	2.500 2.500	0.21 L/(>1000)	3.438 3.438	0.14 L/(>1000)	3.125 3.438	0.13 L/(>1000)
N543/N615	1.250 1.250	0.21 L/(>1000)	2.188 2.188	0.24 L/(>1000)	1.250 1.250	0.23 L/(>1000)	1.250 1.563	0.10 L/(>1000)
N615/N687	4.063 4.063	0.13 L/(>1000)	2.188 2.188	0.19 L/(>1000)	4.063 4.063	0.13 L/(>1000)	3.750 4.688	0.05 L/(>1000)
N687/N759	4.063 4.063	0.14 L/(>1000)	2.188 2.188	0.20 L/(>1000)	4.063 4.063	0.15 L/(>1000)	3.750 4.688	0.07 L/(>1000)
N759/N831	1.250 1.250	0.21 L/(>1000)	2.500 2.188	0.20 L/(>1000)	4.063 0.938	0.27 L/(>1000)	3.750 4.688	0.08 L/(>1000)
N831/N903	1.250 1.250	0.25 L/(>1000)	3.750 3.750	0.36 L/(>1000)	1.250 1.250	0.34 L/(>1000)	3.438 3.750	0.62 L/(>1000)
N2467/N2440	3.761 3.761	1.44 L/(>1000)	1.567 1.567	1.53 L/(>1000)	3.761 3.761	1.72 L/(>1000)	1.567 1.567	1.63 L/(>1000)
N2468/N2441	3.134 3.134	4.01 L/(>1000)	1.567 1.567	5.74 L/874.1	3.134 3.134	4.73 L/(>1000)	1.567 1.567	6.64 L/896.6
N2469/N2442	3.134 3.134	4.41 L/(>1000)	1.567 1.567	11.62 L/384.0	3.134 3.134	5.23 L/(>1000)	1.567 1.567	13.78 L/384.2
N2471/N2443	3.134 3.134	4.40 L/(>1000)	1.567 1.567	18.34 L/250.4	3.134 3.134	5.22 L/(>1000)	1.567 1.567	21.81 L/253.5
N2472/N2444	3.134 3.134	4.52 L/(>1000)	1.567 1.567	18.01 L/278.5	3.134 3.134	5.35 L/(>1000)	1.567 1.567	21.10 L/288.5
N2473/N2445	2.821 2.821	3.87 L/(>1000)	1.567 1.567	23.65 L/196.6	2.821 2.821	4.58 L/(>1000)	1.567 1.567	28.11 L/203.0

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2474/N2446	2.821 2.821	3.71 L/(>1000)	1.567 1.567	22.50 L/222.9	2.821 2.821	4.39 L/(>1000)	1.567 1.567	26.42 L/230.7
N2475/N2447	2.821 2.821	2.83 L/(>1000)	1.567 1.567	27.08 L/172.7	2.821 2.821	3.32 L/(>1000)	1.567 1.567	32.17 L/180.9
N2476/N2448	2.821 2.821	2.41 L/(>1000)	1.567 1.567	25.47 L/196.8	2.821 2.821	2.86 L/(>1000)	1.567 1.567	30.00 L/201.9
N2477/N2449	2.821 2.821	2.81 L/(>1000)	1.567 1.567	29.13 L/161.0	2.821 2.821	3.32 L/(>1000)	1.567 1.567	34.47 L/165.6
N2478/N2450	3.134 3.134	1.79 L/(>1000)	1.567 1.567	21.72 L/230.8	3.134 3.134	2.09 L/(>1000)	1.567 1.567	25.50 L/231.7
N2479/N2451	2.821 2.821	2.12 L/(>1000)	1.567 1.567	26.16 L/191.7	2.821 2.821	2.53 L/(>1000)	1.567 1.567	31.06 L/195.3
N2480/N2452	2.821 2.821	1.09 L/(>1000)	1.567 1.567	21.99 L/228.0	2.821 2.821	1.54 L/(>1000)	1.567 1.567	25.86 L/233.5
N2481/N2453	3.134 3.134	1.03 L/(>1000)	1.567 1.567	21.95 L/228.4	2.821 3.134	1.49 L/(>1000)	1.567 1.567	25.82 L/233.7
N2482/N2454	2.821 2.821	2.14 L/(>1000)	1.567 1.567	26.18 L/191.5	2.821 2.821	2.55 L/(>1000)	1.567 1.567	31.09 L/195.3
N2483/N2455	3.134 3.134	1.80 L/(>1000)	1.567 1.567	21.75 L/230.5	3.134 3.134	2.10 L/(>1000)	1.567 1.567	25.54 L/231.3
N2484/N2456	2.821 2.821	2.83 L/(>1000)	1.567 1.567	29.14 L/160.9	2.821 2.821	3.35 L/(>1000)	1.567 1.567	34.49 L/165.4
N2485/N2457	2.821 2.821	2.42 L/(>1000)	1.567 1.567	25.54 L/196.3	2.821 2.821	2.87 L/(>1000)	1.567 1.567	30.07 L/201.3
N2486/N2458	2.821 2.821	2.87 L/(>1000)	1.567 1.567	27.08 L/172.5	2.821 2.821	3.37 L/(>1000)	1.567 1.567	32.17 L/180.6
N2487/N2459	2.821 2.821	3.75 L/(>1000)	1.567 1.567	22.60 L/221.9	2.821 2.821	4.43 L/(>1000)	1.567 1.567	26.54 L/229.6
N2488/N2460	2.821 2.821	3.92 L/(>1000)	1.567 1.567	23.65 L/196.2	2.821 2.821	4.63 L/(>1000)	1.567 1.567	28.10 L/202.6
N2489/N2461	3.134 3.134	4.55 L/(>1000)	1.567 1.567	18.09 L/277.2	3.134 3.134	5.39 L/(>1000)	1.567 1.567	21.19 L/287.2
N2490/N2462	3.134 3.134	4.52 L/(>1000)	1.567 1.567	18.31 L/249.5	3.134 3.134	5.38 L/(>1000)	1.567 1.567	21.76 L/252.8
N2491/N2463	3.134 3.134	4.98 L/(>1000)	1.567 1.567	12.54 L/399.8	3.134 3.134	5.88 L/(>1000)	1.567 1.567	14.73 L/410.7
N2492/N2464	3.134 3.134	4.48 L/(>1000)	1.567 1.567	11.45 L/383.8	3.134 3.134	5.32 L/(>1000)	1.567 1.567	13.57 L/384.3
N2493/N2465	3.134 3.134	4.06 L/(>1000)	1.567 1.567	5.59 L/896.3	3.134 3.134	4.79 L/(>1000)	1.567 1.567	6.48 L/919.7
N2494/N2466	3.761 3.761	1.36 L/(>1000)	1.567 1.567	1.52 L/(>1000)	3.761 3.761	1.63 L/(>1000)	1.567 1.567	1.61 L/(>1000)
N2086/N2495	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.296 -	0.00 L/(>1000)	5.288 -	0.00 L/(>1000)
N2087/N2496	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.957 -	0.00 L/(>1000)
N2113/N2497	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	2.974 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2088/N2498	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	2.644 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2089/N2499	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2090/N2500	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	3.305 -	0.00 L/(>1000)
N2091/N2501	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	3.305 -	0.00 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N2092/N2502	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.296 -	0.00 L/(>1000)
N2093/N2503	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	3.305 -	0.00 L/(>1000)	3.305 -	0.00 L/(>1000)
N2094/N2504	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.627 -	0.00 L/(>1000)	4.957 -	0.00 L/(>1000)
N2095/N2505	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.627 -	0.00 L/(>1000)	3.966 -	0.00 L/(>1000)
N2096/N2506	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	2.313 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2097/N2507	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.957 -	0.00 L/(>1000)
N2098/N2508	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	3.966 -	0.00 L/(>1000)
N2099/N2509	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	3.966 -	0.00 L/(>1000)	4.957 -	0.00 L/(>1000)
N2100/N2510	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.296 -	0.00 L/(>1000)
N2101/N2511	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	1.983 -	0.00 L/(>1000)
N2102/N2512	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.296 -	0.00 L/(>1000)
N2103/N2513	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	3.305 -	0.00 L/(>1000)
N2104/N2514	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2105/N2515	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.627 -	0.00 L/(>1000)	4.957 -	0.00 L/(>1000)
N2106/N2516	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	2.313 -	0.00 L/(>1000)	3.966 -	0.00 L/(>1000)
N2107/N2517	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	3.966 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2108/N2518	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.957 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2109/N2519	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	3.966 -	0.00 L/(>1000)	3.635 -	0.00 L/(>1000)
N2110/N2520	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.296 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2111/N2521	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.627 -	0.00 L/(>1000)	4.627 -	0.00 L/(>1000)
N2112/N2522	2.644 2.644	13.74 L/384.9	2.644 2.644	23.38 L/226.2	4.296 -	0.00 L/(>1000)	5.288 -	0.00 L/(>1000)
N1805/N1733	3.125 3.750	0.09 L/(>1000)	2.188 2.188	1.60 L/(>1000)	2.813 3.750	0.11 L/(>1000)	2.188 2.188	3.09 L/(>1000)
N1803/N1731	3.750 3.750	0.07 L/(>1000)	1.875 1.875	1.75 L/(>1000)	1.250 3.750	0.07 L/(>1000)	2.188 1.563	3.25 L/(>1000)
N1801/N1729	1.250 1.250	0.10 L/(>1000)	1.875 1.875	2.01 L/(>1000)	1.875 1.250	0.13 L/(>1000)	2.188 1.875	3.56 L/(>1000)
N1797/N1725	2.188 2.188	0.11 L/(>1000)	2.188 2.188	1.44 L/(>1000)	2.188 2.188	0.20 L/(>1000)	1.875 2.188	2.52 L/(>1000)
N1796/N1724	2.188 2.188	0.18 L/(>1000)	1.875 1.875	1.69 L/(>1000)	2.188 2.188	0.21 L/(>1000)	2.188 1.875	3.14 L/(>1000)
N1810/N1738	2.500 2.500	0.18 L/(>1000)	1.875 1.875	1.74 L/(>1000)	2.500 2.500	0.21 L/(>1000)	1.875 1.563	3.19 L/(>1000)
N1811/N1739	2.188 2.188	0.12 L/(>1000)	2.500 2.500	1.46 L/(>1000)	2.188 2.188	0.20 L/(>1000)	2.188 2.500	2.53 L/(>1000)

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1815/N1743	1.563 1.250	0.09 L/(>1000)	1.875 1.875	1.72 L/(>1000)	1.875 1.250	0.12 L/(>1000)	2.188 1.875	3.27 L/(>1000)
N1817/N1745	3.750 3.750	0.08 L/(>1000)	2.188 2.188	1.62 L/(>1000)	3.750 3.750	0.07 L/(>1000)	1.875 2.188	3.09 L/(>1000)
N1819/N1747	3.438 3.750	0.10 L/(>1000)	2.188 2.188	1.59 L/(>1000)	3.438 3.750	0.11 L/(>1000)	2.188 2.188	2.96 L/(>1000)
N869/N941	2.813 2.813	0.17 L/(>1000)	3.438 3.438	9.47 L/473.3	3.125 2.500	0.18 L/(>1000)	3.438 3.438	11.04 L/492.3
N867/N939	3.125 3.125	0.27 L/(>1000)	3.438 3.438	13.26 L/346.9	3.125 2.813	0.32 L/(>1000)	3.438 3.438	15.60 L/363.3
N865/N937	3.750 3.750	0.20 L/(>1000)	3.438 3.438	16.05 L/311.5	3.750 3.750	0.24 L/(>1000)	3.438 3.125	18.93 L/327.6
N861/N933	3.438 3.438	0.57 L/(>1000)	3.125 3.125	18.47 L/270.7	3.438 3.125	0.66 L/(>1000)	3.438 3.438	21.70 L/277.5
N860/N932	1.563 1.563	0.17 L/(>1000)	3.438 3.438	13.97 L/358.0	1.563 1.875	0.20 L/(>1000)	3.438 3.125	16.26 L/369.3
N874/N946	3.125 3.125	0.16 L/(>1000)	3.438 3.438	13.96 L/358.1	3.125 3.125	0.20 L/(>1000)	3.438 3.438	16.26 L/369.1
N875/N947	3.438 3.438	0.64 L/(>1000)	3.125 3.125	18.69 L/267.6	3.438 3.438	0.73 L/(>1000)	3.438 3.438	22.01 L/270.8
N879/N951	3.438 3.438	0.13 L/(>1000)	3.438 3.438	15.61 L/320.2	3.750 3.750	0.16 L/(>1000)	3.438 3.125	18.35 L/337.6
N881/N953	2.500 2.500	0.26 L/(>1000)	3.438 3.438	12.92 L/356.4	2.813 2.813	0.30 L/(>1000)	3.438 3.438	15.13 L/375.0
N883/N955	1.563 1.563	0.17 L/(>1000)	3.438 3.438	9.23 L/499.7	1.563 1.250	0.15 L/(>1000)	3.438 3.125	10.68 L/510.0
N943/N2113	3.438 3.438	0.73 L/(>1000)	4.063 4.063	2.38 L/(>1000)	3.438 3.438	0.87 L/(>1000)	3.750 4.063	3.03 L/(>1000)
N941/N2089	3.438 3.438	0.42 L/(>1000)	3.750 3.750	4.96 L/656.0	3.438 3.438	0.50 L/(>1000)	3.750 3.750	6.18 L/664.5
N939/N2091	3.438 3.438	0.30 L/(>1000)	3.750 3.750	6.52 L/484.7	3.438 3.438	0.35 L/(>1000)	3.750 3.750	8.00 L/499.0
N935/N2095	1.250 1.250	0.12 L/(>1000)	1.250 1.250	9.17 L/302.6	1.250 1.250	0.14 L/(>1000)	1.250 1.250	11.08 L/317.5
N937/N2093	3.125 3.125	0.31 L/(>1000)	3.750 3.750	7.43 L/406.5	3.125 3.125	0.36 L/(>1000)	3.750 3.750	9.04 L/428.0
N933/N2097	3.125 3.125	2.14 L/(>1000)	3.750 3.750	7.11 L/378.3	3.125 2.813	2.57 L/(>1000)	3.750 3.750	8.61 L/382.2
N932/N2098	3.438 3.438	0.39 L/(>1000)	1.250 1.250	9.31 L/309.8	3.438 3.438	0.46 L/(>1000)	1.250 1.250	11.17 L/311.1
N946/N2099	3.438 3.438	0.42 L/(>1000)	1.250 1.250	9.38 L/309.0	3.438 3.438	0.50 L/(>1000)	1.250 1.250	11.25 L/311.9
N947/N2100	3.125 3.125	2.16 L/(>1000)	3.750 3.750	7.08 L/383.8	3.125 2.813	2.60 L/(>1000)	3.750 3.750	8.58 L/389.8
N949/N2102	1.563 1.250	0.14 L/(>1000)	1.250 1.250	9.38 L/298.7	1.250 1.250	0.15 L/(>1000)	1.250 1.250	11.33 L/311.7
N951/N2104	3.125 3.125	0.29 L/(>1000)	3.750 3.750	7.16 L/407.2	3.125 3.125	0.34 L/(>1000)	3.750 3.750	8.73 L/427.6
N953/N2106	3.438 3.438	0.29 L/(>1000)	3.750 3.750	6.19 L/488.1	3.438 3.438	0.34 L/(>1000)	3.750 3.750	7.60 L/499.5
N955/N2108	3.750 3.750	0.41 L/(>1000)	3.750 3.750	4.55 L/665.2	3.750 3.750	0.49 L/(>1000)	3.750 3.750	5.69 L/674.8
N957/N2110	3.125 3.125	0.72 L/(>1000)	1.250 1.250	3.68 L/816.0	3.438 3.438	0.85 L/(>1000)	1.250 1.250	4.30 L/827.3
N2294/N2523	2.930 2.930	4.59 L/(>1000)	2.500 2.500	0.72 L/(>1000)	2.930 2.930	3.60 L/(>1000)	2.500 2.500	0.83 L/(>1000)

Listados

Flechas								
Grupo	Flecha máxima absoluta xy Flecha máxima relativa xy		Flecha máxima absoluta xz Flecha máxima relativa xz		Flecha activa absoluta xy Flecha activa relativa xy		Flecha activa absoluta xz Flecha activa relativa xz	
	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)	Pos. (m)	Flecha (mm)
N1/N14	1.360 1.360	0.49 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)
N15/N32	1.250 1.250	0.36 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)
N32/N33	71.250 71.250	0.36 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)
N2/N33	1.360 1.360	0.49 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)
N1/N2	71.250 71.250	0.36 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)	0.000 -	0.00 L/(>1000)
N2117/N2654	7.420 7.420	3.72 L/(>1000)	6.378 6.378	23.14 L/432.1	7.420 7.420	4.21 L/(>1000)	6.587 6.795	27.25 L/439.3
N2470/N2654	3.135 3.135	4.93 L/(>1000)	1.567 1.567	12.35 L/406.0	3.135 3.135	5.82 L/(>1000)	1.567 1.567	14.51 L/416.8
N1855/N1784	2.137 2.137	1.09 L/(>1000)	2.137 2.137	1.69 L/898.7	2.137 2.137	1.23 L/(>1000)	2.137 2.137	1.82 L/909.4
N1840/N1769	2.137 2.137	1.09 L/(>1000)	2.137 2.137	1.69 L/900.4	2.137 2.137	1.23 L/(>1000)	2.137 2.137	1.81 L/910.5

1.3.1.2. Comprobaciones E.L.U. (Resumido)

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)												Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_yV_z	M_tV_y	
N16/N66	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 1.4	x: 2.505 m η = 0.8	x: 2.505 m η = 23.5	x: 2.505 m η = 0.3	x: 2.505 m η = 5.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 25.0	η < 0.1	η = 0.1	x: 2.505 m η = 5.0	η = 0.2	**CUMPLE h = 25.0**
N66/N67	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.4	x: 2.505 m η = 5.6	x: 0 m η = 28.1	x: 0 m η = 0.4	x: 0 m η = 5.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 43.2	η < 0.1	η = 0.1	x: 0 m η = 5.3	η = 0.1	**CUMPLE h = 43.2**
N67/N68	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.1	x: 2.505 m η = 3.6	x: 0 m η = 3.0	x: 2.505 m η = 0.2	x: 0 m η = 2.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 5.1	η < 0.1	η = 0.1	x: 0 m η = 2.1	η = 0.1	**CUMPLE h = 5.1**
N68/N69	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.9	x: 0 m η = 14.2	x: 0 m η = 5.8	x: 0 m η = 0.2	x: 0 m η = 2.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.3	η < 0.1	η = 0.3	x: 0 m η = 2.6	η = 0.1	**CUMPLE h = 20.3**
N69/N70	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.0	x: 0 m η = 24.2	x: 0 m η = 4.0	x: 2.505 m η = 0.1	x: 0 m η = 2.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.3	η < 0.1	η = 0.2	x: 0 m η = 2.4	η = 0.1	**CUMPLE h = 28.3**
N70/N71	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 12.1	x: 2.505 m η = 36.4	x: 1.461 m η = 3.4	x: 2.505 m η = 0.2	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 38.1	η < 0.1	η = 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.1**
N71/N72	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.4	x: 2.505 m η = 44.1	x: 1.461 m η = 3.7	x: 2.505 m η = 0.2	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 46.1	η < 0.1	η = 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 46.1**
N72/N73	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.1	x: 0 m η = 49.9	x: 1.461 m η = 4.0	x: 0 m η = 0.2	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 52.0	η < 0.1	η = 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 52.0**
N73/N74	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.3	x: 0 m η = 54.2	x: 1.461 m η = 4.1	x: 0 m η = 0.2	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 56.2	η < 0.1	η = 0.2	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 56.2**
N74/N75	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.0	x: 0 m η = 57.0	x: 1.461 m η = 4.2	x: 0 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 58.9	η < 0.1	η = 0.2	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 58.9**
N75/N76	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.8	x: 2.505 m η = 58.8	x: 1.252 m η = 4.1	x: 2.505 m η = 0.2	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 60.8	η < 0.1	η = 0.1	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 60.8**
N76/N77	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.0	x: 0 m η = 59.4	x: 1.252 m η = 4.6	x: 0 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.7	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 61.7**
N77/N78	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 0 m η = 59.4	x: 1.044 m η = 4.3	x: 0 m η = 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 61.5	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 61.5**
N78/N79	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 0 m η = 59.4	x: 1.461 m η = 5.1	x: 2.505 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.0	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.0**
N79/N19	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 18.6	x: 0 m η = 52.7	x: 1.252 m η = 9.6	x: 1.252 m η = 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.4	η < 0.1	η = 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 62.4**
N18/N80	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 1.4	x: 2.505 m η = 0.8	x: 2.505 m η = 23.6	x: 2.505 m η = 0.3	x: 2.505 m η = 5.0	η = 0.1	η < 0.1	η < 0.1	x: 2.505 m η = 24.1	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.1	**CUMPLE h = 24.1**
N80/N81	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.9	x: 2.505 m η = 5.3	x: 0 m η = 28.3	x: 0 m η = 0.5	x: 0 m η = 5.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.4	η < 0.1	η = 0.1	x: 0 m η = 5.3	η = 0.1	**CUMPLE h = 44.4**
N81/N82	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.9	x: 0 m η = 3.3	x: 0 m η = 3.0	x: 2.505 m η = 0.2	x: 0 m η = 2.1	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 5.0	η < 0.1	η = 0.1	x: 0 m η = 2.1	η = 0.2	**CUMPLE h = 5.0**
N82/N83	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.6	x: 0 m η = 13.8	x: 0 m η = 5.9	x: 0 m η = 0.2	x: 0 m η = 2.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.9	η < 0.1	η = 0.3	x: 0 m η = 2.6	η = 0.1	**CUMPLE h = 19.9**
N83/N84	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 8.7	x: 0 m η = 23.9	x: 0 m η = 4.0	x: 2.505 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.0	η < 0.1	η = 0.2	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.0**
N84/N85	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 11.9	x: 2.505 m η = 36.2	x: 1.461 m η = 3.4	x: 2.505 m η = 0.2	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 1.67 m η = 38.0	η < 0.1	η = 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.0**
N85/N86	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.3	x: 2.505 m η = 43.9	x: 1.461 m η = 3.7	x: 2.505 m η = 0.2	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 46.0	η < 0.1	η = 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 46.0**
N86/N87	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.0	x: 0 m η = 49.8	x: 1.461 m η = 3.9	x: 0 m η = 0.2	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.9	η < 0.1	η = 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.9**
N87/N88	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.3	x: 0 m η = 54.2	x: 1.461 m η = 4.1	x: 0 m η = 0.2	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 56.1	η < 0.1	η = 0.2	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 56.1**
N88/N89	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.0	x: 0 m η = 57.0	x: 1.461 m η = 4.2	x: 0 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 58.9	η < 0.1	η = 0.2	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 58.9**
N89/N90	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.8	x: 2.505 m η = 58.7	x: 1.252 m η = 4.1	x: 2.505 m η = 0.2	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 60.7	η < 0.1	η = 0.1	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 60.7**
N90/N91	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.0	x: 0 m η = 59.5	x: 1.252 m η = 4.6	x: 0 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.8	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 61.8**
N91/N92	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 0 m η = 59.4	x: 1.044 m η = 4.3	x: 0 m η = 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 61.6	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 61.6**
N92/N93	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 0 m η = 59.4	x: 1.461 m η = 5.1	x: 2.505 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.0	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.0**
N93/N19	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 18.6	x: 0 m η = 52.7	x: 1.252 m η = 9.6	x: 0 m η = 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.4	η < 0.1	η = 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 62.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N169/N108	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 50.3	x: 0 m η = 35.7	x: 0 m η = 3.4	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.6	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 53.6**
N169/N107	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 9.0	x: 0 m η = 33.8	x: 0 m η = 12.1	x: 2.5 m η = 0.1	x: 2.5 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.4	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	η = 0.1	**CUMPLE h = 45.4**
N170/N107	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 43.4	x: 0 m η = 30.7	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 46.2	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 46.2**
N171/N104	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.6	x: 0 m η = 38.5	x: 0 m η = 5.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.6	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 53.6**
N103/N171	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 11.8	x: 2.5 m η = 39.8	x: 2.5 m η = 15.0	x: 0 m η = 0.3	x: 0 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 54.4	η < 0.1	η < 0.1	x: 0 m η = 1.7	η = 0.1	**CUMPLE h = 54.4**
N172/N103	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 50.0	x: 0 m η = 44.3	x: 0 m η = 3.3	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.3	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 53.3**
N102/N172	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 11.4	x: 0 m η = 34.1	x: 2.5 m η = 12.0	x: 0 m η = 0.2	x: 0 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 45.6	η < 0.1	η < 0.1	x: 0 m η = 1.5	η = 0.1	**CUMPLE h = 45.6**
N173/N102	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 42.9	x: 0 m η = 41.7	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.6	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.6**
N177/N183	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.0	x: 2.505 m η = 1.2	x: 2.505 m η = 23.9	x: 2.505 m η = 0.5	x: 2.505 m η = 5.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 25.3	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.2	**CUMPLE h = 25.3**
N183/N184	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.2	x: 0 m η = 5.8	x: 0 m η = 28.7	x: 0 m η = 0.6	x: 0 m η = 5.4	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 45.2	η < 0.1	η = 0.1	x: 0 m η = 5.4	η = 0.3	**CUMPLE h = 45.2**
N184/N185	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.6	x: 2.505 m η = 3.9	x: 0 m η = 2.7	x: 2.505 m η = 0.5	x: 0 m η = 2.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 5.9	η < 0.1	η = 0.5	x: 0 m η = 2.0	η = 0.2	**CUMPLE h = 5.9**
N185/N186	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.7	x: 0 m η = 14.8	x: 0 m η = 3.3	x: 0 m η = 0.4	x: 0 m η = 1.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 18.5	η < 0.1	η = 0.7	x: 0 m η = 1.6	η = 0.2	**CUMPLE h = 18.5**
N186/N187	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.7	x: 2.505 m η = 25.8	x: 0 m η = 3.6	x: 2.505 m η = 0.5	x: 0 m η = 1.9	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.7	η < 0.1	η = 2.2	x: 0 m η = 2.0	η = 0.1	**CUMPLE h = 28.7**
N187/N188	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.1	x: 0 m η = 38.1	x: 1.67 m η = 2.9	x: 0 m η = 0.5	x: 0 m η = 1.5	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 39.4	η < 0.1	η = 1.2	x: 0 m η = 1.5	η = 0.2	**CUMPLE h = 39.4**
N188/N189	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.6	x: 2.505 m η = 44.6	x: 1.67 m η = 3.4	x: 2.505 m η = 0.2	x: 0 m η = 1.8	η = 0.1	η < 0.1	η < 0.1	x: 1.879 m η = 46.2	η < 0.1	η = 1.4	x: 0 m η = 1.8	η = 0.1	**CUMPLE h = 46.2**
N189/N190	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.2	x: 0 m η = 53.6	x: 1.461 m η = 3.4	x: 0 m η = 0.9	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 54.5	η < 0.1	η = 2.1	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 54.5**
N190/N191	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.8	x: 2.505 m η = 59.1	x: 1.461 m η = 3.7	x: 2.505 m η = 1.2	x: 0 m η = 1.6	η = 0.4	η < 0.1	η < 0.1	x: 2.505 m η = 61.0	η < 0.1	η = 1.0	x: 0 m η = 1.7	η = 0.4	**CUMPLE h = 61.0**
N191/N192	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.4	x: 0 m η = 58.7	x: 1.461 m η = 3.7	x: 0 m η = 0.3	x: 2.505 m η = 1.3	η = 0.2	η < 0.1	η < 0.1	x: 1.044 m η = 60.0	η < 0.1	η = 2.1	x: 2.505 m η = 1.3	η = 0.2	**CUMPLE h = 60.0**
N192/N193	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.4	x: 2.505 m η = 62.3	x: 1.461 m η = 3.7	x: 2.505 m η = 0.7	x: 0 m η = 1.5	η = 0.2	η < 0.1	η < 0.1	x: 1.879 m η = 64.0	η < 0.1	η = 0.5	x: 0 m η = 1.5	η = 0.2	**CUMPLE h = 64.0**
N193/N194	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.9	x: 0 m η = 63.6	x: 1.252 m η = 4.1	x: 0 m η = 1.0	x: 2.505 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 0.626 m η = 65.2	η < 0.1	η = 0.5	x: 2.505 m η = 1.3	η = 0.3	**CUMPLE h = 65.2**
N194/N195	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.6	x: 2.505 m η = 62.2	x: 1.252 m η = 4.0	x: 2.505 m η = 0.5	x: 0 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 1.879 m η = 63.4	η < 0.1	η = 1.4	x: 0 m η = 1.3	η = 0.3	**CUMPLE h = 63.4**
N195/N196	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 21.2	x: 0 m η = 65.5	x: 1.67 m η = 4.4	x: 0 m η = 1.2	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 66.6	η < 0.1	η = 1.6	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 66.6**
N196/N197	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.6	x: 1.252 m η = 58.8	x: 1.252 m η = 9.1	x: 1.252 m η = 0.7	x: 1.252 m η = 3.3	η = 0.6	η < 0.1	η < 0.1	x: 1.252 m η = 66.1	η < 0.1	η = 1.6	x: 1.252 m η = 3.3	η = 0.6	**CUMPLE h = 66.1**
N182/N198	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.2	x: 2.505 m η = 1.4	x: 2.505 m η = 23.9	x: 2.505 m η = 0.6	x: 2.505 m η = 5.0	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 25.6	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.3	**CUMPLE h = 25.6**
N198/N199	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.4	x: 0 m η = 5.5	x: 0 m η = 28.7	x: 0 m η = 0.7	x: 0 m η = 5.4	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 45.5	η < 0.1	η = 0.1	x: 0 m η = 5.4	η = 0.3	**CUMPLE h = 45.5**
N199/N200	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.6	x: 2.505 m η = 4.0	x: 0 m η = 2.7	x: 2.505 m η = 0.6	x: 0 m η = 2.0	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 6.0	η < 0.1	η = 0.5	x: 0 m η = 2.0	η = 0.3	**CUMPLE h = 6.0**
N200/N201	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.3	x: 0 m η = 14.9	x: 0 m η = 3.3	x: 0 m η = 0.4	x: 0 m η = 1.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η = 0.6	x: 0 m η = 1.6	η = 0.2	**CUMPLE h = 18.6**
N201/N202	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.3	x: 2.505 m η = 25.9	x: 0 m η = 3.6	x: 2.505 m η = 0.5	x: 0 m η = 1.9	η = 0.1	η < 0.1	η < 0.1	x: 2.087 m η = 28.8	η < 0.1	η = 2.2	x: 0 m η = 2.0	η = 0.1	**CUMPLE h = 28.8**
N202/N203	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 12.6	x: 0 m η = 38.1	x: 1.67 m η = 2.9	x: 0 m η = 0.5	x: 0 m η = 1.5	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 39.4	η < 0.1	η = 1.2	x: 0 m η = 1.5	η = 0.2	**CUMPLE h = 39.4**
N203/N204	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.5	x: 2.505 m η = 44.6	x: 1.67 m η = 3.4	x: 2.505 m η = 0.2	x: 0 m η = 1.8	η = 0.1	η < 0.1	η < 0.1	x: 1.879 m η = 46.2	η < 0.1	η = 1.4	x: 0 m η = 1.8	η = 0.1	**CUMPLE h = 46.2**
N204/N205	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.2	x: 0 m η = 53.6	x: 1.461 m η = 3.4	x: 0 m η = 0.9	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 54.6	η < 0.1	η = 2.1	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 54.6**
N205/N206	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.8	x: 2.505 m η = 59.1	x: 1.461 m η = 3.7	x: 2.505 m η = 1.2	x: 0 m η = 1.6	η = 0.4	η < 0.1	η < 0.1	x: 2.505 m η = 61.1	η < 0.1	η = 1.0	x: 0 m η = 1.7	η = 0.4	**CUMPLE h = 61.1**
N206/N207	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.4	x: 0 m η = 58.8	x: 1.461 m η = 3.7	x: 0 m η = 0.3	x: 2.505 m η = 1.3	η = 0.2	η < 0.1	η < 0.1	x: 1.044 m η = 60.0	η < 0.1	η = 2.1	x: 2.505 m η = 1.3	η = 0.2	**CUMPLE h = 60.0**
N207/N208	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.4	x: 2.505 m η = 62.4	x: 1.461 m η = 3.7	x: 2.505 m η = 0.7	x: 0 m η = 1.5	η = 0.2	η < 0.1	η < 0.1	x: 1.879 m η = 64.0	η < 0.1	η = 0.5	x: 0 m η = 1.5	η = 0.2	**CUMPLE h = 64.0**
N208/N209	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.9	x: 0 m η = 63.7	x: 1.252 m η = 4.1	x: 0 m η = 1.0	x: 2.505 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 0.626 m η = 65.2	η < 0.1	η = 0.5	x: 2.505 m η = 1.3	η = 0.3	**CUMPLE h = 65.2**
N209/N210	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.6	x: 2.505 m η = 62.3	x: 1.252 m η = 4.0	x: 2.505 m η = 0.5	x: 0 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 1.879 m η = 63.5	η < 0.1	η = 1.4	x: 0 m η = 1.3	η = 0.3	**CUMPLE h = 63.5**
N210/N211	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 21.2	x: 0 m η = 65.5	x: 1.67 m η = 4.4	x: 0 m η = 1.2	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 66.6	η < 0.1	η = 1.6	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 66.6**
N211/N197	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.6	x: 1.252 m η = 58.8	x: 1.252 m η = 9.1	x: 1.252 m η = 0.7	x: 1.252 m η = 3.3	η = 0.6	η < 0.1	η < 0.1	x: 1.252 m η = 66.1	η < 0.1	η = 1.6	x: 1.252 m η = 3.3	η = 0.6	**CUMPLE h = 66.1**
N176/N225	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 16.8	x: 2.5 m η = 51.5	x: 2.5 m η = 14.0	x: 2.5 m η = 0.7	x: 2.5 m η = 2.3	η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 62.9	η < 0.1	η < 0.1	x: 2.5 m η = 2.3	η = 0.3	**CUMPLE h = 62.9**
N225/N224	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.4	x: 0 m η = 53.9	x: 0 m η = 33.2	x: 0 m η = 0.8	x: 0 m η = 4.2	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 82.9	η < 0.1	η = 0.1	x: 0 m η = 4.2	η = 0.6	**CUMPLE h = 82.9**
N224/N223	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.0	x: 2.5 m η = 40.2	x: 2.5 m η = 2.0	x: 2.5 m η = 2.2	x: 0 m η = 0.5	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 43.1	η < 0.1	η < 0.1	x: 0 m η = 0.5	η = 0.7	**CUMPLE h = 43.1**
N223/N222	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.0	x: 0 m η = 21.6	x: 0 m η = 4.0	x: 0 m η = 2.6	x: 0 m η = 1.0	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 28.2	η < 0.1	η = 0.1	x: 0 m η = 1.0	η = 0.7	**CUMPLE h = 28.2**
N222/N221	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.5	x: 0 m η = 6.7	x: 2.5 m η = 3.4	x: 0 m η = 1.0	x: 0 m η = 0.7	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 7.9	η < 0.1	η = 0.4	x: 0 m η = 0.7	η = 0.7	**CUMPLE h = 7.9**
N221/N220	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.8	x: 2.5 m η = 9.5	x: 2.5 m η = 3.7	x: 2.5 m η = 1.9	x: 0 m η = 0.6	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 21.3	η < 0.1	η = 0.4	x: 0 m η = 0.6	η = 0.5	**CUMPLE h = 21.3**
N220/N219	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 24.2	x: 2.5 m η = 10.6	x: 2.5 m η = 3.6	x: 2.5 m η = 1.9	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 29.8	η < 0.1	η = 0.7	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 29.8**
N219/N218	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 31.7	x: 0 m η = 13.1	x: 2.5 m η = 3.7	x: 0 m η = 2.1	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 36.7	η < 0.1	η = 0.4	x: 0 m η = 0.5	η = 0.1	**CUMPLE h = 36.7**
N218/N217	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 36.0	x: 0 m η = 14.0	x: 2.5 m η = 3.4	x: 0 m η = 1.8	x: 0 m η = 0.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 38.9	η < 0.1	η = 0.1	x: 0 m η = 0.4	η = 0.5	**CUMPLE h = 38.9**
N217/N216	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 37.3	x: 0 m η = 13.3	x: 2.5 m η = 3.4	x: 0 m η = 0.9	x: 0 m η = 0.4	η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 40.4	η < 0.1	η = 1.0	x: 0 m η = 0.4	η = 0.6	**CUMPLE h = 40.4**
N216/N215	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 46.9	x: 2.5 m η = 18.7	x: 2.083 m η = 2.9	x: 2.5 m η = 3.1	x: 0 m η = 0.3	η = 1.0	η < 0.1	η < 0.1	x: 2.5 m η = 52.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 1.0	**CUMPLE h = 52.8**
N215/N214	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 47.2	x: 0 m η = 18.4	x: 2.5 m η = 4.5	x: 0 m η = 2.6	x: 0 m η = 0.4	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 51.7	η < 0.1	η = 0.6	x: 0 m η = 0.4	η = 0.7	**CUMPLE h = 51.7**
N214/N213	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 41.4	x: 0 m η = 14.4	x: 0 m η = 4.4	x: 0 m η = 0.6	x: 2.5 m η = 0.5	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 46.4	η < 0.1	η = 0.3	x: 2.5 m η = 0.5	η = 0.3	**CUMPLE h = 46.4**
N213/N212	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.7	x: 2.5 m η = 13.7	x: 0 m η = 2.6	x: 2.5 m η = 0.4	x: 2.5 m η = 0.5	η = 0.2	η < 0.1	η < 0.1	x: 0.625 m η = 41.1	η < 0.1	η = 0.2	x: 2.5 m η = 0.5	η = 0.2	**CUMPLE h = 41.1**
N212/N226	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.3	x: 2.5 m η = 13.7	x: 1.25 m η = 0.8	x: 0 m η = 0.4	x: 0 m η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 1.25 m η = 40.5	η < 0.1	η < 0.1	x: 0 m η = 0.2	η < 0.1	**CUMPLE h = 40.5**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N333/N334	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.9	x: 0 m η = 49.8	x: 1.461 m η = 3.9	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.8	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.8**
N334/N335	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 17.3	x: 0 m η = 54.3	x: 1.461 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 56.3	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 56.3**
N335/N336	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.2	x: 0 m η = 57.4	x: 1.461 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 59.5	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 59.5**
N336/N337	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.8	x: 2.505 m η = 59.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.5	η < 0.1	η = 0.1	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 61.5**
N337/N338	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.1	x: 0 m η = 60.0	x: 1.252 m η = 4.7	x: 2.505 m η < 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.3	η < 0.1	η = 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.3**
N338/N339	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.1	x: 0 m η = 60.0	x: 1.044 m η = 4.3	x: 2.505 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 62.1	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 62.1**
N339/N340	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.3	x: 0 m η = 60.0	x: 1.461 m η = 5.2	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.5	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.5**
N340/N341	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 18.9	x: 0 m η = 55.5	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 63.0	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 63.0**
N326/N342	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 1.9	x: 2.505 m η = 1.2	x: 2.505 m η = 23.8	x: 2.505 m η = 0.5	x: 2.505 m η = 5.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 25.2	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.2	**CUMPLE h = 25.2**
N342/N343	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.7	x: 0 m η = 5.4	x: 0 m η = 28.6	x: 0 m η = 0.7	x: 0 m η = 5.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 45.8	η < 0.1	η = 0.1	x: 0 m η = 5.4	η = 0.2	**CUMPLE h = 45.8**
N343/N344	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.4	x: 2.505 m η = 3.5	x: 0 m η = 3.0	x: 2.505 m η = 0.4	x: 0 m η = 2.1	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 5.0	η < 0.1	η = 0.1	x: 0 m η = 2.1	η = 0.2	**CUMPLE h = 5.0**
N344/N345	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 5.1	x: 0 m η = 13.6	x: 0 m η = 5.9	x: 2.505 m η = 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.6	η < 0.1	η = 0.1	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.6**
N345/N346	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 8.7	x: 0 m η = 24.2	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.4	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.4**
N346/N347	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 11.7	x: 0 m η = 36.3	x: 1.461 m η = 3.4	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.0	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.0**
N347/N348	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.1	x: 0 m η = 43.9	x: 1.461 m η = 3.7	η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 45.7	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 45.7**
N348/N349	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.9	x: 0 m η = 49.8	x: 1.461 m η = 3.9	x: 1.67 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.8	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.8**
N349/N350	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 17.3	x: 0 m η = 54.3	x: 1.461 m η = 4.1	x: 2.087 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 56.3	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 56.3**
N350/N351	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.2	x: 0 m η = 57.4	x: 1.461 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 59.5	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 59.5**
N351/N352	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.8	x: 2.505 m η = 59.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.5	η < 0.1	η = 0.1	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 61.5**
N352/N353	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.1	x: 0 m η = 60.0	x: 1.252 m η = 4.7	x: 0 m η < 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.3	η < 0.1	η = 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.3**
N353/N354	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.1	x: 0 m η = 60.0	x: 1.044 m η = 4.3	x: 2.505 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 62.1	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 62.1**
N354/N355	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.3	x: 0 m η = 60.0	x: 1.461 m η = 5.2	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.5	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.5**
N355/N341	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 18.9	x: 0 m η = 55.5	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 63.0	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 63.0**
N320/N369	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.5	x: 2.5 m η = 49.4	x: 2.5 m η = 14.0	x: 2.5 m η = 0.3	x: 2.5 m η = 2.3	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 60.5	η < 0.1	η < 0.1	x: 2.5 m η = 2.3	η = 0.1	**CUMPLE h = 60.5**
N369/N368	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.0	x: 0 m η = 51.3	x: 0 m η = 33.1	x: 0 m η = 0.4	x: 0 m η = 4.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 80.2	η < 0.1	η < 0.1	x: 0 m η = 4.2	η = 0.1	**CUMPLE h = 80.2**
N368/N367	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.4	x: 0 m η = 32.5	x: 2.5 m η = 1.9	x: 2.5 m η = 0.1	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 33.3	η < 0.1	η < 0.1	x: 0 m η = 0.5	η = 0.1	**CUMPLE h = 33.3**
N367/N366	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.9	x: 0 m η = 13.8	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.1	x: 0 m η = 1.0	η < 0.1	**CUMPLE h = 17.9**
N366/N365	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.2	x: 0 m η = 5.2	x: 2.5 m η = 3.4	x: 0 m η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 6.5**
N365/N364	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.4	x: 2.5 m η = 5.8	x: 2.5 m η = 3.6	x: 2.5 m η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.6	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 13.6**
N364/N363	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 18.6	x: 2.5 m η = 6.8	x: 2.5 m η = 3.7	x: 2.5 m η < 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 22.2	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 22.2**
N363/N362	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 25.5	x: 2.5 m η = 9.0	x: 2.5 m η = 3.6	x: 2.5 m η = 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 29.1	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 29.1**
N362/N361	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 30.9	x: 2.5 m η = 10.7	x: 2.5 m η = 3.5	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 34.4	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 34.4**
N361/N360	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 35.0	x: 2.5 m η = 11.9	x: 2.5 m η = 3.4	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 38.4	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 38.4**
N360/N359	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 37.9	x: 2.5 m η = 12.8	x: 2.083 m η = 2.9	x: 2.5 m η = 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 2.083 m η = 40.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 40.8**
N359/N358	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.6	x: 0 m η = 13.2	x: 2.5 m η = 4.6	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 44.2	η < 0.1	η = 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 44.2**
N358/N357	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 40.1	x: 0 m η = 13.4	x: 0 m η = 4.4	x: 0 m η < 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 44.5**
N357/N356	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.0	x: 1.458 m η = 13.1	x: 0 m η = 2.7	x: 2.083 m η < 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 41.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 41.7**
N356/N370	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 38.5	x: 2.5 m η = 12.9	x: 1.25 m η = 0.8	x: 2.5 m η < 0.1	x: 0 m η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 1.25 m η = 39.4	η < 0.1	η < 0.1	x: 0 m η = 0.2	η < 0.1	**CUMPLE h = 39.4**
N370/N371	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.1	x: 2.5 m η = 13.1	x: 2.5 m η = 2.7	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 41.8	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 41.8**
N371/N372	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 40.1	x: 2.5 m η = 13.4	x: 2.5 m η = 4.4	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 44.5	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 44.5**
N372/N373	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.6	x: 2.5 m η = 13.1	x: 0 m η = 4.6	x: 2.5 m η < 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.2	η < 0.1	η = 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 44.2**
N373/N374	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 37.9	x: 0 m η = 12.6	x: 0.417 m η = 2.9	x: 0 m η = 0.1	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0.417 m η = 40.8	η < 0.1	η = 0.1	x: 2.5 m η = 0.3	η < 0.1	**CUMPLE h = 40.8**
N374/N375	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 35.0	x: 0 m η = 11.7	x: 0 m η = 3.4	x: 0 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 38.4**
N375/N376	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 30.9	x: 0 m η = 10.4	x: 0 m η = 3.5	x: 0 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 34.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 34.4**
N376/N377	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 25.5	x: 0 m η = 8.7	x: 0 m η = 3.6	x: 0 m η = 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 29.1	η < 0.1	η < 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 29.1**
N377/N378	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.6	x: 0 m η = 6.7	x: 0 m η = 3.7	x: 0 m η < 0.1	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 22.3	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η < 0.1	**CUMPLE h = 22.3**
N378/N379	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.5	x: 0 m η = 5.8	x: 0 m η = 3.6	x: 0 m η < 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.6	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 13.6**
N379/N380	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.2	x: 2.5 m η = 5.2	x: 0 m η = 3.4	x: 0 m η < 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 6.5**
N380/N381	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.9	x: 2.5 m η = 13.7	x: 2.5 m η = 4.1	x: 2.5 m η = 0.1	x: 2.5 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 17.9	η < 0.1	η = 0.1	x: 2.5 m η = 1.0	η < 0.1	**CUMPLE h = 17.9**
N381/N382	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.4	x: 2.5 m η = 32.6	x: 0 m η = 1.9	x: 0 m η = 0.2	x: 2.5 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.5	η = 0.1	**CUMPLE h = 33.4**
N382/N383	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 16.4	x: 2.5 m η = 51.5	x: 2.5 m η = 33.1	x: 2.5 m η = 0.4	x: 2.5 m η = 4.2	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 80.4	η < 0.1	η < 0.1	x: 2.5 m η = 4.2	η = 0.1	**CUMPLE h = 80.4**
N383/N325	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.9	x: 0 m η = 49.5	x: 0 m η = 14.0	x: 0 m η = 0.3	x: 0 m η = 2.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 60.6	η < 0.1	η < 0.1	x: 0 m η = 2.3	η = 0.1	**CUMPLE h = 60.6**
N320/N327	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.706 m η = 47.3	x: 3.706 m η = 19.9	x: 3.706 m η = 6.4	x: 0 m η = 0.2	x: 3.706 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.706 m η = 53.8	η < 0.1	η = 0.1	x: 3.706 m η = 0.3	η = 0.1	**CUMPLE h = 53.8**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N370/N355	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.752 m η = 11.1	x: 0 m η = 53.5	x: 4.752 m η = 2.3	x: 4.752 m η < 0.1	η = 0.1	η < 0.1	η < 0.1	N.P.[1]	x: 0 m η = 54.6	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 54.6**
N370/N341	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.989 m η = 6.7	x: 0 m η = 10.8	x: 4.989 m η = 4.2	x: 4.989 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 4.989 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 13.2**
N384/N325	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.1	x: 0 m η = 34.2	x: 0 m η = 5.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.0	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 53.0**
N384/N324	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.2	x: 2.5 m η = 38.7	x: 0 m η = 14.9	x: 2.5 m η = 0.3	x: 2.5 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.7	η = 0.1	**CUMPLE h = 53.1**
N385/N324	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 49.9	x: 0 m η = 35.6	x: 0 m η = 3.3	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 53.1**
N385/N323	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 9.0	x: 2.5 m η = 33.4	x: 0 m η = 12.0	x: 2.5 m η = 0.1	x: 2.5 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.9	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	η = 0.1	**CUMPLE h = 44.9**
N386/N323	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.9	x: 0 m η = 30.6	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.7**
N387/N320	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.1	x: 0 m η = 38.4	x: 0 m η = 5.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.0	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 53.0**
N319/N387	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 11.6	x: 0 m η = 38.8	x: 2.5 m η = 14.9	x: 0 m η = 0.3	x: 0 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 53.2	η < 0.1	η < 0.1	x: 0 m η = 1.7	η = 0.1	**CUMPLE h = 53.2**
N388/N319	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 49.9	x: 0 m η = 44.5	x: 0 m η = 3.3	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 53.1**
N318/N388	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 11.2	x: 2.5 m η = 33.6	x: 2.5 m η = 12.0	x: 0 m η = 0.2	x: 0 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 45.1	η < 0.1	η < 0.1	x: 0 m η = 1.5	η = 0.1	**CUMPLE h = 45.1**
N389/N318	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.9	x: 0 m η = 42.0	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.6	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.6**
N393/N399	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 1.9	x: 2.505 m η = 1.2	x: 2.505 m η = 23.8	x: 2.505 m η = 0.5	x: 2.505 m η = 5.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 25.3	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.2	**CUMPLE h = 25.3**
N399/N400	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.9	x: 0 m η = 5.8	x: 0 m η = 28.6	x: 0 m η = 0.7	x: 0 m η = 5.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 46.0	η < 0.1	η = 0.1	x: 0 m η = 5.4	η = 0.2	**CUMPLE h = 46.0**
N400/N401	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.3	x: 2.505 m η = 3.5	x: 0 m η = 3.0	x: 2.505 m η = 0.4	x: 0 m η = 2.1	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 5.0	η < 0.1	η = 0.1	x: 0 m η = 2.1	η = 0.2	**CUMPLE h = 5.0**
N401/N402	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.4	x: 0 m η = 13.7	x: 0 m η = 5.9	x: 0 m η = 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.6	η < 0.1	η = 0.1	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.6**
N402/N403	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.1	x: 0 m η = 24.2	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.4	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.4**
N403/N404	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 11.9	x: 0 m η = 36.3	x: 1.461 m η = 3.4	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.0	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.0**
N404/N405	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.2	x: 0 m η = 43.9	x: 1.461 m η = 3.7	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 45.7	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 45.7**
N405/N406	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.9	x: 0 m η = 49.8	x: 1.461 m η = 4.0	x: 0 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.8	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.8**
N406/N407	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 17.3	x: 0 m η = 54.3	x: 1.461 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 56.3	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 56.3**
N407/N408	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.3	x: 0 m η = 57.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 59.5	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 59.5**
N408/N409	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 2.505 m η = 59.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.5	η < 0.1	η = 0.1	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 61.5**
N409/N410	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.2	x: 0 m η = 60.1	x: 1.252 m η = 4.7	x: 0 m η < 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.4	η < 0.1	η = 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.4**
N410/N411	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.3	x: 0 m η = 60.1	x: 1.044 m η = 4.3	x: 2.505 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 62.2	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 62.2**
N411/N412	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.3	x: 0 m η = 60.0	x: 1.461 m η = 5.2	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.5	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.5**
N412/N413	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 19.0	x: 0 m η = 55.5	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 63.0	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 63.0**
N398/N414	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.0	x: 2.505 m η = 1.2	x: 2.505 m η = 23.8	x: 2.505 m η = 0.5	x: 2.505 m η = 5.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 25.4	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.2	**CUMPLE h = 25.4**
N414/N415	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.0	x: 0 m η = 5.5	x: 0 m η = 28.6	x: 0 m η = 0.7	x: 0 m η = 5.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 46.1	η < 0.1	η = 0.1	x: 0 m η = 5.4	η = 0.2	**CUMPLE h = 46.1**
N415/N416	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.3	x: 2.505 m η = 3.5	x: 0 m η = 3.0	x: 2.505 m η = 0.4	x: 0 m η = 2.1	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 5.0	η < 0.1	η = 0.1	x: 0 m η = 2.1	η = 0.2	**CUMPLE h = 5.0**
N416/N417	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.1	x: 0 m η = 13.7	x: 0 m η = 5.9	x: 0 m η = 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.6	η < 0.1	η = 0.1	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.6**
N417/N418	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 8.7	x: 0 m η = 24.2	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.4	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.4**
N418/N419	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 11.7	x: 0 m η = 36.3	x: 1.461 m η = 3.4	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.0	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.0**
N419/N420	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.1	x: 0 m η = 43.9	x: 1.461 m η = 3.7	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 45.7	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 45.7**
N420/N421	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.9	x: 0 m η = 49.8	x: 1.461 m η = 4.0	x: 0 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.8	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.8**
N421/N422	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 17.3	x: 0 m η = 54.3	x: 1.461 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 56.3	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 56.3**
N422/N423	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.3	x: 0 m η = 57.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 59.5	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 59.5**
N423/N424	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 2.505 m η = 59.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.5	η < 0.1	η = 0.1	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 61.5**
N424/N425	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.2	x: 0 m η = 60.1	x: 1.252 m η = 4.7	x: 0 m η < 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.4	η < 0.1	η = 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.4**
N425/N426	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.3	x: 0 m η = 60.1	x: 1.044 m η = 4.3	x: 2.505 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 62.2	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 62.2**
N426/N427	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.3	x: 0 m η = 60.0	x: 1.461 m η = 5.2	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.5	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.5**
N427/N413	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 19.0	x: 0 m η = 55.5	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 63.0	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 63.0**
N392/N441	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.7	x: 2.5 m η = 49.5	x: 2.5 m η = 14.0	x: 2.5 m η = 0.3	x: 2.5 m η = 2.3	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 60.6	η < 0.1	η < 0.1	x: 2.5 m η = 2.3	η = 0.1	**CUMPLE h = 60.6**
N441/N440	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.2	x: 0 m η = 51.5	x: 0 m η = 33.1	x: 0 m η = 0.4	x: 0 m η = 4.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 80.4	η < 0.1	η < 0.1	x: 0 m η = 4.2	η = 0.1	**CUMPLE h = 80.4**
N440/N439	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.7	x: 2.5 m η = 32.7	x: 2.5 m η = 1.9	x: 2.5 m η = 0.2	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 33.8	η < 0.1	η < 0.1	x: 0 m η = 0.5	η = 0.1	**CUMPLE h = 33.8**
N439/N438	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.0	x: 0 m η = 13.7	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.2	x: 0 m η = 1.0	η < 0.1	**CUMPLE h = 17.9**
N438/N437	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.2	x: 2.5 m η = 5.2	x: 2.5 m η = 3.4	x: 0 m η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 6.5**
N437/N436	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.5	x: 0 m η = 5.8	x: 2.5 m η = 3.6	x: 2.5 m η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.6	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 13.6**
N436/N435	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.6	x: 2.5 m η = 6.8	x: 2.5 m η = 3.7	x: 2.5 m η < 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 22.2	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 22.2**
N435/N434	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 25.5	x: 2.5 m η = 9.0	x: 2.5 m η = 3.6	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 29.1	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 29.1**
N434/N433	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 30.9	x: 2.5 m η = 10.7	x: 2.5 m η = 3.5	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 34.4	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 34.4**
N433/N432	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 35.0	x: 2.5 m η = 12.0	x: 2.5 m η = 3.4	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 38.4	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 38.4**
N432/N431	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 37.9	x: 2.5 m η = 12.8	x: 2.083 m η = 2.9	x: 2.5 m η = 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 2.083 m η = 40.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 40.8**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N545/N546	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.9	x: 0 m η = 15.4	x: 0 m η = 3.3	x: 0 m η = 0.5	x: 0 m η = 1.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 19.2	η < 0.1	η = 0.7	x: 0 m η = 1.6	η = 0.2	**CUMPLE h = 19.2**
N546/N547	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.9	x: 2.505 m η = 26.1	x: 0 m η = 3.6	x: 2.505 m η = 0.6	x: 0 m η = 1.9	η = 0.2	η < 0.1	η < 0.1	x: 2.087 m η = 29.0	η < 0.1	η = 2.2	x: 0 m η = 2.0	η = 0.2	**CUMPLE h = 29.0**
N547/N548	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.4	x: 0 m η = 38.2	x: 1.67 m η = 2.9	x: 0 m η = 0.4	x: 0 m η = 1.5	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 39.4	η < 0.1	η = 1.2	x: 0 m η = 1.5	η = 0.2	**CUMPLE h = 39.4**
N548/N549	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.1	x: 2.505 m η = 44.6	x: 1.67 m η = 3.4	x: 2.505 m η = 0.2	x: 0 m η = 1.8	η = 0.1	η < 0.1	η < 0.1	x: 1.67 m η = 46.3	η < 0.1	η = 1.4	x: 0 m η = 1.8	η = 0.1	**CUMPLE h = 46.3**
N549/N550	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.8	x: 0 m η = 54.0	x: 1.461 m η = 3.4	x: 0 m η = 0.9	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 55.0	η < 0.1	η = 2.1	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 55.0**
N550/N551	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.4	x: 2.505 m η = 59.6	x: 1.461 m η = 3.7	x: 2.505 m η = 1.2	x: 0 m η = 1.7	η = 0.4	η < 0.1	η < 0.1	x: 2.505 m η = 61.5	η < 0.1	η = 1.0	x: 0 m η = 1.7	η = 0.4	**CUMPLE h = 61.5**
N551/N552	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.2	x: 0 m η = 59.3	x: 1.252 m η = 3.6	x: 0 m η = 0.4	x: 2.505 m η = 1.3	η = 0.2	η < 0.1	η < 0.1	x: 0.835 m η = 60.4	η < 0.1	η = 2.0	x: 2.505 m η = 1.3	η = 0.2	**CUMPLE h = 60.4**
N552/N553	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.2	x: 2.505 m η = 63.1	x: 1.461 m η = 3.7	x: 2.505 m η = 0.9	x: 0 m η = 1.6	η = 0.3	η < 0.1	η < 0.1	x: 2.087 m η = 64.7	η < 0.1	η = 0.3	x: 0 m η = 1.6	η = 0.3	**CUMPLE h = 64.7**
N553/N554	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.7	x: 0 m η = 64.3	x: 1.252 m η = 4.1	x: 0 m η = 1.0	x: 2.505 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 0.626 m η = 65.9	η < 0.1	η = 0.4	x: 2.505 m η = 1.4	η = 0.3	**CUMPLE h = 65.9**
N554/N555	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.4	x: 2.505 m η = 62.8	x: 1.252 m η = 4.0	x: 2.505 m η = 0.5	x: 0 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 1.879 m η = 63.9	η < 0.1	η = 1.4	x: 0 m η = 1.3	η = 0.3	**CUMPLE h = 63.9**
N555/N556	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 22.0	x: 0 m η = 66.0	x: 1.67 m η = 4.4	x: 0 m η = 1.3	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 67.2	η < 0.1	η = 1.6	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 67.2**
N556/N557	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 20.4	x: 1.252 m η = 59.2	x: 1.252 m η = 9.2	x: 1.252 m η = 0.7	x: 1.252 m η = 3.4	η = 0.6	η < 0.1	η < 0.1	x: 1.252 m η = 66.6	η < 0.1	η = 1.6	x: 1.252 m η = 3.4	η = 0.6	**CUMPLE h = 66.6**
N542/N558	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.8	x: 2.505 m η = 1.8	x: 2.505 m η = 23.9	x: 2.505 m η = 0.7	x: 2.505 m η = 5.0	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 26.9	η < 0.1	η < 0.1	x: 2.505 m η = 5.0	η = 0.3	**CUMPLE h = 26.9**
N558/N559	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.4	x: 0 m η = 5.9	x: 0 m η = 28.6	x: 0 m η = 0.9	x: 0 m η = 5.4	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 46.9	η < 0.1	η = 0.1	x: 0 m η = 5.4	η = 0.4	**CUMPLE h = 46.9**
N559/N560	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.6	x: 2.505 m η = 4.4	x: 0 m η = 2.7	x: 2.505 m η = 0.8	x: 0 m η = 2.0	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 7.0	η < 0.1	η = 0.4	x: 0 m η = 2.0	η = 0.3	**CUMPLE h = 7.0**
N560/N561	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.5	x: 0 m η = 15.5	x: 0 m η = 3.3	x: 0 m η = 0.5	x: 0 m η = 1.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 19.3	η < 0.1	η = 0.7	x: 0 m η = 1.6	η = 0.2	**CUMPLE h = 19.3**
N561/N562	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.5	x: 2.505 m η = 26.2	x: 0 m η = 3.6	x: 2.505 m η = 0.6	x: 0 m η = 1.9	η = 0.2	η < 0.1	η < 0.1	x: 2.087 m η = 29.0	η < 0.1	η = 2.2	x: 0 m η = 2.0	η = 0.2	**CUMPLE h = 29.0**
N562/N563	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.0	x: 0 m η = 38.2	x: 1.67 m η = 2.9	x: 0 m η = 0.4	x: 0 m η = 1.5	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 39.4	η < 0.1	η = 1.2	x: 0 m η = 1.5	η = 0.2	**CUMPLE h = 39.4**
N563/N564	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.9	x: 2.505 m η = 44.6	x: 1.67 m η = 3.4	x: 2.505 m η = 0.2	x: 0 m η = 1.8	η = 0.1	η < 0.1	η < 0.1	x: 1.67 m η = 46.3	η < 0.1	η = 1.4	x: 0 m η = 1.8	η = 0.1	**CUMPLE h = 46.3**
N564/N565	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.8	x: 0 m η = 54.0	x: 1.461 m η = 3.4	x: 0 m η = 0.9	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 55.0	η < 0.1	η = 2.1	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 55.0**
N565/N566	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.5	x: 2.505 m η = 59.6	x: 1.461 m η = 3.7	x: 2.505 m η = 1.2	x: 0 m η = 1.7	η = 0.4	η < 0.1	η < 0.1	x: 2.505 m η = 61.6	η < 0.1	η = 1.0	x: 0 m η = 1.7	η = 0.4	**CUMPLE h = 61.6**
N566/N567	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.2	x: 0 m η = 59.3	x: 1.252 m η = 3.6	x: 0 m η = 0.4	x: 2.505 m η = 1.3	η = 0.2	η < 0.1	η < 0.1	x: 0.835 m η = 60.5	η < 0.1	η = 2.0	x: 2.505 m η = 1.3	η = 0.2	**CUMPLE h = 60.5**
N567/N568	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.3	x: 2.505 m η = 63.2	x: 1.461 m η = 3.7	x: 2.505 m η = 0.9	x: 0 m η = 1.5	η = 0.3	η < 0.1	η < 0.1	x: 2.087 m η = 64.9	η < 0.1	η = 0.4	x: 0 m η = 1.6	η = 0.3	**CUMPLE h = 64.9**
N568/N569	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.8	x: 0 m η = 64.4	x: 1.252 m η = 4.1	x: 0 m η = 1.0	x: 2.505 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 0.626 m η = 66.0	η < 0.1	η = 0.4	x: 2.505 m η = 1.3	η = 0.3	**CUMPLE h = 66.0**
N569/N570	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.5	x: 2.505 m η = 62.8	x: 1.252 m η = 4.0	x: 2.505 m η = 0.5	x: 0 m η = 1.3	η = 0.3	η < 0.1	η < 0.1	x: 1.879 m η = 64.0	η < 0.1	η = 1.4	x: 0 m η = 1.3	η = 0.3	**CUMPLE h = 64.0**
N570/N571	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 22.0	x: 0 m η = 66.0	x: 1.67 m η = 4.4	x: 0 m η = 1.3	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 67.2	η < 0.1	η = 1.6	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 67.2**
N571/N557	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 20.4	x: 1.252 m η = 59.2	x: 1.252 m η = 9.2	x: 1.252 m η = 0.7	x: 1.252 m η = 3.3	η = 0.6	η < 0.1	η < 0.1	x: 1.252 m η = 66.6	η < 0.1	η = 1.6	x: 1.252 m η = 3.4	η = 0.6	**CUMPLE h = 66.6**
N536/N585	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 17.6	x: 2.5 m η = 51.8	x: 2.5 m η = 14.0	x: 2.5 m η = 0.8	x: 2.5 m η = 2.3	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 63.2	η < 0.1	η < 0.1	x: 2.5 m η = 2.3	η = 0.4	**CUMPLE h = 63.2**
N585/N584	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.2	x: 0 m η = 54.1	x: 0 m η = 33.2	x: 0 m η = 0.9	x: 0 m η = 4.2	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 83.2	η < 0.1	η = 0.1	x: 0 m η = 4.2	η = 0.6	**CUMPLE h = 83.2**
N584/N583	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.6	x: 2.5 m η = 40.4	x: 2.5 m η = 1.9	x: 2.5 m η = 2.3	x: 0 m η = 0.5	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 43.3	η < 0.1	η = 0.1	x: 0 m η = 0.5	η = 0.7	**CUMPLE h = 43.3**
N583/N582	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.3	x: 0 m η = 21.6	x: 0 m η = 4.0	x: 0 m η = 2.6	x: 0 m η = 1.0	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 28.2	η < 0.1	η = 0.3	x: 0 m η = 1.0	η = 0.7	**CUMPLE h = 28.2**
N582/N581	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.5	x: 0 m η = 6.7	x: 2.5 m η = 3.4	x: 0 m η = 1.0	x: 0 m η = 0.7	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 7.8	η < 0.1	η = 0.4	x: 0 m η = 0.7	η = 0.7	**CUMPLE h = 7.8**
N581/N580	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.6	x: 2.5 m η = 9.5	x: 2.5 m η = 3.7	x: 2.5 m η = 1.9	x: 0 m η = 0.6	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 21.2	η < 0.1	η = 0.4	x: 0 m η = 0.6	η = 0.5	**CUMPLE h = 21.2**
N580/N579	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 24.1	x: 2.5 m η = 10.8	x: 2.5 m η = 3.6	x: 2.5 m η = 1.9	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 29.6	η < 0.1	η = 0.7	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 29.6**
N579/N578	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 31.5	x: 0 m η = 13.4	x: 2.5 m η = 3.7	x: 0 m η = 2.1	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 36.5	η < 0.1	η = 0.3	x: 0 m η = 0.5	η = 0.1	**CUMPLE h = 36.5**
N578/N577	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 35.8	x: 0 m η = 14.3	x: 2.5 m η = 3.4	x: 0 m η = 1.8	x: 0 m η = 0.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 38.8	η < 0.1	η = 0.1	x: 0 m η = 0.4	η = 0.5	**CUMPLE h = 38.8**
N577/N576	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 37.1	x: 0 m η = 13.8	x: 2.5 m η = 3.4	x: 0 m η = 0.9	x: 0 m η = 0.4	η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 40.1	η < 0.1	η = 1.0	x: 0 m η = 0.4	η = 0.6	**CUMPLE h = 40.1**
N576/N575	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 46.6	x: 2.5 m η = 19.2	x: 1.875 m η = 2.7	x: 2.5 m η = 3.1	x: 0 m η = 0.3	η = 1.0	η < 0.1	η < 0.1	x: 2.5 m η = 52.2	η < 0.1	η = 0.2	x: 0 m η = 0.3	η = 1.0	**CUMPLE h = 52.2**
N575/N574	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 47.0	x: 0 m η = 19.0	x: 2.5 m η = 4.8	x: 0 m η = 2.6	x: 0 m η = 0.5	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 51.1	η < 0.1	η = 0.6	x: 0 m η = 0.5	η = 0.7	**CUMPLE h = 51.1**
N574/N573	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 41.1	x: 0 m η = 15.0	x: 0 m η = 4.6	x: 0 m η = 0.6	x: 2.5 m η = 0.5	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 46.4	η < 0.1	η = 0.3	x: 2.5 m η = 0.5	η = 0.3	**CUMPLE h = 46.4**
N573/N572	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.4	x: 2.5 m η = 14.2	x: 0 m η = 2.6	x: 2.5 m η = 0.4	x: 2.5 m η = 0.5	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 40.8	η < 0.1	η = 0.2	x: 2.5 m η = 0.5	η = 0.2	**CUMPLE h = 40.8**
N572/N586	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 38.9	x: 2.5 m η = 14.1	x: 1.25 m η = 0.8	x: 0 m η = 0.4	x: 0 m η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 1.25 m η = 40.1	η < 0.1	η < 0.1	x: 0 m η = 0.2	η < 0.1	**CUMPLE h = 40.1**
N586/N587	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.4	x: 0 m η = 14.2	x: 2.5 m η = 2.6	x: 0 m η = 0.4	x: 0 m η = 0.5	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 40.8	η < 0.1	η = 0.2	x: 0 m η = 0.5	η = 0.2	**CUMPLE h = 40.8**
N587/N588	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 41.1	x: 2.5 m η = 14.8	x: 2.5 m η = 4.6	x: 2.5 m η = 0.6	x: 0 m η = 0.5	η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 46.4	η < 0.1	η = 0.3	x: 0 m η = 0.5	η = 0.3	**CUMPLE h = 46.4**
N588/N589	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 47.0	x: 2.5 m η = 18.7	x: 0 m η = 4.8	x: 2.5 m η = 2.6	x: 2.5 m η = 0.5	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 51.2	η < 0.1	η = 0.6	x: 2.5 m η = 0.5	η = 0.7	**CUMPLE h = 51.2**
N589/N590	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 46.6	x: 0 m η = 18.7	x: 0.625 m η = 2.7	x: 0 m η = 3.1	x: 2.5 m η = 0.3	η = 1.0	η < 0.1	η < 0.1	x: 0 m η = 52.3	η < 0.1	η = 0.2	x: 2.5 m η = 0.3	η = 1.0	**CUMPLE h = 52.3**
N590/N591	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 37.1	x: 2.5 m η = 13.5	x: 0 m η = 3.4	x: 2.5 m η = 0.9	x: 2.5 m η = 0.4	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 40.1	η < 0.1	η = 1.0	x: 2.5 m η = 0.4	η = 0.6	**CUMPLE h = 40.1**
N591/N592	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 35.8	x: 2.5 m η = 13.8	x: 0 m η = 3.4	x: 2.5 m η = 1.8	x: 2.5 m η = 0.4	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 38.8	η < 0.1	η = 0.1	x: 2.5 m η = 0.4	η = 0.5	**CUMPLE h = 38.8**
N592/N593	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 31.5	x: 2.5 m η = 12.6	x: 0 m η = 3.7	x: 2.5 m η = 2.1	x: 2.5 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 36.5	η < 0.1	η = 0.3	x: 2.5 m η = 0.5	η = 0.1	**CUMPLE h = 36.5**
N593/N594	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 24.1	x: 0 m η = 10.5	x: 0 m η = 3.6	x: 0 m η = 1.9	x: 2.5 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 29.6	η < 0.1	η = 0.7	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 29.6**
N594/N595	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 9.5	x: 0 m η = 3.7	x: 0 m η = 1.9	x: 2.5 m η = 0.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 21.2	η < 0.1	η = 0.4	x: 2.5 m η = 0.6	η = 0.5	**CUMPLE h = 21.2**
N595/N596	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.5	x: 2.5 m η = 6.7	x: 0 m η = 3.4	x: 2.5 m η = 1.0	x: 2.5 m η = 0.7	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 7.8	η < 0.1	η = 0.4	x: 2.5 m η = 0.7	η = 0.7	**CUMPLE h = 7.8**
N596/N597	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.3	x: 2.5 m η = 21.6	x: 2.5 m η = 4.0	x: 2.5 m η = 2.6	x: 2.5 m η = 1.0	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 28.2	η < 0.1	η = 0.3	x: 2.5 m η = 1.0	η = 0.7	**CUMPLE h = 28.2**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N588/N569	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 26.6	x: 0 m η = 0.8	x: 0 m η = 1.5	η < 0.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 27.0	η < 0.1	η < 0.1	η < 0.1	η = 0.1	**CUMPLE h = 27.0**
N588/N570	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.233 m η = 15.4	x: 5.233 m η = 30.8	x: 0 m η = 2.0	x: 5.233 m η = 6.1	x: 0 m η = 0.3	η = 0.6	η < 0.1	η < 0.1	x: 5.233 m η = 38.2	η < 0.1	η = 0.5	x: 0 m η = 0.3	η = 0.6	**CUMPLE h = 38.2**
N587/N570	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.597 m η = 21.0	x: 4.597 m η = 93.5	x: 0 m η = 1.6	x: 4.597 m η = 6.0	η = 0.1	η = 0.5	η < 0.1	η < 0.1	x: 4.597 m η = 96.2	η < 0.1	η < 0.1	η = 0.1	η = 0.5	**CUMPLE h = 96.2**
N587/N571	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 7.8	x: 0 m η = 15.3	x: 0 m η = 3.8	x: 0 m η = 0.9	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 17.2**
N586/N571	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.752 m η = 11.2	x: 0 m η = 53.8	x: 4.752 m η = 2.3	x: 0 m η = 1.0	η = 0.1	η = 0.1	η < 0.1	η < 0.1	x: 4.752 m η = 55.0	η < 0.1	η = 0.1	η = 0.1	η = 0.1	**CUMPLE h = 55.0**
N586/N557	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.989 m η = 11.6	x: 4.989 m η = 14.7	x: 4.989 m η = 4.4	x: 4.989 m η = 3.4	x: 0 m η = 0.4	η = 0.3	η < 0.1	η < 0.1	x: 4.989 m η = 18.0	η < 0.1	η = 0.1	x: 0 m η = 0.4	η = 0.3	**CUMPLE h = 18.0**
N600/N541	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.1	x: 3.536 m η = 35.3	x: 0 m η = 5.1	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.0	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 53.0**
N600/N540	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.5	x: 0 m η = 38.5	x: 0 m η = 14.8	x: 2.5 m η = 0.3	x: 2.5 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.9	η < 0.1	η < 0.1	x: 2.5 m η = 1.7	η = 0.1	**CUMPLE h = 52.9**
N601/N540	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 49.7	x: 0 m η = 36.5	x: 0 m η = 3.3	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 52.8**
N601/N539	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 9.2	x: 2.5 m η = 33.3	x: 0 m η = 11.9	x: 2.5 m η = 0.2	x: 2.5 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.6	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	η = 0.1	**CUMPLE h = 44.6**
N602/N539	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 42.8	x: 0 m η = 31.3	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.4**
N603/N536	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.0	x: 3.536 m η = 39.5	x: 0 m η = 5.1	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.0	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 53.0**
N535/N603	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 11.8	x: 2.5 m η = 38.5	x: 2.5 m η = 14.8	x: 0 m η = 0.3	x: 0 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 52.8	η < 0.1	η < 0.1	x: 0 m η = 1.7	η = 0.1	**CUMPLE h = 52.8**
N604/N535	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 49.7	x: 0 m η = 45.4	x: 0 m η = 3.3	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 52.8**
N534/N604	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 11.4	x: 0 m η = 33.4	x: 2.5 m η = 11.9	x: 0 m η = 0.2	x: 0 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 44.7	η < 0.1	η < 0.1	x: 0 m η = 1.5	η = 0.1	**CUMPLE h = 44.7**
N605/N534	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 42.7	x: 0 m η = 42.8	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.4**
N609/N615	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.3	x: 2.505 m η = 1.5	x: 2.505 m η = 23.8	x: 2.505 m η = 0.6	x: 2.505 m η = 5.1	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 26.3	η < 0.1	η < 0.1	x: 2.505 m η = 5.1	η = 0.2	**CUMPLE h = 26.3**
N615/N616	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.7	x: 0 m η = 6.3	x: 0 m η = 28.6	x: 0 m η = 0.9	x: 0 m η = 5.3	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 47.1	η < 0.1	η = 0.2	x: 0 m η = 5.4	η = 0.3	**CUMPLE h = 47.1**
N616/N617	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.3	x: 2.505 m η = 3.8	x: 0 m η = 3.0	x: 2.505 m η = 0.5	x: 0 m η = 2.1	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 5.3	η < 0.1	η = 0.2	x: 0 m η = 2.1	η = 0.3	**CUMPLE h = 5.3**
N617/N618	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 5.6	x: 0 m η = 13.8	x: 0 m η = 5.8	x: 2.505 m η = 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.6	η < 0.1	η = 0.2	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.6**
N618/N619	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.5	x: 0 m η = 24.3	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.5	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.5**
N619/N620	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 12.5	x: 0 m η = 36.3	x: 1.461 m η = 3.4	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.1	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.1**
N620/N621	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.9	x: 0 m η = 43.9	x: 1.461 m η = 3.7	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 45.8	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 45.8**
N621/N622	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 16.8	x: 0 m η = 49.8	x: 1.461 m η = 3.9	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.8	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.8**
N622/N623	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.4	x: 0 m η = 54.3	x: 1.461 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 56.3	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 56.3**
N623/N624	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.5	x: 0 m η = 57.4	x: 1.252 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 59.4	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 59.4**
N624/N625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.2	x: 2.505 m η = 59.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.5	η < 0.1	η = 0.3	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 61.5**
N625/N626	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.4	x: 0 m η = 60.0	x: 1.252 m η = 4.7	x: 0 m η < 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.3	η < 0.1	η = 0.2	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.3**
N626/N627	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.4	x: 0 m η = 59.9	x: 1.044 m η = 4.2	x: 2.505 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 61.9	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 61.9**
N627/N628	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.5	x: 0 m η = 59.8	x: 1.461 m η = 5.1	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.3	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.3**
N628/N629	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 20.1	x: 0 m η = 55.3	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.8	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 62.8**
N614/N630	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.4	x: 2.505 m η = 1.5	x: 2.505 m η = 23.8	x: 2.505 m η = 0.6	x: 2.505 m η = 5.1	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 26.4	η < 0.1	η < 0.1	x: 2.505 m η = 5.1	η = 0.3	**CUMPLE h = 26.4**
N630/N631	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.8	x: 0 m η = 6.0	x: 0 m η = 28.6	x: 0 m η = 0.9	x: 0 m η = 5.3	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 47.2	η < 0.1	η = 0.2	x: 0 m η = 5.4	η = 0.3	**CUMPLE h = 47.2**
N631/N632	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.3	x: 2.505 m η = 3.8	x: 0 m η = 3.0	x: 2.505 m η = 0.5	x: 0 m η = 2.1	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 5.3	η < 0.1	η = 0.2	x: 0 m η = 2.1	η = 0.3	**CUMPLE h = 5.3**
N632/N633	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 5.3	x: 0 m η = 13.8	x: 0 m η = 5.8	x: 2.505 m η = 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.7	η < 0.1	η = 0.2	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.7**
N633/N634	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 9.1	x: 0 m η = 24.3	x: 0 m η = 4.1	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.5	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.5**
N634/N635	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 12.3	x: 0 m η = 36.3	x: 1.461 m η = 3.4	x: 0 m η = 0.1	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.1	η < 0.1	η < 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 38.1**
N635/N636	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.9	x: 0 m η = 43.9	x: 1.461 m η = 3.7	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 45.8	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 45.8**
N636/N637	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 16.9	x: 0 m η = 49.8	x: 1.461 m η = 3.9	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 51.8	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 51.8**
N637/N638	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 18.4	x: 0 m η = 54.3	x: 1.461 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 56.3	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 56.3**
N638/N639	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.5	x: 0 m η = 57.4	x: 1.252 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 59.5	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 59.5**
N639/N640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.2	x: 2.505 m η = 59.4	x: 1.252 m η = 4.2	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.5	η < 0.1	η = 0.3	x: 0 m η = 2.0	η < 0.1	**CUMPLE h = 61.5**
N640/N641	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.4	x: 0 m η = 60.0	x: 1.252 m η = 4.7	x: 0 m η < 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.3	η < 0.1	η = 0.2	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.3**
N641/N642	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.4	x: 0 m η = 59.9	x: 1.044 m η = 4.2	x: 2.505 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 61.9	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 61.9**
N642/N643	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.5	x: 0 m η = 59.8	x: 1.461 m η = 5.1	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 62.3	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 62.3**
N643/N629	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 20.1	x: 0 m η = 55.3	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.8	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 62.8**
N608/N657	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 16.6	x: 2.5 m η = 49.4	x: 2.5 m η = 14.0	x: 2.5 m η = 0.2	x: 2.5 m η = 2.3	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 60.5	η < 0.1	η < 0.1	x: 2.5 m η = 2.3	η = 0.1	**CUMPLE h = 60.5**
N657/N656	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.1	x: 0 m η = 51.3	x: 0 m η = 33.1	x: 0 m η = 0.4	x: 0 m η = 4.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 80.2	η < 0.1	η < 0.1	x: 0 m η = 4.2	η = 0.1	**CUMPLE h = 80.2**
N656/N655	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 11.2	x: 0 m η = 32.7	x: 2.5 m η = 1.9	x: 0 m η = 0.2	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 33.7	η < 0.1	η < 0.1	x: 0 m η = 0.5	η = 0.1	**CUMPLE h = 33.7**
N655/N654	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.3	x: 0 m η = 13.8	x: 0 m η = 4.1	x: 0 m η = 0.2	x: 0 m η = 1.0	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.2	x: 0 m η = 1.0	η = 0.1	**CUMPLE h = 18.1**
N654/N653	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.3	x: 0 m η = 5.2	x: 2.5 m η = 3.4	x: 2.5 m η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.6	η < 0.1	η = 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 6.6**
N653/N652	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.6	x: 2.5 m η = 5.9	x: 2.5 m η = 3.6	x: 2.5 m η = 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.7	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 13.7**
N652/N651	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 18.6	x: 2.5 m η = 7.1	x: 2.5 m η = 3.6	x: 2.5 m η = 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 22.3	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 22.3**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N749/N678	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 42.4	x: 0 m η = 45.4	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.4**
N753/N759	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.2	x: 2.505 m η = 2.7	x: 2.505 m η = 24.3	x: 2.505 m η = 0.9	x: 2.505 m η = 5.3	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 28.4	η < 0.1	η = 0.1	x: 2.505 m η = 5.3	η = 0.5	**CUMPLE h = 28.4**
N759/N760	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.5	x: 0 m η = 7.6	x: 0 m η = 28.5	x: 0 m η = 1.2	x: 0 m η = 5.6	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 48.1	η < 0.1	η = 0.2	x: 0 m η = 5.6	η = 0.4	**CUMPLE h = 48.1**
N760/N761	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.6	x: 2.505 m η = 4.3	x: 0 m η = 3.1	x: 2.505 m η = 0.6	x: 0 m η = 2.1	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 6.3	η < 0.1	η = 0.2	x: 0 m η = 2.1	η = 0.4	**CUMPLE h = 6.3**
N761/N762	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.2	x: 0 m η = 13.9	x: 0 m η = 5.7	x: 0 m η = 0.2	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.7	η < 0.1	η = 0.2	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.7**
N762/N763	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.5	x: 0 m η = 24.1	x: 0 m η = 4.0	x: 0 m η = 0.2	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.3	η < 0.1	η = 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.3**
N763/N764	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.9	x: 0 m η = 35.7	x: 1.461 m η = 3.3	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 37.5	η < 0.1	η = 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 37.5**
N764/N765	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.7	x: 0 m η = 43.0	x: 1.461 m η = 3.7	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 44.9	η < 0.1	η = 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 44.9**
N765/N766	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.0	x: 0 m η = 48.9	x: 1.461 m η = 3.9	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 50.7	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 50.7**
N766/N767	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.8	x: 0 m η = 53.5	x: 1.461 m η = 4.0	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 55.4	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 55.4**
N767/N768	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 22.2	x: 0 m η = 56.9	x: 1.252 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 58.7	η < 0.1	η = 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 58.7**
N768/N769	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.4	x: 2.505 m η = 59.7	x: 1.461 m η = 4.3	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η = 0.1	η < 0.1	η < 0.1	x: 1.67 m η = 61.7	η < 0.1	η = 0.5	x: 0 m η = 2.0	η = 0.1	**CUMPLE h = 61.7**
N769/N770	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 23.4	x: 0 m η = 59.7	x: 1.252 m η = 4.9	x: 0 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.1	η < 0.1	η = 0.3	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.1**
N770/N771	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.4	x: 0 m η = 59.6	x: 1.044 m η = 4.2	x: 0 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.4	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 61.4**
N771/N772	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.4	x: 0 m η = 59.2	x: 1.461 m η = 5.1	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 61.5	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 61.5**
N772/N773	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 22.9	x: 0 m η = 52.4	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.7	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.2	η < 0.1	η < 0.1	x: 1.252 m η = 3.7	η < 0.1	**CUMPLE h = 62.2**
N758/N774	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.3	x: 2.505 m η = 2.8	x: 2.505 m η = 24.3	x: 2.505 m η = 1.0	x: 2.505 m η = 5.3	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 28.5	η < 0.1	η = 0.1	x: 2.505 m η = 5.3	η = 0.5	**CUMPLE h = 28.5**
N774/N775	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.6	x: 0 m η = 7.2	x: 0 m η = 28.5	x: 0 m η = 1.2	x: 0 m η = 5.6	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 48.2	η < 0.1	η = 0.2	x: 0 m η = 5.6	η = 0.4	**CUMPLE h = 48.2**
N775/N776	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.6	x: 2.505 m η = 4.3	x: 0 m η = 3.1	x: 2.505 m η = 0.7	x: 0 m η = 2.1	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 6.3	η < 0.1	η = 0.2	x: 0 m η = 2.1	η = 0.4	**CUMPLE h = 6.3**
N776/N777	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.9	x: 0 m η = 13.8	x: 0 m η = 5.7	x: 0 m η = 0.2	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.7	η < 0.1	η = 0.2	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 19.7**
N777/N778	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.2	x: 0 m η = 24.1	x: 0 m η = 4.0	x: 0 m η = 0.2	x: 0 m η = 2.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.2	η < 0.1	η = 0.1	x: 0 m η = 2.4	η < 0.1	**CUMPLE h = 28.2**
N778/N779	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.7	x: 0 m η = 35.7	x: 1.461 m η = 3.3	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 37.5	η < 0.1	η = 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 37.5**
N779/N780	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.7	x: 0 m η = 43.0	x: 1.461 m η = 3.7	x: 0 m η = 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 44.8	η < 0.1	η = 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 44.8**
N780/N781	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.0	x: 0 m η = 48.9	x: 1.461 m η = 3.9	x: 2.505 m η = 0.1	x: 0 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 50.7	η < 0.1	η < 0.1	x: 0 m η = 2.2	η < 0.1	**CUMPLE h = 50.7**
N781/N782	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.8	x: 0 m η = 53.5	x: 1.461 m η = 4.0	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 55.4	η < 0.1	η < 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 55.4**
N782/N783	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 22.2	x: 0 m η = 56.9	x: 1.252 m η = 4.1	x: 2.505 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 58.7	η < 0.1	η = 0.1	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 58.7**
N783/N784	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.3	x: 2.505 m η = 59.6	x: 1.461 m η = 4.3	x: 2.505 m η = 0.1	x: 0 m η = 2.0	η = 0.1	η < 0.1	η < 0.1	x: 1.67 m η = 61.7	η < 0.1	η = 0.5	x: 0 m η = 2.0	η = 0.1	**CUMPLE h = 61.7**
N784/N785	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 23.3	x: 0 m η = 59.7	x: 1.252 m η = 4.9	x: 0 m η = 0.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.0	η < 0.1	η = 0.3	x: 0 m η = 2.1	η < 0.1	**CUMPLE h = 62.0**
N785/N786	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.4	x: 2.505 m η = 59.5	x: 1.044 m η = 4.2	x: 0 m η < 0.1	x: 2.505 m η = 2.2	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 61.4	η < 0.1	η < 0.1	x: 2.505 m η = 2.2	η < 0.1	**CUMPLE h = 61.4**
N786/N787	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.4	x: 0 m η = 59.2	x: 1.461 m η = 5.0	x: 2.505 m η < 0.1	x: 0 m η = 2.3	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 61.4	η < 0.1	η < 0.1	x: 0 m η = 2.3	η < 0.1	**CUMPLE h = 61.4**
N787/N773	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 22.9	x: 0 m η = 52.4	x: 1.252 m η = 9.8	x: 1.252 m η < 0.1	x: 1.252 m η = 3.7	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 62.1	η < 0.1	η < 0.1	x: 1.252 m η = 3.7	η < 0.1	**CUMPLE h = 62.1**
N752/N801	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 19.0	x: 2.5 m η = 49.3	x: 2.5 m η = 13.8	x: 2.5 m η = 0.4	x: 2.5 m η = 2.3	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 60.3	η < 0.1	η < 0.1	x: 2.5 m η = 2.3	η = 0.2	**CUMPLE h = 60.3**
N801/N800	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.7	x: 0 m η = 51.3	x: 0 m η = 32.5	x: 0 m η = 0.4	x: 0 m η = 4.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 79.7	η < 0.1	η = 0.1	x: 0 m η = 4.1	η = 0.1	**CUMPLE h = 79.7**
N800/N799	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 12.8	x: 0 m η = 32.3	x: 2.5 m η = 1.9	x: 0 m η = 0.2	x: 0 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 33.2	η < 0.1	η = 0.1	x: 0 m η = 0.5	η = 0.1	**CUMPLE h = 33.2**
N799/N798	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.0	x: 0 m η = 13.8	x: 0 m η = 4.1	x: 0 m η = 0.2	x: 0 m η = 1.0	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.4	x: 0 m η = 1.0	η = 0.1	**CUMPLE h = 18.1**
N798/N797	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.7	x: 2.5 m η = 5.3	x: 2.5 m η = 3.3	x: 0 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 7.1	η < 0.1	η = 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 7.1**
N797/N796	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 11.1	x: 2.5 m η = 6.4	x: 2.5 m η = 3.6	x: 0 m η = 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 14.3	η < 0.1	η = 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 14.3**
N796/N795	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 18.3	x: 2.5 m η = 7.9	x: 2.5 m η = 3.6	x: 2.5 m η = 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 21.9	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 21.9**
N795/N794	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 24.9	x: 2.5 m η = 10.6	x: 2.5 m η = 3.5	x: 2.5 m η = 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 28.4	η < 0.1	η = 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 28.4**
N794/N793	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 30.3	x: 2.5 m η = 12.8	x: 2.5 m η = 3.4	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 33.8	η < 0.1	η = 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 33.8**
N793/N792	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 34.6	x: 2.5 m η = 14.6	x: 2.5 m η = 3.4	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 38.1	η < 0.1	η = 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 38.1**
N792/N791	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 37.8	x: 2.5 m η = 15.9	x: 1.667 m η = 2.6	x: 2.5 m η = 0.1	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 2.083 m η = 40.5	η < 0.1	η = 0.4	x: 2.5 m η = 0.3	η < 0.1	**CUMPLE h = 40.5**
N791/N790	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.8	x: 0 m η = 16.7	x: 2.5 m η = 5.6	x: 2.5 m η = 0.1	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 45.5	η < 0.1	η = 0.5	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 45.5**
N790/N789	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.3	x: 2.5 m η = 16.5	x: 0 m η = 5.3	x: 0 m η < 0.1	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.6	η < 0.1	η = 0.1	x: 2.5 m η = 0.6	η < 0.1	**CUMPLE h = 44.6**
N789/N788	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 38.2	x: 2.5 m η = 16.0	x: 0 m η = 2.6	x: 0 m η < 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 40.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 40.5**
N788/N802	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 37.7	x: 2.5 m η = 15.8	x: 1.25 m η = 0.8	η < 0.1	x: 0 m η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 1.25 m η = 38.4	η < 0.1	η < 0.1	x: 0 m η = 0.2	η < 0.1	**CUMPLE h = 38.4**
N802/N803	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 38.2	x: 2.5 m η = 16.0	x: 2.5 m η = 2.6	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 40.5	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 40.5**
N803/N804	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.3	x: 0 m η = 16.5	x: 2.5 m η = 5.3	x: 2.5 m η < 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 44.6	η < 0.1	η = 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 44.6**
N804/N805	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.8	x: 2.5 m η = 16.5	x: 0 m η = 5.6	x: 0 m η = 0.1	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.5	η < 0.1	η = 0.5	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 45.5**
N805/N806	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 37.8	x: 0 m η = 15.7	x: 0.833 m η = 2.6	x: 0 m η = 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0.417 m η = 40.5	η < 0.1	η = 0.4	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 40.5**
N806/N807	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 34.5	x: 0 m η = 14.3	x: 0 m η = 3.4	x: 0 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 38.1	η < 0.1	η = 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 38.1**
N807/N808	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 30.3	x: 0 m η = 12.6	x: 0 m η = 3.4	x: 0 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.7	η < 0.1	η = 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 33.7**
N808/N809	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 24.9	x: 0 m η = 10.3	x: 0 m η = 3.5	x: 0 m η = 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.4	η < 0.1	η = 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 28.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_tM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N806/N783	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.132 m η = 8.8	x: 4.132 m η = 65.4	x: 0 m η = 2.4	x: 4.132 m η = 0.5	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 4.132 m η = 67.1	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 67.1**
N805/N783	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.3	x: 0 m η = 8.4	x: 4.829 m η = 3.2	x: 0 m η = 1.4	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η = 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 14.8**
N805/N784	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.287 m η = 6.5	x: 0 m η = 82.8	x: 0 m η = 1.8	x: 4.287 m η = 2.3	η = 0.1	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 84.6	η < 0.1	η < 0.1	η = 0.1	η = 0.3	**CUMPLE h = 84.6**
N804/N784	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.963 m η = 6.3	x: 4.963 m η = 10.7	x: 0 m η = 2.3	x: 4.963 m η = 1.5	x: 0 m η = 0.3	η = 0.2	η < 0.1	η < 0.1	x: 4.963 m η = 11.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.2	**CUMPLE h = 11.8**
N804/N785	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 2.3	x: 0 m η = 17.8	x: 0 m η = 1.0	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η < 0.1	η < 0.1	η < 0.1	**CUMPLE h = 17.8**
N804/N786	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.4	x: 0 m η = 12.1	x: 5.233 m η = 2.1	x: 0 m η = 0.3	x: 5.233 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 5.233 m η = 13.0	η < 0.1	η < 0.1	x: 5.233 m η = 0.3	η < 0.1	**CUMPLE h = 13.0**
N803/N786	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.597 m η = 12.7	x: 0 m η = 51.0	x: 0 m η = 1.7	x: 4.597 m η = 0.1	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 51.9	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 51.9**
N803/N787	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.37 m η = 7.0	x: 0 m η = 14.0	x: 5.37 m η = 4.2	x: 0 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 5.37 m η = 16.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 16.2**
N802/N787	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.752 m η = 12.3	x: 0 m η = 55.0	x: 4.752 m η = 2.5	x: 4.752 m η < 0.1	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 56.2	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 56.2**
N802/N773	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.989 m η = 6.9	x: 0 m η = 12.0	x: 4.989 m η = 4.5	x: 4.989 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 4.989 m η = 14.6	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 14.6**
N816/N757	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 47.3	x: 3.536 m η = 41.6	x: 0 m η = 4.9	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 52.1**
N816/N756	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 12.5	x: 2.5 m η = 38.0	x: 0 m η = 14.6	x: 2.5 m η = 0.5	x: 2.5 m η = 1.7	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 52.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.7	η = 0.2	**CUMPLE h = 52.1**
N817/N756	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.7	x: 0 m η = 43.0	x: 0 m η = 3.3	x: 3.536 m η = 0.2	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.0	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 52.0**
N817/N755	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.9	x: 2.5 m η = 33.0	x: 0 m η = 11.8	x: 2.5 m η = 0.3	x: 2.5 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.3	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	η = 0.1	**CUMPLE h = 44.3**
N818/N755	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.0	x: 0 m η = 36.7	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 44.8**
N819/N752	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 47.2	x: 3.536 m η = 45.8	x: 0 m η = 4.9	x: 3.536 m η = 0.3	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.0	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 52.0**
N751/N819	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.8	x: 0 m η = 38.0	x: 2.5 m η = 14.6	x: 0 m η = 0.5	x: 0 m η = 1.7	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 52.0	η < 0.1	η < 0.1	x: 0 m η = 1.7	η = 0.2	**CUMPLE h = 52.0**
N820/N751	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 48.7	x: 0 m η = 51.9	x: 0 m η = 3.3	x: 3.536 m η = 0.2	x: 3.536 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 53.7	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η < 0.1	**CUMPLE h = 53.7**
N750/N820	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.2	x: 0 m η = 33.0	x: 2.5 m η = 11.7	x: 0 m η = 0.3	x: 0 m η = 1.5	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 44.2	η < 0.1	η < 0.1	x: 0 m η = 1.5	η = 0.1	**CUMPLE h = 44.2**
N821/N750	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.0	x: 0 m η = 48.3	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 47.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 48.3**
N825/N831	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.1	x: 2.505 m η = 3.6	x: 2.505 m η = 27.6	x: 2.505 m η = 1.2	x: 2.505 m η = 6.0	η = 0.8	η < 0.1	η < 0.1	x: 2.505 m η = 32.8	η < 0.1	η = 0.1	x: 2.505 m η = 6.0	η = 0.8	**CUMPLE h = 32.8**
N831/N832	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.7	x: 0 m η = 7.9	x: 0 m η = 33.4	x: 0 m η = 1.3	x: 0 m η = 6.7	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 53.2	η < 0.1	η = 0.3	x: 0 m η = 6.7	η = 0.3	**CUMPLE h = 53.2**
N832/N833	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 5.1	x: 0 m η = 7.9	x: 2.505 m η = 3.7	x: 0 m η = 0.7	x: 0 m η = 2.5	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.6	η < 0.1	η = 0.6	x: 0 m η = 2.5	η = 0.4	**CUMPLE h = 11.6**
N833/N834	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 9.2	x: 0 m η = 18.2	x: 0 m η = 3.2	x: 0 m η = 0.9	x: 0 m η = 1.7	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 21.6	η < 0.1	η = 1.2	x: 0 m η = 1.7	η = 0.4	**CUMPLE h = 21.6**
N834/N835	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.6	x: 2.505 m η = 33.9	x: 0 m η = 4.3	x: 2.505 m η = 1.2	x: 0 m η = 2.3	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 36.2	η < 0.1	η = 2.4	x: 0 m η = 2.3	η = 0.5	**CUMPLE h = 36.2**
N835/N836	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.4	x: 2.505 m η = 39.0	x: 1.67 m η = 3.2	x: 2.505 m η = 0.5	x: 0 m η = 1.6	η = 0.3	η < 0.1	η < 0.1	x: 2.087 m η = 40.3	η < 0.1	η = 2.6	x: 0 m η = 1.6	η = 0.3	**CUMPLE h = 40.3**
N836/N837	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.7	x: 2.505 m η = 49.9	x: 1.67 m η = 3.8	x: 2.505 m η = 1.1	x: 0 m η = 2.1	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 52.2	η < 0.1	η = 2.6	x: 0 m η = 2.1	η = 0.4	**CUMPLE h = 52.2**
N837/N838	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 22.4	x: 2.505 m η = 55.2	x: 1.461 m η = 3.8	x: 2.505 m η = 0.9	x: 2.505 m η = 1.5	η = 0.4	η < 0.1	η < 0.1	x: 2.087 m η = 56.6	η < 0.1	η = 2.5	x: 2.505 m η = 1.5	η = 0.4	**CUMPLE h = 56.6**
N838/N839	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 25.8	x: 2.505 m η = 63.6	x: 1.461 m η = 4.2	x: 2.505 m η = 2.0	x: 0 m η = 1.9	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 66.3	η < 0.1	η = 3.1	x: 0 m η = 1.9	η = 0.5	**CUMPLE h = 66.3**
N839/N840	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.0	x: 0 m η = 64.6	x: 1.252 m η = 3.8	x: 0 m η = 0.8	x: 2.505 m η = 1.7	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 65.7	η < 0.1	η = 2.5	x: 2.505 m η = 1.7	η = 0.6	**CUMPLE h = 65.7**
N840/N841	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 28.2	x: 2.505 m η = 70.3	x: 1.461 m η = 3.8	x: 2.505 m η = 2.0	x: 0 m η = 1.9	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 72.7	η < 0.1	η = 1.4	x: 0 m η = 1.9	η = 0.5	**CUMPLE h = 72.7**
N841/N842	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 29.5	x: 0 m η = 73.3	x: 1.252 m η = 4.4	x: 0 m η = 2.2	x: 2.505 m η = 1.5	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 75.5	η < 0.1	η = 0.7	x: 2.505 m η = 1.5	η = 0.7	**CUMPLE h = 75.5**
N842/N843	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 27.5	x: 2.505 m η = 69.6	x: 1.252 m η = 4.5	x: 2.505 m η = 1.1	x: 0 m η = 1.6	η = 0.7	η < 0.1	η < 0.1	x: 2.505 m η = 71.0	η < 0.1	η = 2.1	x: 0 m η = 1.6	η = 0.7	**CUMPLE h = 71.0**
N843/N844	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 30.0	x: 0 m η = 73.3	x: 1.67 m η = 5.1	x: 0 m η = 2.3	x: 0 m η = 1.8	η = 0.9	η < 0.1	η < 0.1	x: 0 m η = 75.6	η < 0.1	η = 3.0	x: 0 m η = 1.8	η = 0.9	**CUMPLE h = 75.6**
N844/N845	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 26.6	x: 1.252 m η = 62.9	x: 1.252 m η = 8.5	x: 1.252 m η = 0.7	x: 1.252 m η = 3.3	η = 0.8	η < 0.1	η < 0.1	x: 1.252 m η = 69.5	η < 0.1	η = 2.5	x: 1.252 m η = 3.3	η = 0.8	**CUMPLE h = 69.5**
N830/N846	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.1	x: 2.505 m η = 3.7	x: 2.505 m η = 27.5	x: 2.505 m η = 1.2	x: 2.505 m η = 6.0	η = 0.8	η < 0.1	η < 0.1	x: 2.505 m η = 32.9	η < 0.1	η = 0.1	x: 2.505 m η = 6.0	η = 0.8	**CUMPLE h = 32.9**
N846/N847	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 0 m η = 7.5	x: 0 m η = 33.2	x: 0 m η = 1.3	x: 0 m η = 6.6	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 53.3	η < 0.1	η = 0.3	x: 0 m η = 6.6	η = 0.3	**CUMPLE h = 53.3**
N847/N848	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 5.1	x: 0 m η = 7.8	x: 0 m η = 3.5	x: 0 m η = 0.7	x: 0 m η = 2.5	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.5	η < 0.1	η = 0.6	x: 0 m η = 2.5	η = 0.4	**CUMPLE h = 11.5**
N848/N849	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 8.9	x: 0 m η = 18.1	x: 0 m η = 3.2	x: 0 m η = 0.9	x: 0 m η = 1.7	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 21.2	η < 0.1	η = 1.2	x: 0 m η = 1.7	η = 0.4	**CUMPLE h = 21.2**
N849/N850	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 14.0	x: 2.505 m η = 33.6	x: 0 m η = 4.3	x: 2.505 m η = 1.2	x: 0 m η = 2.3	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 35.8	η < 0.1	η = 2.4	x: 0 m η = 2.3	η = 0.5	**CUMPLE h = 35.8**
N850/N851	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.9	x: 2.505 m η = 38.8	x: 1.461 m η = 3.2	x: 2.505 m η = 0.5	x: 0 m η = 1.6	η = 0.3	η < 0.1	η < 0.1	x: 2.087 m η = 40.1	η < 0.1	η = 2.6	x: 0 m η = 1.6	η = 0.3	**CUMPLE h = 40.1**
N851/N852	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 20.4	x: 2.505 m η = 49.7	x: 1.67 m η = 3.8	x: 2.505 m η = 1.1	x: 0 m η = 2.1	η = 0.3	η < 0.1	η < 0.1	x: 2.505 m η = 51.8	η < 0.1	η = 2.6	x: 0 m η = 2.1	η = 0.3	**CUMPLE h = 51.8**
N852/N853	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 22.3	x: 2.505 m η = 55.1	x: 1.461 m η = 3.8	x: 2.505 m η = 0.9	x: 2.505 m η = 1.5	η = 0.4	η < 0.1	η < 0.1	x: 2.087 m η = 56.5	η < 0.1	η = 2.5	x: 2.505 m η = 1.5	η = 0.4	**CUMPLE h = 56.5**
N853/N854	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 25.7	x: 2.505 m η = 63.4	x: 1.461 m η = 4.1	x: 2.505 m η = 2.0	x: 0 m η = 1.9	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 66.0	η < 0.1	η = 3.1	x: 0 m η = 1.9	η = 0.5	**CUMPLE h = 66.0**
N854/N855	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 25.9	x: 0 m η = 64.4	x: 1.252 m η = 3.8	x: 0 m η = 0.8	x: 2.505 m η = 1.7	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 65.5	η < 0.1	η = 2.5	x: 2.505 m η = 1.7	η = 0.6	**CUMPLE h = 65.5**
N855/N856	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 28.1	x: 2.505 m η = 70.1	x: 1.461 m η = 3.7	x: 2.505 m η = 2.0	x: 0 m η = 1.9	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 72.5	η < 0.1	η = 1.4	x: 0 m η = 1.9	η = 0.5	**CUMPLE h = 72.5**
N856/N857	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 29.5	x: 0 m η = 73.2	x: 1.252 m η = 4.4	x: 0 m η = 2.2	x: 2.505 m η = 1.5	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 75.4	η < 0.1	η = 0.7	x: 2.505 m η = 1.5	η = 0.7	**CUMPLE h = 75.4**
N857/N858	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 27.5	x: 2.505 m η = 69.5	x: 1.252 m η = 4.5	x: 2.505 m η = 1.1	x: 0 m η = 1.6	η = 0.7	η < 0.1	η < 0.1	x: 2.505 m η = 70.9	η < 0.1	η = 2.1	x: 0 m η = 1.6	η = 0.7	**CUMPLE h = 70.9**
N858/N859	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 30.0	x: 0 m η = 73.3	x: 1.67 m η = 5.2	x: 0 m η = 2.3	x: 0 m η = 1.8	η = 0.9	η < 0.1	η < 0.1	x: 0 m η = 75.5	η < 0.1	η = 3.0	x: 0 m η = 1.8	η = 0.9	**CUMPLE h = 75.5**
N859/N845	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 26.6	x: 1.252 m η = 62.9	x: 1.252 m η = 8.6	x: 1.252 m η = 0.7	x: 1.252 m η = 3.3	η = 0.8	η < 0.1	η < 0.1	x: 1.252 m η = 69.6	η < 0.1	η = 2.4	x: 1.252 m η = 3.4	η = 0.8	**CUMPLE h = 69.6**
N824/N873	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 21.8	x: 2.5 m η = 55.5	x: 2.5 m η = 15.6	x: 2.5 m η = 0.5	x: 2.5 m η = 2.5	η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 67.9	η < 0.1	η < 0.1	x: 2.5 m η = 2.5	η = 0.3	**CUMPLE h = 67.9**
N873/N872	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 23.0	x: 0 m η = 55.4	x: 0 m η = 36.6	x: 0 m η = 0.5	x: 0 m η = 4.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 87.3	η < 0.1	η = 0.1	x: 0 m η = 4.7	η = 0.1	**CUMPLE h = 87.3**
N872/N871	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 13.8	x: 2.5 m η = 33.5	x: 2.5 m η = 2.4	x: 2.5 m η = 0.4	x: 0 m η = 0.5	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 34.9	η < 0.1	η = 0.3	x: 0 m η = 0.5	η = 0.2	**CUMPLE h = 34.9**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_yV_z	M_zV_y	
N1596/N1577	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 2.3	x: 0 m η = 17.1	x: 0 m η = 0.9	x: 0 m η = 0.2	η < 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.0	η < 0.1	η < 0.1	η < 0.1	η < 0.1	**CUMPLE h = 17.1**
N1596/N1578	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.233 m η = 5.2	x: 0 m η = 11.7	x: 5.233 m η = 1.9	x: 0 m η = 0.3	x: 5.233 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.4	η < 0.1	η < 0.1	x: 5.233 m η = 0.3	η < 0.1	**CUMPLE h = 12.4**
N1595/N1578	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.597 m η = 12.1	x: 0 m η = 49.9	x: 0 m η = 1.6	x: 4.597 m η = 0.1	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 50.7	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 50.7**
N1595/N1579	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.37 m η = 6.9	x: 0 m η = 13.3	x: 5.37 m η = 4.0	x: 0 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 5.37 m η = 15.4	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 15.4**
N1594/N1579	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.752 m η = 11.8	x: 0 m η = 53.8	x: 4.752 m η = 2.4	x: 4.752 m η < 0.1	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 54.9	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 54.9**
N1594/N1565	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.989 m η = 6.7	x: 0 m η = 11.5	x: 4.989 m η = 4.4	x: 4.989 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 4.989 m η = 14.0	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 14.0**
N1608/N1549	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 47.9	x: 3.536 m η = 40.3	x: 0 m η = 5.0	x: 3.536 m η = 0.5	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.3	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 52.3**
N1608/N1548	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 11.9	x: 0 m η = 38.2	x: 0 m η = 14.6	x: 2.5 m η = 0.3	x: 2.5 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.3	η < 0.1	η < 0.1	x: 2.5 m η = 1.7	η = 0.1	**CUMPLE h = 52.3**
N1609/N1548	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 49.1	x: 0 m η = 41.7	x: 0 m η = 3.3	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.4	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 52.4**
N1609/N1547	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 10.4	x: 2.5 m η = 32.7	x: 0 m η = 11.8	x: 2.5 m η = 0.1	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 43.9	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	η < 0.1	**CUMPLE h = 43.9**
N1610/N1547	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.3	x: 0 m η = 35.6	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 45.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 45.1**
N1611/N1544	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 47.9	x: 3.536 m η = 44.6	x: 0 m η = 5.0	x: 3.536 m η = 0.5	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.3	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 52.3**
N1543/N1611	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 13.2	x: 2.5 m η = 38.1	x: 2.5 m η = 14.6	x: 0 m η = 0.3	x: 0 m η = 1.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 52.3	η < 0.1	η < 0.1	x: 0 m η = 1.7	η = 0.1	**CUMPLE h = 52.3**
N1612/N1543	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 49.1	x: 0 m η = 50.6	x: 0 m η = 3.3	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 52.5**
N1542/N1612	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 12.6	x: 0 m η = 32.7	x: 2.5 m η = 11.8	x: 0 m η = 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 43.9	η < 0.1	η < 0.1	x: 0 m η = 1.5	η < 0.1	**CUMPLE h = 43.9**
N1613/N1542	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.4	x: 0 m η = 47.2	x: 0 m η = 2.7	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.652 m η = 46.3	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 47.2**
N1617/N1623	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.1	x: 2.505 m η = 1.6	x: 2.505 m η = 27.3	x: 2.505 m η = 0.6	x: 2.505 m η = 5.9	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 30.1	η < 0.1	η = 0.1	x: 2.505 m η = 5.9	η = 0.5	**CUMPLE h = 30.1**
N1623/N1624	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.7	x: 2.505 m η = 7.6	x: 0 m η = 29.9	x: 0 m η = 0.5	x: 0 m η = 6.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 48.8	η < 0.1	η = 0.1	x: 0 m η = 6.2	η = 0.1	**CUMPLE h = 48.8**
N1624/N1625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.3	x: 0 m η = 3.9	x: 0 m η = 6.0	x: 2.505 m η = 0.2	x: 0 m η = 2.9	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 9.0	η < 0.1	η = 0.1	x: 0 m η = 2.9	η = 0.1	**CUMPLE h = 9.0**
N1625/N1626	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 7.3	x: 0 m η = 16.1	x: 0 m η = 7.5	x: 0 m η = 0.1	x: 0 m η = 3.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.4	η < 0.1	η = 0.1	x: 0 m η = 3.2	η < 0.1	**CUMPLE h = 23.4**
N1626/N1627	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 12.4	x: 0 m η = 28.0	x: 0 m η = 5.6	x: 0 m η = 0.1	x: 0 m η = 3.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.7	η < 0.1	η = 0.1	x: 0 m η = 3.1	η < 0.1	**CUMPLE h = 33.7**
N1627/N1628	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.3	x: 0 m η = 41.9	x: 0 m η = 4.5	x: 0 m η = 0.1	x: 0 m η = 2.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.6	η < 0.1	η = 0.1	x: 0 m η = 2.9	η < 0.1	**CUMPLE h = 44.6**
N1628/N1629	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.4	x: 0 m η = 50.6	x: 1.461 m η = 4.3	x: 0 m η < 0.1	x: 0 m η = 2.8	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 52.7	η < 0.1	η = 0.1	x: 0 m η = 2.8	η < 0.1	**CUMPLE h = 52.7**
N1629/N1630	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 21.9	x: 0 m η = 57.3	x: 1.461 m η = 4.5	x: 2.505 m η < 0.1	x: 0 m η = 2.7	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 59.5	η < 0.1	η = 0.1	x: 0 m η = 2.7	η < 0.1	**CUMPLE h = 59.5**
N1630/N1631	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.7	x: 2.505 m η = 62.4	x: 1.461 m η = 4.7	x: 2.505 m η < 0.1	x: 0 m η = 2.7	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 64.8	η < 0.1	η < 0.1	x: 0 m η = 2.7	η < 0.1	**CUMPLE h = 64.8**
N1631/N1632	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 25.0	x: 2.505 m η = 66.0	x: 1.252 m η = 4.6	x: 2.505 m η = 0.1	x: 0 m η = 2.5	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 68.3	η < 0.1	η = 0.1	x: 0 m η = 2.5	η < 0.1	**CUMPLE h = 68.3**
N1632/N1633	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 25.8	x: 0 m η = 68.3	x: 1.461 m η = 4.7	x: 0 m η = 0.1	x: 0 m η = 2.6	η = 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 70.4	η < 0.1	η = 0.3	x: 0 m η = 2.6	η = 0.1	**CUMPLE h = 70.4**
N1633/N1634	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.0	x: 0 m η = 69.0	x: 1.252 m η = 5.3	x: 0 m η = 0.1	x: 0 m η = 2.5	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 71.5	η < 0.1	η = 0.2	x: 0 m η = 2.5	η < 0.1	**CUMPLE h = 71.5**
N1634/N1635	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.1	x: 0 m η = 68.9	x: 1.044 m η = 4.8	x: 2.505 m η < 0.1	x: 2.505 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 71.3	η < 0.1	η < 0.1	x: 2.505 m η = 2.6	η < 0.1	**CUMPLE h = 71.3**
N1635/N1636	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.2	x: 0 m η = 68.9	x: 1.461 m η = 5.5	x: 2.505 m η < 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 71.6	η < 0.1	η < 0.1	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 71.6**
N1636/N1637	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 25.7	x: 0 m η = 63.9	x: 1.252 m η = 8.9	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 70.1	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 70.1**
N1622/N1638	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 2.2	x: 2.505 m η = 1.6	x: 2.505 m η = 27.3	x: 2.505 m η = 0.6	x: 2.505 m η = 5.9	η = 0.5	η < 0.1	η < 0.1	x: 2.505 m η = 30.1	η < 0.1	η = 0.1	x: 2.505 m η = 5.9	η = 0.5	**CUMPLE h = 30.1**
N1638/N1639	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.7	x: 2.505 m η = 7.2	x: 0 m η = 29.9	x: 0 m η = 0.5	x: 0 m η = 6.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 48.8	η < 0.1	η = 0.1	x: 0 m η = 6.2	η = 0.1	**CUMPLE h = 48.8**
N1639/N1640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.3	x: 0 m η = 3.9	x: 0 m η = 6.0	x: 2.505 m η = 0.2	x: 0 m η = 2.9	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 9.0	η < 0.1	η = 0.1	x: 0 m η = 2.9	η = 0.1	**CUMPLE h = 9.0**
N1640/N1641	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 7.3	x: 0 m η = 16.1	x: 0 m η = 7.5	x: 0 m η = 0.1	x: 0 m η = 3.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.4	η < 0.1	η < 0.1	x: 0 m η = 3.2	η < 0.1	**CUMPLE h = 23.4**
N1641/N1642	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 12.0	x: 0 m η = 28.0	x: 0 m η = 5.6	x: 0 m η = 0.1	x: 0 m η = 3.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.7	η < 0.1	η = 0.1	x: 0 m η = 3.1	η < 0.1	**CUMPLE h = 33.7**
N1642/N1643	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.1	x: 0 m η = 41.9	x: 0 m η = 4.5	x: 0 m η = 0.1	x: 0 m η = 2.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 44.5	η < 0.1	η = 0.1	x: 0 m η = 2.9	η < 0.1	**CUMPLE h = 44.5**
N1643/N1644	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 19.4	x: 0 m η = 50.6	x: 1.461 m η = 4.3	x: 0 m η < 0.1	x: 0 m η = 2.8	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 52.7	η < 0.1	η = 0.1	x: 0 m η = 2.8	η < 0.1	**CUMPLE h = 52.7**
N1644/N1645	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 21.9	x: 0 m η = 57.3	x: 1.461 m η = 4.5	x: 2.505 m η < 0.1	x: 0 m η = 2.7	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 59.5	η < 0.1	η = 0.1	x: 0 m η = 2.7	η < 0.1	**CUMPLE h = 59.5**
N1645/N1646	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 23.7	x: 2.505 m η = 62.4	x: 1.461 m η = 4.7	x: 2.505 m η = 0.1	x: 0 m η = 2.7	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 64.8	η < 0.1	η < 0.1	x: 0 m η = 2.7	η < 0.1	**CUMPLE h = 64.8**
N1646/N1647	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 25.0	x: 2.505 m η = 66.0	x: 1.252 m η = 4.6	x: 2.505 m η = 0.1	x: 0 m η = 2.5	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 68.3	η < 0.1	η = 0.1	x: 0 m η = 2.5	η < 0.1	**CUMPLE h = 68.3**
N1647/N1648	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 25.8	x: 0 m η = 68.3	x: 1.461 m η = 4.7	x: 0 m η = 0.1	x: 0 m η = 2.6	η = 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 70.4	η < 0.1	η = 0.3	x: 0 m η = 2.6	η = 0.1	**CUMPLE h = 70.4**
N1648/N1649	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.0	x: 0 m η = 69.0	x: 1.252 m η = 5.3	x: 0 m η < 0.1	x: 0 m η = 2.5	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 71.5	η < 0.1	η = 0.2	x: 0 m η = 2.5	η < 0.1	**CUMPLE h = 71.5**
N1649/N1650	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.1	x: 0 m η = 68.9	x: 1.044 m η = 4.8	x: 2.505 m η < 0.1	x: 2.505 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 1.044 m η = 71.3	η < 0.1	η < 0.1	x: 2.505 m η = 2.6	η < 0.1	**CUMPLE h = 71.3**
N1650/N1651	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 26.2	x: 0 m η = 68.9	x: 1.461 m η = 5.6	x: 2.505 m η < 0.1	x: 0 m η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 1.461 m η = 71.6	η < 0.1	η < 0.1	x: 0 m η = 2.6	η < 0.1	**CUMPLE h = 71.6**
N1651/N1637	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 1.252 m η = 25.7	x: 0 m η = 63.9	x: 1.252 m η = 8.9	x: 1.252 m η < 0.1	x: 1.252 m η = 3.8	η < 0.1	η < 0.1	η < 0.1	x: 1.252 m η = 70.1	η < 0.1	η < 0.1	x: 1.252 m η = 3.8	η < 0.1	**CUMPLE h = 70.1**
N1616/N1665	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 21.3	x: 2.5 m η = 58.1	x: 2.5 m η = 17.1	x: 0 m η = 0.3	x: 2.5 m η = 2.8	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 71.8	η < 0.1	η < 0.1	x: 2.5 m η = 2.8	η = 0.2	**CUMPLE h = 71.8**
N1665/N1664	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 23.2	x: 0 m η = 60.2	x: 0 m η = 40.0	x: 0 m η = 0.2	x: 0 m η = 5.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 94.7	η < 0.1	η = 0.1	x: 0 m η = 5.6	η = 0.1	**CUMPLE h = 94.7**
N1664/N1663	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 14.4	x: 2.5 m η = 38.2	x: 2.5 m η = 2.3	x: 2.5 m η = 0.2	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 39.5	η < 0.1	η = 0.2	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 39.5**
N1663/N1662	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.9	x: 0 m η = 16.0	x: 0 m η = 5.5	x: 0 m η = 0.1	x: 0 m η = 1.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 21.6	η < 0.1	η = 0.1	x: 0 m η = 1.2	η < 0.1	**CUMPLE h = 21.6**
N1662/N1661	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.5	x: 0 m η = 6.7	x: 2.5 m η = 4.3	x: 0 m η < 0.1	x: 0 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 9.0	η < 0.1	η = 0.1	x: 0 m η = 0.9	η < 0.1	**CUMPLE h = 9.0**
N1661/N1660	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 14.1	x: 0 m η = 8.1	x: 2.5 m η = 4.4	x: 0 m η < 0.1	x: 0 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 18.0	η < 0.1	η = 0.1	x: 0 m η = 0.8	η < 0.1	**CUMPLE h = 18.0**
N1660/N1659	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 22.0	x: 2.5 m η = 9.7	x: 2.5 m η = 4.3	x: 0 m η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 25.8	η < 0.1	η = 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 25.8**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1659/N1658	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 29.0	x: 2.5 m η = 12.2	x: 2.5 m η = 4.2	x: 2.5 m η < 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 33.2	η < 0.1	η = 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 33.2**
N1658/N1657	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 35.1	x: 2.5 m η = 14.6	x: 2.5 m η = 3.9	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 39.1	η < 0.1	η = 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 39.1**
N1657/N1656	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 39.7	x: 2.5 m η = 16.3	x: 2.5 m η = 3.9	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 43.6	η < 0.1	η = 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 43.6**
N1656/N1655	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 42.9	x: 2.5 m η = 17.4	x: 1.875 m η = 2.8	x: 2.5 m η = 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 1.875 m η = 45.7	η < 0.1	η = 0.3	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 45.7**
N1655/N1654	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 44.6	x: 0 m η = 17.9	x: 2.5 m η = 5.0	x: 0 m η = 0.1	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 49.4	η < 0.1	η = 0.4	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 49.4**
N1654/N1653	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 45.2	x: 0 m η = 18.2	x: 0 m η = 4.6	x: 0 m η < 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 49.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 49.8**
N1653/N1652	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 44.1	x: 0 m η = 17.7	x: 0 m η = 3.2	x: 0 m η < 0.1	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 47.3	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η < 0.1	**CUMPLE h = 47.3**
N1652/N1666	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 43.4	x: 0 m η = 17.4	x: 1.25 m η = 1.3	η < 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 1.25 m η = 44.7	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 44.7**
N1666/N1667	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 44.1	x: 0 m η = 17.7	x: 2.5 m η = 3.2	x: 2.5 m η < 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 47.3	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 47.3**
N1667/N1668	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 45.2	x: 0 m η = 18.1	x: 2.5 m η = 4.6	x: 2.5 m η < 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 49.8	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 49.8**
N1668/N1669	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 44.6	x: 2.5 m η = 17.8	x: 0 m η = 5.0	x: 2.5 m η = 0.1	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 49.4	η < 0.1	η = 0.4	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 49.4**
N1669/N1670	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 42.9	x: 0 m η = 17.2	x: 0.625 m η = 2.8	x: 0 m η = 0.1	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0.625 m η = 45.7	η < 0.1	η = 0.3	x: 2.5 m η = 0.3	η < 0.1	**CUMPLE h = 45.7**
N1670/N1671	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 39.6	x: 0 m η = 16.0	x: 0 m η = 3.9	x: 0 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 43.5	η < 0.1	η = 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 43.5**
N1671/N1672	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 35.1	x: 0 m η = 14.3	x: 0 m η = 3.9	x: 0 m η < 0.1	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 39.0	η < 0.1	η = 0.1	x: 2.5 m η = 0.5	η < 0.1	**CUMPLE h = 39.0**
N1672/N1673	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 29.0	x: 0 m η = 11.9	x: 0 m η = 4.2	x: 0 m η < 0.1	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.2	η < 0.1	η = 0.1	x: 2.5 m η = 0.6	η < 0.1	**CUMPLE h = 33.2**
N1673/N1674	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 22.0	x: 0 m η = 9.7	x: 0 m η = 4.3	x: 2.5 m η < 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 25.8	η < 0.1	η = 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 25.8**
N1674/N1675	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.1	x: 2.5 m η = 8.1	x: 0 m η = 4.4	x: 2.5 m η < 0.1	x: 2.5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η = 0.1	x: 2.5 m η = 0.8	η < 0.1	**CUMPLE h = 18.0**
N1675/N1676	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.5	x: 2.5 m η = 6.7	x: 0 m η = 4.3	x: 2.5 m η < 0.1	x: 2.5 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.1	η < 0.1	η = 0.1	x: 2.5 m η = 0.9	η < 0.1	**CUMPLE h = 8.1**
N1676/N1677	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.9	x: 2.5 m η = 16.0	x: 2.5 m η = 5.5	x: 2.5 m η = 0.1	x: 2.5 m η = 1.2	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 21.6	η < 0.1	η = 0.1	x: 2.5 m η = 1.2	η < 0.1	**CUMPLE h = 21.6**
N1677/N1678	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.4	x: 0 m η = 38.3	x: 0 m η = 2.3	x: 0 m η = 0.2	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 39.5	η < 0.1	η = 0.2	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 39.5**
N1678/N1679	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 22.6	x: 2.5 m η = 60.2	x: 2.5 m η = 39.9	x: 2.5 m η = 0.2	x: 2.5 m η = 5.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 94.7	η < 0.1	η = 0.1	x: 2.5 m η = 5.6	η = 0.1	**CUMPLE h = 94.7**
N1679/N1621	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.6	x: 0 m η = 58.2	x: 0 m η = 17.1	x: 2.5 m η = 0.3	x: 0 m η = 2.8	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 71.8	η < 0.1	η < 0.1	x: 0 m η = 2.8	η = 0.2	**CUMPLE h = 71.8**
N1616/N1623	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.706 m η = 55.0	x: 3.706 m η = 27.8	x: 0 m η = 6.7	x: 0 m η = 0.1	x: 3.706 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.706 m η = 61.2	η < 0.1	η = 0.1	x: 3.706 m η = 0.3	η = 0.1	**CUMPLE h = 61.2**
N1664/N1623	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.706 m η = 51.1	x: 3.706 m η = 32.1	x: 0 m η = 10.0	x: 3.706 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 60.3	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 60.3**
N1664/N1624	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.89 m η = 21.5	x: 0 m η = 63.9	x: 0 m η = 22.1	x: 0 m η = 0.2	η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 84.6	η < 0.1	η = 0.1	η = 2.6	η < 0.1	**CUMPLE h = 84.6**
N1663/N1624	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 49.7	x: 0 m η = 34.3	x: 0 m η = 9.9	x: 0 m η = 0.6	x: 0 m η = 1.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 60.2	η < 0.1	η < 0.1	x: 0 m η = 1.1	η = 0.1	**CUMPLE h = 60.2**
N1663/N1625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.9	x: 0 m η = 62.6	x: 3.046 m η = 13.9	x: 0 m η = 1.0	η = 1.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 75.1	η < 0.1	η < 0.1	η = 1.6	η = 0.2	**CUMPLE h = 75.1**
N1662/N1625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.94 m η = 40.5	x: 3.94 m η = 28.7	x: 0 m η = 8.5	x: 3.94 m η = 0.2	x: 0 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 49.0	η < 0.1	η < 0.1	x: 0 m η = 1.0	η < 0.1	**CUMPLE h = 49.0**
N1662/N1626	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.201 m η = 16.1	x: 0 m η = 52.4	x: 0 m η = 12.5	x: 0 m η = 0.1	η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 63.5	η < 0.1	η < 0.1	η = 1.4	η < 0.1	**CUMPLE h = 63.5**
N1661/N1626	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.061 m η = 34.5	x: 0 m η = 23.8	x: 0 m η = 7.2	x: 0 m η = 0.1	x: 0 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 41.7	η < 0.1	η < 0.1	x: 0 m η = 0.8	η < 0.1	**CUMPLE h = 41.7**
N1661/N1627	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.356 m η = 13.4	x: 0 m η = 46.5	x: 0 m η = 10.3	x: 0 m η = 0.1	η = 1.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 55.5	η < 0.1	η < 0.1	η = 1.1	η < 0.1	**CUMPLE h = 55.5**
N1660/N1627	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.185 m η = 28.9	x: 0 m η = 20.2	x: 4.185 m η = 6.1	x: 0 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 4.185 m η = 35.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 35.1**
N1660/N1628	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.511 m η = 11.3	x: 0 m η = 40.6	x: 0 m η = 8.5	x: 3.292 m η = 0.1	η = 0.8	η < 0.1	η < 0.1	N.P.[1]	x: 0 m η = 48.0	η < 0.1	η < 0.1	η = 0.8	η < 0.1	**CUMPLE h = 48.0**
N1659/N1628	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.31 m η = 23.7	x: 0 m η = 16.8	x: 4.31 m η = 5.3	x: 0 m η = 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	N.P.[1]	x: 4.31 m η = 29.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 29.1**
N1659/N1629	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.666 m η = 9.4	x: 0 m η = 34.7	x: 0 m η = 6.9	x: 0 m η = 0.1	η = 0.7	η < 0.1	η < 0.1	N.P.[1]	x: 0 m η = 40.6	η < 0.1	η < 0.1	η = 0.7	η < 0.1	**CUMPLE h = 40.6**
N1658/N1629	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.437 m η = 18.9	x: 0 m η = 13.5	x: 4.437 m η = 4.4	x: 4.437 m η = 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	N.P.[1]	x: 4.437 m η = 23.4	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 23.4**
N1658/N1630	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.821 m η = 7.5	x: 0 m η = 28.8	x: 0 m η = 5.5	x: 0 m η = 0.1	η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.3	η < 0.1	η < 0.1	η = 0.5	η < 0.1	**CUMPLE h = 33.3**
N1657/N1630	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.567 m η = 14.4	x: 0 m η = 10.3	x: 4.567 m η = 3.5	x: 4.281 m η = 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	N.P.[1]	x: 4.567 m η = 18.0	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 18.0**
N1657/N1631	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.977 m η = 5.7	x: 0 m η = 22.7	x: 0 m η = 4.1	x: 0 m η = 0.1	η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 26.1	η < 0.1	η < 0.1	η = 0.4	η < 0.1	**CUMPLE h = 26.1**
N1656/N1631	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.2	x: 0 m η = 3.9	x: 4.697 m η = 2.6	x: 0 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 4.697 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 12.7**
N1656/N1632	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.132 m η = 4.4	x: 4.132 m η = 17.9	x: 0 m η = 3.0	x: 4.132 m η = 0.4	η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 4.132 m η = 20.3	η < 0.1	η < 0.1	η = 0.3	η = 0.1	**CUMPLE h = 20.3**
N1655/N1632	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 9.4	x: 0 m η = 4.2	x: 0 m η = 2.2	x: 0 m η = 1.4	x: 0 m η = 0.3	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 12.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.2	**CUMPLE h = 12.5**
N1655/N1633	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.287 m η = 4.8	x: 0 m η = 28.0	x: 0 m η = 2.4	x: 0 m η = 2.4	η = 0.2	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 31.9	η < 0.1	η < 0.1	η = 0.2	η = 0.5	**CUMPLE h = 31.9**
N1654/N1633	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.963 m η = 6.8	x: 4.963 m η = 12.3	x: 0 m η = 1.9	x: 4.963 m η = 1.1	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 4.963 m η = 13.3	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.3**
N1654/N1634	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.442 m η = 1.7	x: 0 m η = 3.3	x: 0 m η = 1.5	x: 0 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 4.0	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 4.0**
N1654/N1635	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.233 m η = 6.5	x: 0 m η = 13.5	x: 5.233 m η = 1.8	x: 0 m η = 0.2	x: 5.233 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 5.233 m η = 14.2	η < 0.1	η < 0.1	x: 5.233 m η = 0.3	η < 0.1	**CUMPLE h = 14.2**
N1653/N1635	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.597 m η = 8.0	x: 0 m η = 16.2	x: 0 m η = 2.6	x: 4.597 m η < 0.1	η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.3	η < 0.1	η < 0.1	η = 0.2	η < 0.1	**CUMPLE h = 18.3**
N1653/N1636	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.37 m η = 8.7	x: 0 m η = 16.4	x: 5.37 m η = 3.7	x: 5.37 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 5.37 m η = 18.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 18.2**
N1652/N1636	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.752 m η = 8.1	x: 0 m η = 18.0	x: 4.752 m η = 4.4	x: 4.752 m η < 0.1	η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 4.752 m η = 21.7	η < 0.1	η < 0.1	η = 0.3	η < 0.1	**CUMPLE h = 21.7**
N1652/N1637	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.989 m η = 8.8	x: 0 m η = 14.3	x: 4.989 m η = 3.9	x: 4.989 m η < 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 4.989 m η = 16.3	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 16.3**
N1621/N1638	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.706 m η = 54.9	x: 3.706 m η = 26.5	x: 0 m η = 6.7	x: 0 m η = 0.1	x: 3.706 m η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 3.706 m η = 61.2	η < 0.1	η = 0.1	x: 3.706 m η = 0.2	η < 0.1	**CUMPLE h = 61.2**
N1678/N1638	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.706 m η = 51.1	x: 3.706 m η = 29.3	x: 0 m η = 10.0	x: 3.706 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 60.3	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 60.3**
N1678/N1639	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.6	x: 0 m η = 63.8	x: 0 m η = 22.1	x: 0 m η = 0.2	η = 2.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 84.6	η < 0.1	η = 0.1	η = 2.6	η < 0.1	**CUMPLE h = 84.6**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1677/N1639	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 49.6	x: 0 m η = 32.1	x: 0 m η = 9.9	x: 0 m η = 0.6	x: 0 m η = 1.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 60.1	η < 0.1	η < 0.1	x: 0 m η = 1.1	η = 0.1	**CUMPLE h = 60.1**
N1677/N1640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.7	x: 0 m η = 62.2	x: 3.046 m η = 13.9	x: 0 m η = 0.9	η = 1.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 74.7	η < 0.1	η < 0.1	η = 1.6	η = 0.2	**CUMPLE h = 74.7**
N1676/N1640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.94 m η = 40.6	x: 3.94 m η = 27.6	x: 0 m η = 8.5	x: 3.94 m η = 0.2	x: 0 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 49.0	η < 0.1	η < 0.1	x: 0 m η = 1.0	η < 0.1	**CUMPLE h = 49.0**
N1676/N1641	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.201 m η = 15.6	x: 0 m η = 52.4	x: 0 m η = 12.5	x: 0 m η = 0.1	η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 63.5	η < 0.1	η < 0.1	η = 1.4	η < 0.1	**CUMPLE h = 63.5**
N1675/N1641	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.061 m η = 34.5	x: 0 m η = 23.8	x: 0 m η = 7.2	x: 0 m η = 0.1	x: 0 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 41.7	η < 0.1	η < 0.1	x: 0 m η = 0.8	η < 0.1	**CUMPLE h = 41.7**
N1675/N1642	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.356 m η = 13.4	x: 0 m η = 46.5	x: 0 m η = 10.3	x: 0 m η = 0.1	η = 1.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 55.5	η < 0.1	η < 0.1	η = 1.1	η < 0.1	**CUMPLE h = 55.5**
N1674/N1642	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.185 m η = 28.9	x: 0 m η = 20.2	x: 4.185 m η = 6.1	x: 0 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 4.185 m η = 35.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 35.1**
N1674/N1643	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.511 m η = 11.3	x: 0 m η = 40.6	x: 0 m η = 8.5	x: 3.292 m η = 0.1	η = 0.8	η < 0.1	η < 0.1	N.P.(1)	x: 0 m η = 48.0	η < 0.1	η < 0.1	η = 0.8	η < 0.1	**CUMPLE h = 48.0**
N1673/N1643	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.31 m η = 23.7	x: 0 m η = 16.8	x: 4.31 m η = 5.3	x: 0 m η = 0.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	N.P.(1)	x: 4.31 m η = 29.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 29.1**
N1673/N1644	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.666 m η = 9.4	x: 0 m η = 34.7	x: 0 m η = 6.9	x: 0 m η = 0.1	η = 0.7	η < 0.1	η < 0.1	N.P.(1)	x: 0 m η = 40.6	η < 0.1	η < 0.1	η = 0.7	η < 0.1	**CUMPLE h = 40.6**
N1672/N1644	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.437 m η = 18.9	x: 0 m η = 13.5	x: 4.437 m η = 4.4	x: 4.437 m η = 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	N.P.(1)	x: 4.437 m η = 23.4	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 23.4**
N1672/N1645	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.821 m η = 7.5	x: 0 m η = 28.8	x: 0 m η = 5.5	x: 0 m η = 0.1	η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 33.3	η < 0.1	η < 0.1	η = 0.5	η < 0.1	**CUMPLE h = 33.3**
N1671/N1645	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.567 m η = 14.4	x: 0 m η = 10.3	x: 4.567 m η = 3.5	x: 4.281 m η = 0.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	N.P.(1)	x: 4.567 m η = 18.0	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 18.0**
N1671/N1646	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.977 m η = 5.7	x: 0 m η = 22.7	x: 0 m η = 4.1	x: 0 m η = 0.1	η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 26.1	η < 0.1	η < 0.1	η = 0.4	η < 0.1	**CUMPLE h = 26.1**
N1670/N1646	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 10.2	x: 0 m η = 3.9	x: 4.697 m η = 2.6	x: 0 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 4.697 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 12.7**
N1670/N1647	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.132 m η = 4.4	x: 4.132 m η = 17.9	x: 0 m η = 2.9	x: 4.132 m η = 0.4	η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 4.132 m η = 20.3	η < 0.1	η < 0.1	η = 0.2	η = 0.1	**CUMPLE h = 20.3**
N1669/N1647	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 9.3	x: 0 m η = 4.2	x: 0 m η = 2.1	x: 0 m η = 1.4	x: 0 m η = 0.3	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 12.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.2	**CUMPLE h = 12.5**
N1669/N1648	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.287 m η = 4.8	x: 0 m η = 27.9	x: 0 m η = 2.4	x: 0 m η = 2.4	η = 0.2	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 31.8	η < 0.1	η < 0.1	η = 0.2	η = 0.5	**CUMPLE h = 31.8**
N1668/N1648	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.963 m η = 6.7	x: 4.963 m η = 12.3	x: 0 m η = 1.9	x: 4.963 m η = 1.1	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 4.963 m η = 13.3	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.3**
N1668/N1649	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.442 m η = 1.7	x: 0 m η = 3.3	x: 0 m η = 1.5	x: 0 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 4.0	η < 0.1	η < 0.1	η = 0.1	η < 0.1	**CUMPLE h = 4.0**
N1668/N1650	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.233 m η = 6.5	x: 0 m η = 13.5	x: 5.233 m η = 1.8	x: 0 m η = 0.2	x: 5.233 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 5.233 m η = 14.2	η < 0.1	η < 0.1	x: 5.233 m η = 0.3	η < 0.1	**CUMPLE h = 14.2**
N1667/N1650	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.597 m η = 8.0	x: 0 m η = 16.3	x: 0 m η = 2.7	x: 4.597 m η < 0.1	η = 0.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.5	η < 0.1	η < 0.1	η = 0.2	η < 0.1	**CUMPLE h = 18.5**
N1667/N1651	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.37 m η = 8.8	x: 0 m η = 16.4	x: 5.37 m η = 3.7	x: 5.37 m η < 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 5.37 m η = 18.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 18.2**
N1666/N1651	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.752 m η = 8.1	x: 0 m η = 18.2	x: 4.752 m η = 4.4	x: 4.752 m η < 0.1	η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 4.752 m η = 21.9	η < 0.1	η < 0.1	η = 0.3	η < 0.1	**CUMPLE h = 21.9**
N1666/N1637	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 4.989 m η = 8.9	x: 0 m η = 14.3	x: 4.989 m η = 3.9	x: 4.989 m η < 0.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 4.989 m η = 16.3	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 16.3**
N1680/N1621	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 56.2	x: 3.536 m η = 47.8	x: 0 m η = 6.1	x: 3.536 m η = 0.6	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 61.5	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 61.5**
N1680/N1620	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.1	x: 0 m η = 44.8	x: 0 m η = 17.3	x: 2.5 m η = 0.4	x: 2.5 m η = 2.0	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 61.7	η < 0.1	η < 0.1	x: 2.5 m η = 2.0	η = 0.1	**CUMPLE h = 61.7**
N1681/N1620	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 57.8	x: 0 m η = 49.4	x: 0 m η = 4.0	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 61.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 61.9**
N1681/N1619	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 12.3	x: 2.5 m η = 38.6	x: 0 m η = 13.8	x: 2.5 m η = 0.1	x: 2.5 m η = 1.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 51.8	η < 0.1	η < 0.1	x: 2.5 m η = 1.7	η < 0.1	**CUMPLE h = 51.8**
N1682/N1619	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 49.7	x: 0 m η = 42.2	x: 0 m η = 2.9	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 52.8**
N1683/N1616	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 56.2	x: 3.536 m η = 52.1	x: 0 m η = 6.1	x: 3.536 m η = 0.6	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 61.5	η < 0.1	η = 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 61.5**
N1615/N1683	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 15.4	x: 2.5 m η = 44.7	x: 2.5 m η = 17.3	x: 0 m η = 0.4	x: 0 m η = 2.0	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 61.6	η < 0.1	η < 0.1	x: 0 m η = 2.0	η = 0.1	**CUMPLE h = 61.6**
N1684/N1615	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 57.8	x: 0 m η = 58.5	x: 0 m η = 4.0	x: 3.536 m η = 0.4	x: 3.536 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 61.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.4	η = 0.1	**CUMPLE h = 61.9**
N1614/N1684	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.6	x: 0 m η = 38.6	x: 2.5 m η = 13.8	x: 0 m η = 0.1	x: 0 m η = 1.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 51.9	η < 0.1	η < 0.1	x: 0 m η = 1.7	η < 0.1	**CUMPLE h = 51.9**
N1685/N1614	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 49.8	x: 0 m η = 53.8	x: 0 m η = 2.9	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.9	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 53.8**
N1689/N1695	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.2	x: 2.505 m η = 2.7	x: 2.505 m η = 30.5	x: 2.505 m η = 0.9	x: 2.505 m η = 6.5	η = 0.7	η < 0.1	η < 0.1	x: 2.505 m η = 34.7	η < 0.1	η = 0.1	x: 2.505 m η = 6.5	η = 0.7	**CUMPLE h = 34.7**
N1695/N1696	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.0	x: 0 m η = 8.0	x: 0 m η = 36.8	x: 0 m η = 0.6	x: 0 m η = 7.3	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 56.3	η < 0.1	η = 0.1	x: 0 m η = 7.3	η = 0.2	**CUMPLE h = 56.3**
N1696/N1697	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.5	x: 0 m η = 6.3	x: 2.505 m η = 4.1	x: 2.505 m η = 0.3	x: 0 m η = 3.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 10.0	η < 0.1	η = 1.0	x: 0 m η = 3.0	η = 0.2	**CUMPLE h = 10.0**
N1697/N1698	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 9.2	x: 0 m η = 20.2	x: 0 m η = 4.0	x: 0 m η = 0.4	x: 0 m η = 2.2	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 24.2	η < 0.1	η = 0.8	x: 0 m η = 2.2	η = 0.3	**CUMPLE h = 24.2**
N1698/N1699	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 15.1	x: 2.505 m η = 37.3	x: 0 m η = 5.0	x: 2.505 m η = 0.7	x: 0 m η = 2.8	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 39.3	η < 0.1	η = 2.5	x: 0 m η = 2.8	η = 0.2	**CUMPLE h = 39.3**
N1699/N1700	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 20.2	x: 0 m η = 49.3	x: 1.461 m η = 3.9	x: 0 m η = 0.8	x: 0 m η = 2.2	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 51.1	η < 0.1	η = 2.3	x: 0 m η = 2.2	η = 0.3	**CUMPLE h = 51.1**
N1700/N1701	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 22.3	x: 2.505 m η = 56.6	x: 1.67 m η = 4.5	x: 2.505 m η = 0.4	x: 0 m η = 2.6	η = 0.2	η < 0.1	η < 0.1	x: 1.879 m η = 58.6	η < 0.1	η = 2.4	x: 0 m η = 2.6	η = 0.2	**CUMPLE h = 58.6**
N1701/N1702	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 26.0	x: 0 m η = 66.6	x: 1.461 m η = 4.5	x: 0 m η = 1.1	x: 0 m η = 2.0	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 67.8	η < 0.1	η = 2.5	x: 0 m η = 2.0	η = 0.6	**CUMPLE h = 67.8**
N1702/N1703	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 27.9	x: 2.505 m η = 72.7	x: 1.461 m η = 4.9	x: 2.505 m η = 1.5	x: 0 m η = 2.4	η = 0.5	η < 0.1	η < 0.1	x: 2.296 m η = 75.0	η < 0.1	η = 2.6	x: 0 m η = 2.4	η = 0.5	**CUMPLE h = 75.0**
N1703/N1704	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 27.0	x: 0 m η = 71.2	x: 1.252 m η = 4.4	x: 0 m η = 0.4	x: 2.505 m η = 2.2	η = 0.2	η < 0.1	η < 0.1	x: 1.044 m η = 72.8	η < 0.1	η = 2.5	x: 2.505 m η = 2.2	η = 0.2	**CUMPLE h = 72.8**
N1704/N1705	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 27.6	x: 2.505 m η = 74.6	x: 1.461 m η = 4.2	x: 2.505 m η = 0.8	x: 0 m η = 2.3	η = 0.2	η < 0.1	η < 0.1	x: 1.67 m η = 76.4	η < 0.1	η = 1.2	x: 0 m η = 2.3	η = 0.2	**CUMPLE h = 76.4**
N1705/N1706	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 28.7	x: 0 m η = 77.3	x: 1.252 m η = 5.2	x: 0 m η = 1.1	x: 2.505 m η = 1.9	η = 0.3	η < 0.1	η < 0.1	x: 0.835 m η = 79.2	η < 0.1	η = 0.8	x: 2.505 m η = 1.9	η = 0.3	**CUMPLE h = 79.2**
N1706/N1707	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 28.4	x: 2.505 m η = 74.8	x: 1.252 m η = 5.2	x: 2.505 m η = 0.6	x: 0 m η = 2.0	η = 0.3	η < 0.1	η < 0.1	x: 1.67 m η = 76.3	η < 0.1	η = 2.2	x: 0 m η = 2.1	η = 0.3	**CUMPLE h = 76.3**
N1707/N1708	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 30.7	x: 0 m η = 80.5	x: 1.67 m η = 6.1	x: 0 m η = 1.6	x: 0 m η = 2.4	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 82.5	η < 0.1	η = 2.7	x: 0 m η = 2.4	η = 0.6	**CUMPLE h = 82.5**
N1708/N1709	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 28.6	x: 1.252 m η = 71.3	x: 1.252 m η = 10.8	x: 1.252 m η = 0.6	x: 1.252 m η = 4.1	η = 0.7	η < 0.1	η < 0.1	x: 1.252 m η = 79.8	η < 0.1	η = 2.4	x: 1.252 m η = 4.1	η = 0.7	**CUMPLE h = 79.8**
N1694/N1710	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 3.3	x: 2.505 m η = 2.7	x: 2.505 m η = 30.5	x: 2.505 m η = 0.9	x: 2.505 m η = 6.5	η = 0.7	η < 0.1	η < 0.1	x: 2.505 m η = 34.7	η < 0.1	η = 0.1	x: 2.505 m η = 6.5	η = 0.7	**CUMPLE h = 34.7**
N1710/N1711	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 19.0	x: 0 m η = 7.5	x: 0 m η = 36.8	x: 0 m η = 0.6	x: 0 m η = 7.3	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 56.3	η < 0.1	η = 0.1	x: 0 m η = 7.3	η = 0.2	**CUMPLE h = 56.3**
N1711/N1712	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.505 m η = 4.5	x: 0 m η = 6.3	x: 0 m η = 3.9	x: 2.505 m η = 0.3	x: 2.505 m η = 3.0	η = 0.2	η < 0.1	η < 0.1	x: 2.505 m η = 10.1	η < 0.1	η = 1.0	x: 2.505 m η = 3.0	η = 0.2	**CUMPLE h = 10.1**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1687/N2332	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.5	x: 0 m η = 10.6	x: 0 m η = 20.0	η = 2.7	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 30.0	η < 0.1	η = 0.2	η = 2.7	x: 0 m η = 1.8	**CUMPLE h = 30.0**
N2332/N1615	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 10.3	x: 2.5 m η = 12.4	η = 2.7	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 23.4	η < 0.1	η = 0.2	η = 2.7	x: 2.5 m η = 1.4	**CUMPLE h = 23.4**
N1615/N2328	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 10.3	x: 0 m η = 20.1	η = 2.6	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 29.3	η < 0.1	η = 0.2	η = 2.6	x: 0 m η = 1.8	**CUMPLE h = 29.3**
N2328/N1543	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 8.8	x: 2.5 m η = 12.6	η = 2.2	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 21.0	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.4	**CUMPLE h = 21.0**
N1543/N2324	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 2.5 m η = 8.6	x: 0 m η = 19.8	η = 2.2	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.5	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.8	**CUMPLE h = 26.5**
N2324/N1471	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 2.5 m η = 8.7	x: 2.5 m η = 13.1	η = 2.3	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 21.4	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.4	**CUMPLE h = 21.4**
N1471/N2320	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 8.7	x: 0 m η = 19.7	η = 2.2	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.6	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.8	**CUMPLE h = 26.6**
N2320/N1399	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 8.9	x: 2.5 m η = 13.4	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 21.9	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 21.9**
N1399/N2316	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 0 m η = 8.9	x: 0 m η = 19.5	η = 2.3	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.7	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.8	**CUMPLE h = 26.7**
N2316/N1327	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 0 m η = 8.7	x: 2.5 m η = 13.6	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.0	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.0**
N1327/N2312	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 2.5 m η = 8.7	x: 0 m η = 19.5	η = 2.3	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.4	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.8	**CUMPLE h = 26.4**
N2312/N1255	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 2.5 m η = 8.8	x: 2.5 m η = 13.8	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.2	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.2**
N1255/N2308	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.3	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.2	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.2**
N2308/N1183	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 14.0	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.4	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.4**
N1183/N2304	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.2	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.1	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.1**
N2304/N1111	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.8	x: 2.5 m η = 14.1	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.6	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.6**
N1111/N2300	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.2	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.8	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 25.8**
N2300/N1039	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 9.6	x: 2.5 m η = 14.2	η = 2.4	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.6	η < 0.1	η = 0.2	η = 2.4	x: 2.5 m η = 1.5	**CUMPLE h = 23.6**
N1039/N2296	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 10.2	x: 0 m η = 18.8	η = 2.6	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.9	η < 0.1	η = 0.1	η = 2.6	x: 0 m η = 1.7	**CUMPLE h = 26.9**
N2296/N967	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 10.1	x: 2.5 m η = 15.9	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 22.5	η < 0.1	η = 0.1	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 22.5**
N967/N2294	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.9	x: 2.5 m η = 13.8	x: 0 m η = 27.4	η = 3.1	x: 0 m η = 2.1	η < 0.1	η < 0.1	x: 0 m η = 28.5	η < 0.1	η = 0.5	η = 3.1	x: 0 m η = 2.1	**CUMPLE h = 28.5**
N2294/N100	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 0.9	x: 0 m η = 13.6	x: 2.5 m η = 23.5	η = 3.0	x: 2.5 m η = 2.0	η < 0.1	η < 0.1	x: 2.5 m η = 26.1	η < 0.1	η = 0.5	η = 3.0	x: 2.5 m η = 2.0	**CUMPLE h = 26.1**
N100/N2241	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.6	x: 2.5 m η = 10.6	x: 0 m η = 20.4	η = 2.3	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.1	η < 0.1	η = 0.1	η = 2.3	x: 0 m η = 1.8	**CUMPLE h = 26.1**
N2241/N103	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 10.2	x: 2.5 m η = 14.1	η = 2.6	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.8	η < 0.1	η = 0.1	η = 2.6	x: 2.5 m η = 1.5	**CUMPLE h = 23.8**
N103/N2245	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 9.2	x: 0 m η = 19.0	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.3	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.3**
N2245/N175	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.7	x: 2.5 m η = 14.4	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.2	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.2**
N175/N2249	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.1	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.6	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 25.6**
N2249/N247	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.9	x: 2.5 m η = 14.5	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.4	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.4**
N247/N2253	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.7	x: 0 m η = 18.9	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.4	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.4**
N2253/N319	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 14.7	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.6	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.6**
N319/N2257	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 18.9	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.2	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.2**
N2257/N391	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.8	x: 2.5 m η = 14.9	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.8	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.8**
N391/N2261	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 18.9	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.9	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 24.9**
N2261/N463	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 9.1	x: 2.5 m η = 15.0	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 24.2	η < 0.1	η = 0.2	η = 2.4	x: 2.5 m η = 1.5	**CUMPLE h = 24.2**
N463/N2265	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 9.1	x: 0 m η = 18.6	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.1	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.1**
N2265/N535	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.6	x: 2.5 m η = 15.3	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.1	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 24.1**
N535/N2269	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 2.5 m η = 8.7	x: 0 m η = 18.7	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.3	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 24.3**
N2269/N607	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 2.5 m η = 8.8	x: 2.5 m η = 15.4	η = 2.3	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.3	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.6	**CUMPLE h = 24.3**
N607/N2273	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 0 m η = 8.8	x: 0 m η = 18.4	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.2	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 24.2**
N2273/N679	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 0 m η = 8.7	x: 2.5 m η = 15.6	η = 2.3	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.3	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.6	**CUMPLE h = 24.3**
N679/N2277	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 0 m η = 8.7	x: 0 m η = 18.2	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 23.8	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 23.8**
N2277/N751	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 8.6	x: 2.5 m η = 15.7	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.2	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 24.2**
N751/N2281	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 2.5 m η = 8.7	x: 0 m η = 17.8	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 23.7	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 23.7**
N2281/N823	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 2.5 m η = 10.2	x: 2.5 m η = 15.6	η = 2.6	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 25.6	η < 0.1	η = 0.2	η = 2.6	x: 2.5 m η = 1.6	**CUMPLE h = 25.6**
N823/N2285	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 10.5	x: 0 m η = 16.8	η = 2.7	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 25.8	η < 0.1	η = 0.1	η = 2.7	x: 0 m η = 1.6	**CUMPLE h = 25.8**
N2285/N895	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.4	x: 0 m η = 8.9	x: 2.5 m η = 15.2	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.9	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.9**
N895/N2289	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η = 9.2	x: 0 m η = 15.9	η = 2.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 23.2	η < 0.1	η = 0.3	η = 2.2	x: 0 m η = 1.6	**CUMPLE h = 23.2**
N2289/N1901	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 2.2	x: 0 m η = 13.7	η = 0.5	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.7	η < 0.1	η = 0.1	η = 0.5	x: 0 m η = 1.5	**CUMPLE h = 14.7**
N1832/N1760	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{tot} = 0.00 N.P.[40]	η = 1.1	x: 2.72 m η = 4.1	x: 2.72 m η = 16.1	η = 0.9	x: 2.72 m η = 1.6	η < 0.1	η < 0.1	x: 2.72 m η = 19.1	η < 0.1	η = 0.6	η = 0.9	x: 2.72 m η = 1.6	**CUMPLE h = 19.1**
N1760/N2166	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.9	x: 2.5 m η = 6.1	x: 0 m η = 22.7	η = 1.3	x: 0 m η = 1.9	η < 0.1	η < 0.1	x: 0 m η = 24.7	η < 0.1	η = 0.4	η = 1.3	x: 0 m η = 1.9	**CUMPLE h = 24.7**
N2166/N1688	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 1.1	x: 2.5 m η = 9.7	x: 2.5 m η = 21.3	η = 2.4	x: 2.5 m η = 1.8	η < 0.1	η < 0.1	x: 2.5 m η = 26.7	η < 0.1	η = 0.4	η = 2.4	x: 2.5 m η = 1.8	**CUMPLE h = 26.7**
N1688/N2167	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 1.1	x: 2.5 m η = 6.9	x: 0 m η = 23.3	η = 1.7	x: 0 m η = 1.9	η < 0.1	η < 0.1	x: 0 m η = 30.5	η < 0.1	η = 0.4	η = 1.7	x: 0 m η = 1.9	**CUMPLE h = 30.5**
N2167/N1616	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 1.4	x: 2.5 m η = 8.4	x: 2.5 m η = 20.9	η = 2.1	x: 2.5 m η = 1.8	η < 0.1	η < 0.1	x: 2.5 m η = 30.3	η < 0.1	η = 0.4	η = 2.1	x: 2.5 m η = 1.8	**CUMPLE h = 30.3**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1616/N2168	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 1.3$	x: 2.5 m $\eta = 7.0$	x: 0 m $\eta = 22.6$	$\eta = 1.8$	x: 0 m $\eta = 1.9$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 30.9$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 1.8$	x: 0 m $\eta = 1.9$	**CUMPLE h = 30.9**
N2168/N1544	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.7$	$\eta = 1.2$	x: 2.5 m $\eta = 6.9$	x: 2.5 m $\eta = 18.9$	$\eta = 1.8$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 27.3**
N1544/N2169	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 1.1$	x: 2.5 m $\eta = 6.3$	x: 0 m $\eta = 20.5$	$\eta = 1.6$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.5$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.5**
N2169/N1472	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.0$	$\eta = 1.1$	x: 2.5 m $\eta = 6.9$	x: 2.5 m $\eta = 19.1$	$\eta = 1.8$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 27.8**
N1472/N2170	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 2.5 m $\eta = 6.4$	x: 0 m $\eta = 20.6$	$\eta = 1.6$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.8**
N2170/N1400	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.2$	x: 2.5 m $\eta = 7.0$	x: 2.5 m $\eta = 19.3$	$\eta = 1.8$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.4$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 28.4**
N1400/N2171	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.2$	x: 2.5 m $\eta = 6.5$	x: 0 m $\eta = 20.6$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.3**
N2171/N1328	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.2$	x: 0 m $\eta = 6.4$	x: 2.5 m $\eta = 19.2$	$\eta = 1.6$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.4$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 27.4**
N1328/N2172	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.0$	x: 0 m $\eta = 6.8$	x: 0 m $\eta = 20.8$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.7**
N2172/N1256	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 6.7$	x: 2.5 m $\eta = 19.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 28.0**
N1256/N2173	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.1**
N2173/N1184	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 2.5 m $\eta = 19.4$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 27.9**
N1184/N2174	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 0 m $\eta = 20.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2174/N1112	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 1.2$	x: 0 m $\eta = 6.6$	x: 2.5 m $\eta = 19.5$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 28.0**
N1112/N2175	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 2.5 m $\eta = 6.6$	x: 0 m $\eta = 20.4$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.9**
N2175/N1040	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.4$	x: 2.5 m $\eta = 8.2$	x: 2.5 m $\eta = 19.5$	$\eta = 2.0$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 29.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.0$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 29.8**
N1040/N2176	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.0$	$\eta = 1.4$	x: 2.5 m $\eta = 10.2$	x: 0 m $\eta = 19.6$	$\eta = 2.6$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 30.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.6$	x: 0 m $\eta = 1.8$	**CUMPLE h = 30.9**
N2176/N968	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.9$	$\eta = 0.5$	x: 0 m $\eta = 10.9$	x: 2.5 m $\eta = 18.8$	$\eta = 2.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 30.5$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 2.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 30.5**
N968/N2292	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.5$	x: 2.5 m $\eta = 4.2$	x: 0 m $\eta = 30.7$	$\eta = 1.0$	x: 0 m $\eta = 2.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 34.5$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.0$	x: 0 m $\eta = 2.3$	**CUMPLE h = 34.5**
N2292/N37	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.7$	x: 0 m $\eta = 3.9$	x: 2.5 m $\eta = 29.4$	$\eta = 0.9$	x: 2.5 m $\eta = 2.2$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 32.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 0.9$	x: 2.5 m $\eta = 2.2$	**CUMPLE h = 32.9**
N37/N2177	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 0.5$	x: 2.5 m $\eta = 11.9$	x: 0 m $\eta = 19.3$	$\eta = 3.1$	x: 0 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 32.4$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 3.1$	x: 0 m $\eta = 1.7$	**CUMPLE h = 32.4**
N2177/N104	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.7$	$\eta = 1.4$	x: 0 m $\eta = 10.3$	x: 2.5 m $\eta = 19.3$	$\eta = 2.6$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 30.2$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.6$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 30.2**
N104/N2178	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.4$	x: 0 m $\eta = 6.9$	x: 0 m $\eta = 20.1$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2178/N176	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.3$	x: 0 m $\eta = 6.3$	x: 2.5 m $\eta = 19.7$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 27.7**
N176/N2179	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2179/N248	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.2$	x: 2.5 m $\eta = 6.8$	x: 2.5 m $\eta = 19.8$	$\eta = 1.8$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.7**
N248/N2180	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.2$	x: 2.5 m $\eta = 6.4$	x: 0 m $\eta = 20.1$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.7**
N2180/N320	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.2$	x: 2.5 m $\eta = 6.6$	x: 2.5 m $\eta = 19.9$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.7**
N320/N2181	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.2$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.0$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.8**
N2181/N392	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.2$	x: 0 m $\eta = 6.6$	x: 2.5 m $\eta = 20.0$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.9**
N392/N2182	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.2$	x: 2.5 m $\eta = 6.6$	x: 0 m $\eta = 20.0$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.8**
N2182/N464	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.3$	x: 2.5 m $\eta = 7.5$	x: 2.5 m $\eta = 20.1$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 30.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 30.1**
N464/N2183	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.3$	x: 0 m $\eta = 6.7$	x: 0 m $\eta = 19.6$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2183/N536	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.2$	x: 0 m $\eta = 6.1$	x: 2.5 m $\eta = 20.1$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.3**
N536/N2184	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.1$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2184/N608	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.2$	x: 0 m $\eta = 6.7$	x: 2.5 m $\eta = 20.2$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 29.2$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 29.2**
N608/N2185	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 0 m $\eta = 19.6$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.7**
N2185/N680	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 1.2$	x: 0 m $\eta = 6.4$	x: 2.5 m $\eta = 20.1$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.8**
N680/N2186	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.1$	x: 0 m $\eta = 6.8$	x: 0 m $\eta = 19.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.6$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.6**
N2186/N752	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.3$	x: 0 m $\eta = 6.3$	x: 2.5 m $\eta = 20.0$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.1**
N752/N2187	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.0$	$\eta = 1.2$	x: 0 m $\eta = 7.1$	x: 0 m $\eta = 19.4$	$\eta = 1.8$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.1**
N2187/N824	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 1.6$	x: 0 m $\eta = 7.1$	x: 2.5 m $\eta = 20.9$	$\eta = 1.8$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 29.8$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 1.8$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 29.8**
N824/N2188	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 1.6$	x: 0 m $\eta = 9.9$	x: 0 m $\eta = 20.1$	$\eta = 2.3$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 30.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.3$	x: 0 m $\eta = 1.8$	**CUMPLE h = 30.7**
N2188/N896	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 0.6$	x: 0 m $\eta = 5.1$	x: 2.5 m $\eta = 20.6$	$\eta = 1.1$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 23.5$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 1.1$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 23.5**
N896/N2189	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 1.0$	x: 0 m $\eta = 6.2$	x: 0 m $\eta = 18.4$	$\eta = 1.5$	x: 0 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 21.8$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 1.5$	x: 0 m $\eta = 1.7$	**CUMPLE h = 21.8**
N2189/N1902	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 1.0$	x: 0 m $\eta = 3.7$	x: 2.5 m $\eta = 12.1$	$\eta = 0.6$	x: 2.5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 13.5$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.6$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 13.5**
N1833/N1761	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.72 m $\eta = 14.4$	x: 2.72 m $\eta = 9.9$	$\eta = 3.2$	x: 2.72 m $\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.72 m $\eta = 24.4$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 3.2$	x: 2.72 m $\eta = 0.5$	**CUMPLE h = 24.4**
N1761/N1908	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.3$	x: 0 m $\eta = 7.3$	x: 0 m $\eta = 11.1$	$\eta = 1.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.5$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 1.5$	x: 0 m $\eta = 0.6$	**CUMPLE h = 18.5**
N1908/N1689	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.5$	$\eta = 0.3$	x: 2.5 m $\eta = 6.4$	x: 2.5 m $\eta = 15.0$	$\eta = 1.3$	x: 2.5 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 18.1$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 1.3$	x: 2.5 m $\eta = 0.8$	**CUMPLE h = 18.1**
N1689/N1909	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.7$	$\eta = 0.5$	x: 0 m $\eta = 6.3$	x: 0 m $\eta = 13.4$	$\eta = 1.4$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.5$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 1.4$	x: 0 m $\eta = 0.7$	**CUMPLE h = 18.5**
N1909/N1617	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 0.6$	x: 2.5 m $\eta = 4.9$	x: 2.5 m $\eta = 14.6$	$\eta = 1.1$	x: 2.5 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 16.6$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 1.1$	x: 2.5 m $\eta = 0.8$	**CUMPLE h = 16.6**
N1617/N1910	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 0.7$	x: 0 m $\eta = 6.2$	x: 0 m $\eta = 12.8$	$\eta = 1.4$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.1$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 1.4$	x: 0 m $\eta = 0.7$	**CUMPLE h = 18.1**
N1910/N1545	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.1$	$\eta = 0.7$	x: 0 m $\eta = 4.8$	x: 2.5 m $\eta = 12.7$	$\eta = 1.1$	x: 2.5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.3$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 1.1$	x: 2.5 m $\eta = 0.7$	**CUMPLE h = 15.3**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1545/N1911	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.8	x: 0 m η = 5.4	x: 0 m η = 10.9	η = 1.3	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.7	η < 0.1	η = 0.6	η = 1.3	x: 0 m η = 0.6	**CUMPLE h = 14.7**
N1911/N1473	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.8	x: 0 m η = 4.7	x: 2.5 m η = 12.7	η = 1.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η = 0.5	η = 1.1	x: 2.5 m η = 0.7	**CUMPLE h = 14.8**
N1473/N1912	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 0.9	x: 0 m η = 5.3	x: 0 m η = 11.2	η = 1.3	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η = 0.5	η = 1.3	x: 0 m η = 0.6	**CUMPLE h = 14.8**
N1912/N1401	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 0.9	x: 0 m η = 4.7	x: 2.5 m η = 12.6	η = 1.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 14.9	η < 0.1	η = 0.5	η = 1.1	x: 2.5 m η = 0.7	**CUMPLE h = 14.9**
N1401/N1913	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 1.0	x: 0 m η = 4.9	x: 0 m η = 11.3	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.7	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 14.7**
N1913/N1329	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 1.0	x: 0 m η = 4.7	x: 2.5 m η = 12.6	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.1	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.1**
N1329/N1914	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 1.0	x: 0 m η = 4.9	x: 0 m η = 11.5	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.0**
N1914/N1257	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 1.0	x: 0 m η = 4.7	x: 2.5 m η = 12.4	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 14.8**
N1257/N1915	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 0 m η = 4.8	x: 0 m η = 11.5	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.9	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 14.9**
N1915/N1185	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 0 m η = 4.7	x: 2.5 m η = 12.4	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.0	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.0**
N1185/N1916	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 0 m η = 4.8	x: 0 m η = 11.6	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.0**
N1916/N1113	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.0	x: 0 m η = 4.7	x: 2.5 m η = 12.3	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.1	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.1**
N1113/N1917	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.0	x: 0 m η = 5.0	x: 0 m η = 11.7	η = 1.3	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.4	η < 0.1	η = 0.5	η = 1.3	x: 0 m η = 0.6	**CUMPLE h = 15.4**
N1917/N1041	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.1	x: 0 m η = 4.7	x: 2.5 m η = 12.0	η = 1.2	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 14.6	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.6	**CUMPLE h = 14.6**
N1041/N1918	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.1	x: 0 m η = 4.6	x: 0 m η = 11.4	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.2	η < 0.1	η = 0.4	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 14.2**
N1918/N969	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.1	x: 2.5 m η = 4.7	x: 2.5 m η = 13.4	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 17.0	η < 0.1	η = 0.4	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 17.0**
N969/N2523	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.1	x: 0 m η = 4.4	x: 0 m η = 19.9	η = 1.1	x: 0 m η = 1.0	η < 0.1	η < 0.1	x: 0 m η = 23.9	η < 0.1	η = 0.7	η = 1.1	x: 0 m η = 1.0	**CUMPLE h = 23.9**
N2523/N16	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.1	x: 0 m η = 4.3	x: 2.5 m η = 20.1	η = 1.0	x: 2.5 m η = 1.1	η < 0.1	η < 0.1	x: 0 m η = 23.4	η < 0.1	η = 0.8	η = 1.0	x: 2.5 m η = 1.1	**CUMPLE h = 23.4**
N16/N1931	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 2.5 m η = 4.6	x: 0 m η = 12.5	η = 1.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.5	η < 0.1	η = 0.4	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.5**
N1931/N105	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 2.5 m η = 4.9	x: 2.5 m η = 12.1	η = 1.2	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 15.3	η < 0.1	η = 0.4	η = 1.2	x: 2.5 m η = 0.6	**CUMPLE h = 15.3**
N105/N1930	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 0 m η = 4.8	x: 0 m η = 11.6	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.2	η < 0.1	η = 0.6	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.2**
N1930/N177	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 2.5 m η = 4.6	x: 2.5 m η = 12.4	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.6**
N177/N1929	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 0 m η = 4.8	x: 0 m η = 11.8	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.7**
N1929/N249	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 4.7	x: 2.5 m η = 12.2	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.0	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.0**
N249/N1928	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 4.8	x: 0 m η = 11.8	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.3	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.3**
N1928/N321	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 4.7	x: 2.5 m η = 12.2	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.3	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.3**
N321/N1927	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 0 m η = 4.7	x: 0 m η = 11.8	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.3	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.3**
N1927/N393	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 4.7	x: 2.5 m η = 12.2	η = 1.2	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.4	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.7	**CUMPLE h = 15.4**
N393/N1926	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 0 m η = 4.8	x: 0 m η = 11.9	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.6	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 15.6**
N1926/N465	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 0 m η = 4.7	x: 2.5 m η = 12.0	η = 1.2	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η = 0.5	η = 1.2	x: 2.5 m η = 0.6	**CUMPLE h = 14.8**
N465/N1925	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 2.5 m η = 4.7	x: 0 m η = 11.9	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.5	η < 0.1	η = 0.6	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 14.5**
N1925/N537	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 2.5 m η = 5.0	x: 2.5 m η = 12.2	η = 1.3	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 16.1	η < 0.1	η = 0.6	η = 1.3	x: 2.5 m η = 0.7	**CUMPLE h = 16.1**
N537/N1924	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 2.5 m η = 4.7	x: 0 m η = 12.2	η = 1.2	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 15.3	η < 0.1	η = 0.6	η = 1.2	x: 0 m η = 0.7	**CUMPLE h = 15.3**
N1924/N609	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 2.5 m η = 4.9	x: 2.5 m η = 11.7	η = 1.2	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η = 0.6	η = 1.2	x: 2.5 m η = 0.6	**CUMPLE h = 14.8**
N609/N1923	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 1.0	x: 2.5 m η = 4.7	x: 0 m η = 12.2	η = 1.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.7	**CUMPLE h = 14.6**
N1923/N681	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 1.0	x: 2.5 m η = 5.1	x: 2.5 m η = 11.5	η = 1.3	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 15.0	η < 0.1	η = 0.6	η = 1.3	x: 2.5 m η = 0.6	**CUMPLE h = 15.0**
N681/N1922	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 0.9	x: 2.5 m η = 4.7	x: 0 m η = 12.2	η = 1.2	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 14.5	η < 0.1	η = 0.5	η = 1.2	x: 0 m η = 0.7	**CUMPLE h = 14.5**
N1922/N753	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 0.9	x: 2.5 m η = 5.5	x: 2.5 m η = 11.5	η = 1.3	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 15.4	η < 0.1	η = 0.5	η = 1.3	x: 2.5 m η = 0.6	**CUMPLE h = 15.4**
N753/N1921	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.7	x: 0 m η = 5.0	x: 0 m η = 12.1	η = 1.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η = 0.6	η = 1.2	x: 0 m η = 0.6	**CUMPLE h = 14.6**
N1921/N825	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.7	x: 2.5 m η = 5.8	x: 2.5 m η = 12.2	η = 1.4	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 16.5	η < 0.1	η = 0.6	η = 1.4	x: 2.5 m η = 0.7	**CUMPLE h = 16.5**
N825/N1920	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 6.2	x: 0 m η = 12.7	η = 1.3	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.7	η = 1.3	x: 0 m η = 0.7	**CUMPLE h = 17.5**
N1920/N897	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.5	x: 2.5 m η = 8.5	x: 2.5 m η = 11.5	η = 1.7	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 20.1	η < 0.1	η = 0.6	η = 1.7	x: 2.5 m η = 0.6	**CUMPLE h = 20.1**
N897/N1919	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.4	x: 0 m η = 8.1	x: 0 m η = 11.0	η = 1.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.3	η = 1.7	x: 0 m η = 0.6	**CUMPLE h = 17.5**
N1919/N1903	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.4	x: 0 m η = 5.0	x: 2.5 m η = 3.6	η = 1.1	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 7.4	η < 0.1	η = 0.5	η = 1.1	x: 2.5 m η = 0.3	**CUMPLE h = 7.4**
N1834/N1763	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.72 m η = 7.2	x: 0 m η = 16.9	η = 1.5	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η = 0.1	η = 1.5	x: 0 m η = 1.6	**CUMPLE h = 18.7**
N1763/N2438	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 6.3	x: 0 m η = 16.0	η = 1.6	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.9	η < 0.1	η < 0.1	η = 1.6	x: 0 m η = 1.6	**CUMPLE h = 19.9**
N2438/N1691	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 5.6	x: 0 m η = 13.2	η = 1.4	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.4	**CUMPLE h = 14.8**
N1691/N2434	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 5.7	x: 0 m η = 16.3	η = 1.5	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η < 0.1	η = 1.5	x: 0 m η = 1.6	**CUMPLE h = 19.5**
N2434/N1619	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 5.3	x: 0 m η = 13.1	η = 1.4	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.2	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.4	**CUMPLE h = 16.2**
N1619/N2430	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 5.5	x: 0 m η = 16.3	η = 1.4	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.6	**CUMPLE h = 19.5**
N2430/N1547	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.1	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.1**
N1547/N2426	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 16.2	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.3	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.3**
N2426/N1475	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 13.1	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.1**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1475/N2422	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 16.2	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.3	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.3**
N2422/N1403	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 13.1	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.2	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.2**
N1403/N2418	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 16.1	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.4	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.4**
N2418/N1331	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.0	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.0**
N1331/N2414	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 16.2	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.2	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.2**
N2414/N1259	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 13.0	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.1**
N1259/N2410	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 16.1	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.2	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.2**
N2410/N1187	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 4.5	x: 0 m η = 13.0	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.0**
N1187/N2406	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 16.0	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.2	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.2**
N2406/N1115	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.5	x: 0 m η = 13.0	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.0**
N1115/N2402	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.5	x: 0 m η = 16.0	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.1	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.1**
N2402/N1043	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 4.5	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.0**
N1043/N2398	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 15.9	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.2	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.2**
N2398/N971	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.5	x: 0 m η = 12.8	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N971/N2394	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.5	x: 0 m η = 16.0	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.0**
N2394/N36	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.4	x: 0 m η = 12.8	η = 1.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η < 0.1	η = 1.1	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N36/N2342	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 4.4	x: 0 m η = 16.0	η = 1.1	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η < 0.1	η = 1.1	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N2342/N107	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 4.8	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 16.0**
N107/N2346	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.7	x: 0 m η = 15.8	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.1	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 19.1**
N2346/N179	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.5	x: 0 m η = 12.7	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N179/N2350	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 4.6	x: 0 m η = 15.9	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N2350/N251	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 4.6	x: 0 m η = 12.8	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.8**
N251/N2354	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 15.8	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N2354/N323	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 12.8	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N323/N2358	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 15.7	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N2358/N395	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 4.6	x: 0 m η = 12.7	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N395/N2362	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 4.6	x: 0 m η = 15.7	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.7**
N2362/N467	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 4.7	x: 0 m η = 12.8	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.8**
N467/N2366	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 4.7	x: 0 m η = 15.6	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.8**
N2366/N539	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 12.6	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.6**
N539/N2370	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 15.7	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.6**
N2370/N611	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 12.7	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N611/N2374	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 15.5	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.5	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.5**
N2374/N683	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 12.7	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N683/N2378	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 15.4	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.3	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.3**
N2378/N755	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 12.8	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.6**
N755/N2382	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 15.3	η = 1.1	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η < 0.1	η = 1.1	x: 0 m η = 1.6	**CUMPLE h = 17.7**
N2382/N827	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 5.4	x: 0 m η = 13.0	η = 1.4	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.9	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.4	**CUMPLE h = 15.9**
N827/N2386	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 5.3	x: 0 m η = 14.9	η = 1.4	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 17.0	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.5	**CUMPLE h = 17.0**
N2386/N899	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 5.1	x: 0 m η = 13.1	η = 1.3	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.8	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.4	**CUMPLE h = 15.8**
N899/N2390	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 5.6	x: 0 m η = 14.6	η = 1.3	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 16.6	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.5	**CUMPLE h = 16.6**
N2390/N1904	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η < 0.1	x: 2.5 m η = 0.9	x: 0 m η = 13.8	η = 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.1	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.5	**CUMPLE h = 14.1**
N1835/N1764	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.4	x: 2.72 m η = 10.4	x: 0 m η = 16.5	η = 2.1	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 2.72 m η = 21.5	η < 0.1	η = 0.4	η = 2.1	x: 0 m η = 1.6	**CUMPLE h = 21.5**
N1764/N2436	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.5	x: 2.5 m η = 10.3	x: 0 m η = 19.0	η = 2.7	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 28.6	η < 0.1	η = 0.2	η = 2.7	x: 0 m η = 1.7	**CUMPLE h = 28.6**
N2436/N1692	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.5	x: 2.5 m η = 10.8	x: 2.5 m η = 12.5	η = 2.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 23.9	η < 0.1	η = 0.2	η = 2.8	x: 2.5 m η = 1.4	**CUMPLE h = 23.9**
N1692/N2432	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 10.6	x: 0 m η = 19.9	η = 2.7	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 30.0	η < 0.1	η = 0.2	η = 2.7	x: 0 m η = 1.8	**CUMPLE h = 30.0**
N2432/N1620	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 2.5 m η = 10.3	x: 2.5 m η = 12.4	η = 2.7	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 23.4	η < 0.1	η = 0.2	η = 2.7	x: 2.5 m η = 1.4	**CUMPLE h = 23.4**
N1620/N2428	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 0 m η = 10.3	x: 0 m η = 20.0	η = 2.6	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 29.4	η < 0.1	η = 0.2	η = 2.6	x: 0 m η = 1.8	**CUMPLE h = 29.4**
N2428/N1548	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 0 m η = 8.8	x: 2.5 m η = 12.6	η = 2.3	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 21.0	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.4	**CUMPLE h = 21.0**
N1548/N2424	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 2.5 m η = 8.6	x: 0 m η = 19.7	η = 2.2	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.6	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.8	**CUMPLE h = 26.6**
N2424/N1476	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 8.8	x: 2.5 m η = 13.0	η = 2.3	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 21.4	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.4	**CUMPLE h = 21.4**
N1476/N2420	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.7	η = 2.2	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 26.7	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.8	**CUMPLE h = 26.7**
N2420/N1404	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 2.5 m η = 9.0	x: 2.5 m η = 13.4	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 21.9	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 21.9**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1404/N2416	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 0 m η = 8.9	x: 0 m η = 19.5	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.8	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.8	**CUMPLE h = 26.8**
N2416/N1332	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 0 m η = 8.8	x: 2.5 m η = 13.5	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.0	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.0**
N1332/N2412	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.5	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.5	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.8	**CUMPLE h = 26.5**
N2412/N1260	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 13.7	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.2	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.2**
N1260/N2408	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.7	x: 0 m η = 19.3	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.4	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.4**
N2408/N1188	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 13.9	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.4	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.4**
N1188/N2404	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.7	x: 0 m η = 19.2	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.2	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.2**
N2404/N1116	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 2.5 m η = 14.0	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.5	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.5**
N1116/N2400	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 19.1	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.0	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.0**
N2400/N1044	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 2.5 m η = 14.2	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.7	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 22.7**
N1044/N2396	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.7	x: 0 m η = 19.0	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 26.0	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 26.0**
N2396/N972	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.5	x: 2.5 m η = 14.3	η = 2.2	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.9	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.5	**CUMPLE h = 22.9**
N972/N2392	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.6	x: 0 m η = 19.1	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.7	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 25.7**
N2392/N35	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.3	x: 2.5 m η = 14.5	η = 2.1	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 22.6	η < 0.1	η = 0.2	η = 2.1	x: 2.5 m η = 1.5	**CUMPLE h = 22.6**
N35/N2340	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.2	x: 0 m η = 19.1	η = 2.1	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.1	η < 0.1	η = 0.2	η = 2.1	x: 0 m η = 1.7	**CUMPLE h = 25.1**
N2340/N108	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 9.3	x: 2.5 m η = 14.4	η = 2.4	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.7	η < 0.1	η = 0.1	η = 2.4	x: 2.5 m η = 1.5	**CUMPLE h = 23.7**
N108/N2344	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 9.1	x: 0 m η = 18.7	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.9	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.9**
N2344/N180	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.7	x: 2.5 m η = 14.7	η = 2.2	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.5	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.5	**CUMPLE h = 23.5**
N180/N2348	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 18.9	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.3	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.3**
N2348/N252	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 14.7	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.7	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.7**
N252/N2352	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.8	x: 0 m η = 18.7	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.2	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.2**
N2352/N324	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 14.9	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 23.9	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 23.9**
N324/N2356	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.8	x: 0 m η = 18.6	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 25.0	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 25.0**
N2356/N396	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 8.8	x: 2.5 m η = 15.1	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 24.1	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 24.1**
N396/N2360	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 8.8	x: 0 m η = 18.6	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.8	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 24.8**
N2360/N468	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 9.1	x: 2.5 m η = 15.2	η = 2.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 24.5	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.5	**CUMPLE h = 24.5**
N468/N2364	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 9.1	x: 0 m η = 18.4	η = 2.4	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.9	η < 0.1	η = 0.2	η = 2.4	x: 0 m η = 1.7	**CUMPLE h = 24.9**
N2364/N540	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 8.6	x: 2.5 m η = 15.5	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.3	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 24.3**
N540/N2368	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.7	x: 0 m η = 18.5	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.2	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 24.2**
N2368/N612	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 8.8	x: 2.5 m η = 15.6	η = 2.3	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.6	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.6	**CUMPLE h = 24.6**
N612/N2372	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 0 m η = 8.8	x: 0 m η = 18.2	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 24.0	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 24.0**
N2372/N684	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 0 m η = 8.7	x: 2.5 m η = 15.7	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.6	η < 0.1	η = 0.2	η = 2.3	x: 2.5 m η = 1.6	**CUMPLE h = 24.6**
N684/N2376	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 0 m η = 8.7	x: 0 m η = 18.0	η = 2.3	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 23.6	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 1.7	**CUMPLE h = 23.6**
N2376/N756	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 8.6	x: 2.5 m η = 15.8	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.4	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 24.4**
N756/N2380	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 8.7	x: 0 m η = 17.6	η = 2.2	x: 0 m η = 1.7	η < 0.1	η < 0.1	x: 0 m η = 23.6	η < 0.1	η = 0.2	η = 2.2	x: 0 m η = 1.7	**CUMPLE h = 23.6**
N2380/N828	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 2.5 m η = 10.3	x: 2.5 m η = 15.7	η = 2.6	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 25.9	η < 0.1	η = 0.2	η = 2.6	x: 2.5 m η = 1.6	**CUMPLE h = 25.9**
N828/N2384	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 10.7	x: 0 m η = 16.5	η = 2.7	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 25.8	η < 0.1	η = 0.1	η = 2.7	x: 0 m η = 1.6	**CUMPLE h = 25.8**
N2384/N900	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.4	x: 0 m η = 8.8	x: 2.5 m η = 15.3	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 24.1	η < 0.1	η = 0.2	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 24.1**
N900/N2388	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η = 9.1	x: 0 m η = 15.7	η = 2.1	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 23.0	η < 0.1	η = 0.3	η = 2.1	x: 0 m η = 1.6	**CUMPLE h = 23.0**
N2388/N1905	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.3	x: 0 m η = 2.0	x: 0 m η = 13.5	η = 0.4	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.5	η < 0.1	η = 0.1	η = 0.4	x: 0 m η = 1.5	**CUMPLE h = 14.5**
N1836/N1765	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{tol} = 0.00 N.P.[4]	η = 1.1	x: 2.72 m η = 4.2	x: 2.72 m η = 16.1	η = 0.9	x: 2.72 m η = 1.6	η < 0.1	η < 0.1	x: 2.72 m η = 19.2	η < 0.1	η = 0.6	η = 0.9	x: 2.72 m η = 1.6	**CUMPLE h = 19.2**
N1765/N2215	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.9	x: 2.5 m η = 5.8	x: 0 m η = 22.7	η = 1.2	x: 0 m η = 1.9	η < 0.1	η < 0.1	x: 0 m η = 24.8	η < 0.1	η = 0.4	η = 1.2	x: 0 m η = 1.9	**CUMPLE h = 24.8**
N2215/N1693	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 1.0	x: 2.5 m η = 9.7	x: 2.5 m η = 21.3	η = 2.4	x: 2.5 m η = 1.8	η < 0.1	η < 0.1	x: 2.5 m η = 26.7	η < 0.1	η = 0.4	η = 2.4	x: 2.5 m η = 1.8	**CUMPLE h = 26.7**
N1693/N2216	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 1.0	x: 2.5 m η = 6.9	x: 0 m η = 23.3	η = 1.7	x: 0 m η = 1.9	η < 0.1	η < 0.1	x: 0 m η = 30.3	η < 0.1	η = 0.4	η = 1.7	x: 0 m η = 1.9	**CUMPLE h = 30.3**
N2216/N1621	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 1.4	x: 2.5 m η = 8.5	x: 2.5 m η = 20.9	η = 2.1	x: 2.5 m η = 1.8	η < 0.1	η < 0.1	x: 2.5 m η = 30.3	η < 0.1	η = 0.4	η = 2.1	x: 2.5 m η = 1.8	**CUMPLE h = 30.3**
N1621/N2217	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 1.4	x: 2.5 m η = 7.0	x: 0 m η = 22.6	η = 1.8	x: 0 m η = 1.9	η < 0.1	η < 0.1	x: 0 m η = 30.9	η < 0.1	η = 0.4	η = 1.8	x: 0 m η = 1.9	**CUMPLE h = 30.9**
N2217/N1549	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 1.2	x: 2.5 m η = 6.9	x: 2.5 m η = 18.9	η = 1.8	x: 2.5 m η = 1.7	η < 0.1	η < 0.1	x: 2.5 m η = 27.3	η < 0.1	η = 0.3	η = 1.8	x: 2.5 m η = 1.7	**CUMPLE h = 27.3**
N1549/N2218	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 2.5 m η = 6.3	x: 0 m η = 20.5	η = 1.6	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 28.5	η < 0.1	η = 0.3	η = 1.6	x: 0 m η = 1.8	**CUMPLE h = 28.5**
N2218/N1477	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.1	x: 2.5 m η = 7.0	x: 2.5 m η = 19.1	η = 1.8	x: 2.5 m η = 1.7	η < 0.1	η < 0.1	x: 2.5 m η = 27.9	η < 0.1	η = 0.3	η = 1.8	x: 2.5 m η = 1.7	**CUMPLE h = 27.9**
N1477/N2219	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.1	x: 2.5 m η = 6.4	x: 0 m η = 20.6	η = 1.6	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 28.8	η < 0.1	η = 0.3	η = 1.6	x: 0 m η = 1.8	**CUMPLE h = 28.8**
N2219/N1405	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.2	x: 2.5 m η = 7.1	x: 2.5 m η = 19.2	η = 1.8	x: 2.5 m η = 1.7	η < 0.1	η < 0.1	x: 2.5 m η = 28.4	η < 0.1	η = 0.3	η = 1.8	x: 2.5 m η = 1.7	**CUMPLE h = 28.4**
N1405/N2220	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.2	x: 2.5 m η = 6.5	x: 0 m η = 20.6	η = 1.7	x: 0 m η = 1.8	η < 0.1	η < 0.1	x: 0 m η = 29.3	η < 0.1	η = 0.3	η = 1.7	x: 0 m η = 1.8	**CUMPLE h = 29.3**
N2220/N1333	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.1	x: 0 m η = 6.4	x: 2.5 m η = 19.2	η = 1.6	x: 2.5 m η = 1.7	η < 0.1	η < 0.1	x: 2.5 m η = 27.5	η < 0.1	η = 0.3	η = 1.6	x: 2.5 m η = 1.7	**CUMPLE h = 27.5**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1333/N2221	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.0$	x: 0 m $\eta = 6.8$	x: 0 m $\eta = 20.8$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.7**
N2221/N1261	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 6.7$	x: 2.5 m $\eta = 19.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 28.1**
N1261/N2222	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 2.5 m $\eta = 6.5$	x: 0 m $\eta = 20.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.2$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.2**
N2222/N1189	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 2.5 m $\eta = 19.4$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 28.0**
N1189/N2223	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.1**
N2223/N1117	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 2.5 m $\eta = 19.4$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.7$	**CUMPLE h = 27.9**
N1117/N2224	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 0 m $\eta = 20.4$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2224/N1045	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 2.5 m $\eta = 6.8$	x: 2.5 m $\eta = 19.7$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.5$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.5**
N1045/N2225	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 2.5 m $\eta = 6.2$	x: 0 m $\eta = 20.2$	$\eta = 1.6$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.5$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.5**
N2225/N973	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 0 m $\eta = 5.9$	x: 2.5 m $\eta = 19.6$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.2$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 27.2**
N973/N2238	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.9$	$\eta = 0.9$	x: 0 m $\eta = 6.6$	x: 0 m $\eta = 20.6$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.0**
N2238/N34	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.9$	$\eta = 0.9$	x: 0 m $\eta = 6.0$	x: 2.5 m $\eta = 19.9$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 27.4$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 27.4**
N34/N2226	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.8$	x: 2.5 m $\eta = 5.6$	x: 0 m $\eta = 20.4$	$\eta = 1.4$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 27.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.4$	x: 0 m $\eta = 1.8$	**CUMPLE h = 27.3**
N2226/N109	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.3$	x: 2.5 m $\eta = 7.7$	x: 2.5 m $\eta = 19.7$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 29.5$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 29.5**
N109/N2227	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.3$	x: 0 m $\eta = 6.9$	x: 0 m $\eta = 20.0$	$\eta = 1.8$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.3**
N2227/N181	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.2$	x: 0 m $\eta = 6.3$	x: 2.5 m $\eta = 19.8$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.0**
N181/N2228	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.0$	x: 0 m $\eta = 6.7$	x: 0 m $\eta = 20.4$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.2$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 29.2**
N2228/N253	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.1$	x: 2.5 m $\eta = 6.8$	x: 2.5 m $\eta = 19.9$	$\eta = 1.8$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.8**
N253/N2229	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.0$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.8**
N2229/N325	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 2.5 m $\eta = 20.0$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.9**
N325/N2230	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.1$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 19.9$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.8**
N2230/N397	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 2.5 m $\eta = 20.1$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 29.0**
N397/N2231	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.1$	x: 2.5 m $\eta = 6.6$	x: 0 m $\eta = 19.9$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.8**
N2231/N469	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 1.2$	x: 2.5 m $\eta = 7.5$	x: 2.5 m $\eta = 20.2$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 30.2$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 30.2**
N469/N2232	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.3$	x: 0 m $\eta = 6.8$	x: 0 m $\eta = 19.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.9**
N2232/N541	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.2$	x: 0 m $\eta = 6.1$	x: 2.5 m $\eta = 20.2$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.4$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.5$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.4**
N541/N2233	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.0$	x: 0 m $\eta = 6.5$	x: 0 m $\eta = 20.0$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.9**
N2233/N613	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.2$	x: 0 m $\eta = 6.7$	x: 2.5 m $\eta = 20.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 29.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 29.3**
N613/N2234	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 0 m $\eta = 19.5$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.7$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.8$	**CUMPLE h = 28.7**
N2234/N685	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 1.2$	x: 0 m $\eta = 6.4$	x: 2.5 m $\eta = 20.2$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.9**
N685/N2235	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.2$	x: 0 m $\eta = 6.8$	x: 0 m $\eta = 19.4$	$\eta = 1.7$	x: 0 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.5$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.7$	x: 0 m $\eta = 1.7$	**CUMPLE h = 28.5**
N2235/N757	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.3$	x: 0 m $\eta = 6.3$	x: 2.5 m $\eta = 20.1$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 28.3$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.6$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 28.3**
N757/N2236	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 1.3$	x: 0 m $\eta = 7.1$	x: 0 m $\eta = 19.3$	$\eta = 1.8$	x: 0 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 28.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 1.8$	x: 0 m $\eta = 1.7$	**CUMPLE h = 28.0**
N2236/N829	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.7$	x: 2.5 m $\eta = 7.3$	x: 2.5 m $\eta = 20.9$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 30.2$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 1.9$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 30.2**
N829/N2237	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 1.7$	x: 0 m $\eta = 10.3$	x: 0 m $\eta = 19.9$	$\eta = 2.4$	x: 0 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 31.0$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.4$	x: 0 m $\eta = 1.8$	**CUMPLE h = 31.0**
N2237/N901	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 0.7$	x: 0 m $\eta = 4.6$	x: 2.5 m $\eta = 20.8$	$\eta = 0.9$	x: 2.5 m $\eta = 1.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 23.6$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 0.9$	x: 2.5 m $\eta = 1.8$	**CUMPLE h = 23.6**
N901/N2214	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 0.9$	x: 0 m $\eta = 5.4$	x: 0 m $\eta = 18.3$	$\eta = 1.3$	x: 0 m $\eta = 1.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 21.6$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 1.3$	x: 0 m $\eta = 1.7$	**CUMPLE h = 21.6**
N2214/N1906	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.9$	x: 0 m $\eta = 3.1$	x: 2.5 m $\eta = 12.1$	$\eta = 0.6$	x: 2.5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 13.5$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.6$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 13.5**
N1837/N1766	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.72 m $\eta = 14.3$	x: 2.72 m $\eta = 10.0$	$\eta = 3.2$	x: 2.72 m $\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.72 m $\eta = 24.4$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 3.2$	x: 2.72 m $\eta = 0.5$	**CUMPLE h = 24.4**
N1766/N1956	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 7.3$	x: 0 m $\eta = 11.1$	$\eta = 1.0$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.5$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 1.0$	x: 0 m $\eta = 0.6$	**CUMPLE h = 18.5**
N1956/N1694	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.5$	$\eta = 0.3$	x: 2.5 m $\eta = 4.3$	x: 2.5 m $\eta = 15.0$	$\eta = 0.9$	x: 2.5 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 18.1$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 0.9$	x: 2.5 m $\eta = 0.8$	**CUMPLE h = 18.1**
N1694/N1958	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.7$	$\eta = 0.5$	x: 0 m $\eta = 4.9$	x: 0 m $\eta = 13.4$	$\eta = 0.9$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.6$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 0.9$	x: 0 m $\eta = 0.7$	**CUMPLE h = 18.6**
N1958/N1622	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 0.5$	x: 2.5 m $\eta = 3.6$	x: 2.5 m $\eta = 14.6$	$\eta = 0.7$	x: 2.5 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 16.7$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 0.7$	x: 2.5 m $\eta = 0.8$	**CUMPLE h = 16.7**
N1622/N1960	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.1$	$\eta = 0.6$	x: 0 m $\eta = 5.0$	x: 0 m $\eta = 12.8$	$\eta = 0.9$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.2$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.9$	x: 0 m $\eta = 0.7$	**CUMPLE h = 18.2**
N1960/N1550	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.1$	$\eta = 0.7$	x: 2.5 m $\eta = 3.4$	x: 2.5 m $\eta = 12.7$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.3$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 0.8$	x: 2.5 m $\eta = 0.7$	**CUMPLE h = 15.3**
N1550/N1962	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 0.8$	x: 0 m $\eta = 3.9$	x: 0 m $\eta = 10.9$	$\eta = 0.9$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 14.8$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 0.9$	x: 0 m $\eta = 0.6$	**CUMPLE h = 14.8**
N1962/N1478	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 0.8$	x: 0 m $\eta = 3.3$	x: 2.5 m $\eta = 12.7$	$\eta = 0.8$	x: 2.5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.1$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.8$	x: 2.5 m $\eta = 0.7$	**CUMPLE h = 14.1**
N1478/N1964	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.6$	$\eta = 0.9$	x: 0 m $\eta = 3.1$	x: 0 m $\eta = 11.1$	$\eta = 0.7$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 14.9$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.7$	x: 0 m $\eta = 0.6$	**CUMPLE h = 14.9**
N1964/N1406	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.6$	$\eta = 0.9$	x: 2.5 m $\eta = 2.8$	x: 2.5 m $\eta = 12.7$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.4$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	**CUMPLE h = 14.4**
N1406/N1966	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.7$	$\eta = 0.9$	x: 0 m $\eta = 3.0$	x: 0 m $\eta = 11.3$	$\eta = 0.7$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 14.8$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.7$	x: 0 m $\eta = 0.6$	**CUMPLE h = 14.8**
N1966/N1334	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 1.0$	x: 2.5 m $\eta = 2.7$	x: 2.5 m $\eta = 12.7$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.1$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	**CUMPLE h = 15.1**
N1334/N1968	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 1.0$	x: 0 m $\eta = 2.6$	x: 0 m $\eta = 11.5$	$\eta = 0.6$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 15.1$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.6$	x: 0 m $\eta = 0.6$	**CUMPLE h = 15.1**
N1968/N1262	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.9$	$\eta = 1.0$	x: 2.5 m $\eta = 2.7$	x: 2.5 m $\eta = 12.5$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.8$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 0.7$	x: 2.5 m $\eta = 0.7$	**CUMPLE h = 14.8**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1262/N1970	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.0	x: 0 m η = 2.7	x: 0 m η = 11.5	η = 0.6	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.1	η < 0.1	η = 0.5	η = 0.6	x: 0 m η = 0.6	**CUMPLE h = 15.1**
N1970/N1190	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.0	x: 2.5 m η = 2.7	x: 2.5 m η = 12.4	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.1	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.1**
N1190/N1972	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.0	x: 0 m η = 2.6	x: 0 m η = 11.5	η = 0.6	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.1	η < 0.1	η = 0.5	η = 0.6	x: 0 m η = 0.6	**CUMPLE h = 15.1**
N1972/N1118	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.0	x: 2.5 m η = 2.6	x: 2.5 m η = 12.3	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.2**
N1118/N1974	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.0	x: 2.5 m η = 2.5	x: 0 m η = 11.5	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η = 0.5	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 15.0**
N1974/N1046	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.0	x: 2.5 m η = 2.6	x: 2.5 m η = 12.4	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.3	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.3**
N1046/N1976	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 2.6	x: 0 m η = 11.7	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η = 0.6	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 15.0**
N1976/N974	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 2.5 m η = 2.9	x: 2.5 m η = 12.6	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 16.0	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 16.0**
N974/N2028	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.0	x: 2.5 m η = 2.5	x: 0 m η = 11.8	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.1	η < 0.1	η = 0.6	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 15.1**
N2028/N18	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 2.5	x: 2.5 m η = 12.5	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.8	η < 0.1	η = 0.6	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.8**
N18/N1978	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 3.3	x: 0 m η = 11.9	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.5	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 16.8**
N1978/N110	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 3.2	x: 2.5 m η = 12.2	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 14.7	η < 0.1	η = 0.6	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 14.7**
N110/N1980	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 0 m η = 2.6	x: 0 m η = 11.6	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η = 0.5	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 14.8**
N1980/N182	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 3.0	x: 2.5 m η = 12.5	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 16.2	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 16.2**
N182/N1982	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 2.5	x: 0 m η = 11.8	η = 0.6	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η = 0.5	η = 0.6	x: 0 m η = 0.6	**CUMPLE h = 15.7**
N1982/N254	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 2.7	x: 2.5 m η = 12.2	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.2**
N254/N1984	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 2.5	x: 0 m η = 11.8	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.3	η < 0.1	η = 0.5	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 15.3**
N1984/N326	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 2.6	x: 2.5 m η = 12.2	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.5	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.5**
N326/N1986	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 2.5 m η = 2.5	x: 0 m η = 11.8	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.3	η < 0.1	η = 0.5	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 15.3**
N1986/N398	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 2.5 m η = 2.5	x: 2.5 m η = 12.2	η = 0.7	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 15.5	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.7	**CUMPLE h = 15.5**
N398/N1988	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 3.0	x: 0 m η = 11.9	η = 0.8	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 15.6	η < 0.1	η = 0.5	η = 0.8	x: 0 m η = 0.6	**CUMPLE h = 15.6**
N1988/N470	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 0 m η = 2.8	x: 2.5 m η = 12.0	η = 0.7	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 14.9	η < 0.1	η = 0.5	η = 0.7	x: 2.5 m η = 0.6	**CUMPLE h = 14.9**
N470/N1990	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.0	x: 2.5 m η = 3.3	x: 0 m η = 11.9	η = 0.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.5	η < 0.1	η = 0.6	η = 0.7	x: 0 m η = 0.6	**CUMPLE h = 14.5**
N1990/N542	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.1	x: 2.5 m η = 4.4	x: 2.5 m η = 12.2	η = 1.0	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 16.2	η < 0.1	η = 0.6	η = 1.0	x: 2.5 m η = 0.7	**CUMPLE h = 16.2**
N542/N1992	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 0 m η = 3.7	x: 0 m η = 12.2	η = 0.9	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 15.4	η < 0.1	η = 0.6	η = 0.9	x: 0 m η = 0.7	**CUMPLE h = 15.4**
N1992/N614	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.0	x: 0 m η = 3.3	x: 2.5 m η = 11.8	η = 0.8	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 14.9	η < 0.1	η = 0.6	η = 0.8	x: 2.5 m η = 0.6	**CUMPLE h = 14.9**
N614/N1994	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 0.9	x: 2.5 m η = 3.3	x: 0 m η = 12.2	η = 0.8	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η = 0.5	η = 0.8	x: 0 m η = 0.7	**CUMPLE h = 14.6**
N1994/N686	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 0.9	x: 2.5 m η = 3.4	x: 2.5 m η = 11.6	η = 0.9	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 15.1	η < 0.1	η = 0.6	η = 0.9	x: 2.5 m η = 0.6	**CUMPLE h = 15.1**
N686/N1996	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 0.8	x: 0 m η = 3.2	x: 0 m η = 12.2	η = 0.8	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 14.1	η < 0.1	η = 0.5	η = 0.8	x: 0 m η = 0.7	**CUMPLE h = 14.1**
N1996/N758	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 0.8	x: 2.5 m η = 3.4	x: 2.5 m η = 11.5	η = 0.9	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 15.4	η < 0.1	η = 0.5	η = 0.9	x: 2.5 m η = 0.6	**CUMPLE h = 15.4**
N758/N1998	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.7	x: 0 m η = 4.8	x: 0 m η = 12.1	η = 1.1	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 13.8	η < 0.1	η = 0.6	η = 1.1	x: 0 m η = 0.6	**CUMPLE h = 13.8**
N1998/N830	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.7	x: 2.5 m η = 4.2	x: 2.5 m η = 12.1	η = 0.9	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 16.3	η < 0.1	η = 0.6	η = 0.9	x: 2.5 m η = 0.6	**CUMPLE h = 16.3**
N830/N2000	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 4.5	x: 0 m η = 12.6	η = 1.0	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.7	η = 1.0	x: 0 m η = 0.7	**CUMPLE h = 17.9**
N2000/N902	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 0.5	x: 2.5 m η = 8.4	x: 2.5 m η = 11.6	η = 1.3	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 20.7	η < 0.1	η = 0.6	η = 1.3	x: 2.5 m η = 0.6	**CUMPLE h = 20.7**
N902/N2002	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.4	x: 0 m η = 6.5	x: 0 m η = 11.1	η = 1.4	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 17.6	η < 0.1	η = 0.3	η = 1.4	x: 0 m η = 0.6	**CUMPLE h = 17.6**
N2002/N1907	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.4	x: 0 m η = 4.4	x: 2.5 m η = 3.6	η = 0.8	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 7.6	η < 0.1	η = 0.5	η = 0.8	x: 2.5 m η = 0.3	**CUMPLE h = 7.6**
N1833/N2576	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.3	x: 0 m η = 3.9	x: 0 m η = 12.7	η = 0.2	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.2	η = 0.2	x: 2.5 m η = 0.6	**CUMPLE h = 16.8**
N2576/N2577	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.7	x: 2.5 m η = 4.7	x: 2.5 m η = 6.4	η = 0.9	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 9.8	η < 0.1	η = 0.1	η = 0.9	x: 2.5 m η = 0.4	**CUMPLE h = 9.8**
N2577/N2578	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.4	x: 2.5 m η = 7.8	x: 2.5 m η = 6.5	η = 1.6	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 12.7	η < 0.1	η = 1.8	η = 1.7	x: 2.5 m η = 0.5	**CUMPLE h = 12.7**
N2578/N2579	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 7.9	x: 2.5 m η = 8.4	η = 1.4	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η = 2.1	η = 1.4	x: 2.5 m η = 0.7	**CUMPLE h = 11.2**
N2579/N2580	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 0 m η = 2.7	x: 2.5 m η = 8.2	η = 0.4	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 8.3	η < 0.1	η = 0.3	η = 0.4	x: 2.5 m η = 0.7	**CUMPLE h = 8.3**
N2580/N2581	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.1	x: 2.5 m η = 0.4	x: 2.5 m η = 8.2	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 8.5	η < 0.1	η = 0.2	η < 0.1	x: 2.5 m η = 0.7	**CUMPLE h = 8.5**
N2581/N2582	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.2	x: 0 m η = 0.4	x: 2.5 m η = 8.8	η < 0.1	x: 2.5 m η = 0.8	η < 0.1	η < 0.1	x: 2.5 m η = 9.4	η < 0.1	η = 0.1	η < 0.1	x: 2.5 m η = 0.8	**CUMPLE h = 9.4**
N2582/N2583	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.3	x: 2.5 m η = 0.5	x: 2.5 m η = 8.6	η = 0.1	x: 2.5 m η = 0.9	η < 0.1	η < 0.1	x: 2.5 m η = 9.9	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 0.9	**CUMPLE h = 9.9**
N2583/N2584	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.4	x: 0 m η = 0.5	x: 2.5 m η = 9.0	η = 0.1	x: 2.5 m η = 0.9	η < 0.1	η < 0.1	x: 2.5 m η = 10.1	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 0.9	**CUMPLE h = 10.1**
N2584/N2585	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.5	x: 2.5 m η = 0.3	x: 2.5 m η = 8.7	η < 0.1	x: 2.5 m η = 1.0	η < 0.1	η < 0.1	x: 2.5 m η = 10.3	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.0	**CUMPLE h = 10.3**
N2585/N2586	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.5	x: 0 m η = 0.3	x: 2.5 m η = 8.9	η = 0.1	x: 2.5 m η = 1.0	η < 0.1	η < 0.1	x: 2.5 m η = 10.5	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.0	**CUMPLE h = 10.5**
N2586/N2587	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 0.6	x: 2.5 m η = 0.3	x: 2.5 m η = 8.6	η = 0.1	x: 2.5 m η = 1.1	η < 0.1	η < 0.1	x: 2.5 m η = 10.5	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.1	**CUMPLE h = 10.5**
N2587/N2588	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.6	x: 0 m η = 0.3	x: 2.5 m η = 8.6	η = 0.1	x: 2.5 m η = 1.1	η < 0.1	η < 0.1	x: 2.5 m η = 10.5	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.1	**CUMPLE h = 10.5**
N2588/N2589	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.7	x: 2.5 m η = 0.3	x: 2.5 m η = 8.5	η = 0.1	x: 2.5 m η = 1.1	η < 0.1	η < 0.1	x: 2.5 m η = 10.4	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.1	**CUMPLE h = 10.4**
N2589/N2590	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 0.7	x: 0 m η = 0.3	x: 2.5 m η = 8.5	η < 0.1	x: 2.5 m η = 1.2	η < 0.1	η < 0.1	x: 0 m η = 10.0	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.2	**CUMPLE h = 10.0**
N2590/N2591	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.6	x: 0 m η = 0.3	x: 0 m η = 8.4	η = 0.1	x: 0 m η = 1.1	η < 0.1	η < 0.1	x: 0 m η = 10.3	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.1	**CUMPLE h = 10.3**
N2591/N2592	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.6	x: 2.5 m η = 0.3	x: 0 m η = 8.6	η = 0.1	x: 0 m η = 1.1	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.1	**CUMPLE h = 10.5**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2592/N2593	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 0.6	x: 0 m η = 0.3	x: 0 m η = 8.6	η = 0.1	x: 0 m η = 1.1	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.1	**CUMPLE h = 10.5**
N2593/N2594	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.5	x: 2.5 m η = 0.3	x: 0 m η = 8.9	η = 0.1	x: 0 m η = 1.0	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.0	**CUMPLE h = 10.5**
N2594/N2595	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.4	x: 0 m η = 0.3	x: 0 m η = 8.7	η < 0.1	x: 0 m η = 1.0	η < 0.1	η < 0.1	x: 0 m η = 10.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.0	**CUMPLE h = 10.3**
N2595/N2596	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.3	x: 2.5 m η = 0.5	x: 0 m η = 9.0	η = 0.1	x: 0 m η = 0.9	η < 0.1	η < 0.1	x: 0 m η = 10.1	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 0.9	**CUMPLE h = 10.1**
N2596/N2597	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.3	x: 0 m η = 0.5	x: 0 m η = 8.6	η = 0.1	x: 0 m η = 0.9	η < 0.1	η < 0.1	x: 0 m η = 9.9	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 0.9	**CUMPLE h = 9.9**
N2597/N2598	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.1	x: 2.5 m η = 0.4	x: 0 m η = 8.8	η < 0.1	x: 0 m η = 0.8	η < 0.1	η < 0.1	x: 0 m η = 9.4	η < 0.1	η = 0.1	η < 0.1	x: 0 m η = 0.8	**CUMPLE h = 9.4**
N2598/N2599	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.1	x: 0 m η = 0.4	x: 0 m η = 8.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 8.5	η < 0.1	η = 0.2	η < 0.1	x: 0 m η = 0.7	**CUMPLE h = 8.5**
N2599/N2600	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 2.7	x: 0 m η = 8.2	η = 0.4	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 8.3	η < 0.1	η = 0.3	η = 0.4	x: 0 m η = 0.7	**CUMPLE h = 8.3**
N2600/N2601	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 8.0	x: 0 m η = 8.3	η = 1.4	x: 0 m η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η = 2.1	η = 1.4	x: 0 m η = 0.7	**CUMPLE h = 11.2**
N2601/N2602	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.4	x: 0 m η = 7.9	x: 0 m η = 6.5	η = 1.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 12.7	η < 0.1	η = 1.8	η = 1.7	x: 0 m η = 0.5	**CUMPLE h = 12.7**
N2602/N2603	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.7	x: 0 m η = 4.7	x: 0 m η = 6.4	η = 0.9	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.1	η = 0.9	x: 0 m η = 0.5	**CUMPLE h = 9.8**
N2603/N1837	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 2.5 m η = 3.9	x: 2.5 m η = 12.7	η = 0.2	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 16.8	η < 0.1	η = 0.2	η = 0.2	x: 0 m η = 0.6	**CUMPLE h = 16.8**
N1831/N1897	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.4	x: 0 m η = 9.0	x: 0 m η = 18.0	η = 2.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 29.2	η < 0.1	η < 0.1	η = 2.2	x: 0 m η = 1.6	**CUMPLE h = 29.2**
N1897/N2524	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.0	η = 1.7	x: 0 m η = 4.8	x: 0 m η = 13.1	η = 0.6	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 20.6	η < 0.1	η = 0.2	η = 0.6	x: 0 m η = 1.5	**CUMPLE h = 20.6**
N2524/N2526	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.7	x: 2.5 m η = 2.1	x: 0 m η = 14.7	η = 0.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.2	η = 0.2	x: 0 m η = 1.5	**CUMPLE h = 18.1**
N2526/N2528	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.4	η = 1.8	x: 0 m η = 2.1	x: 0 m η = 13.6	η = 0.3	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η = 0.3	η = 0.3	x: 0 m η = 1.5	**CUMPLE h = 18.9**
N2528/N2530	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.7	η = 1.9	x: 2.5 m η = 1.3	x: 0 m η = 14.3	η = 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 18.2	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.5	**CUMPLE h = 18.2**
N2530/N2532	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.9	η = 2.0	x: 0 m η = 1.3	x: 0 m η = 13.8	η = 0.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η = 0.1	η = 0.2	x: 0 m η = 1.5	**CUMPLE h = 18.7**
N2532/N2534	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.2	η = 2.1	x: 0 m η = 0.3	x: 0 m η = 14.0	η < 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 18.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.5	**CUMPLE h = 18.3**
N2534/N2536	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.4	η = 2.1	x: 2.5 m η = 0.2	x: 0 m η = 13.4	η < 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 17.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.5	**CUMPLE h = 17.3**
N2536/N2538	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.6	η = 2.2	x: 2.5 m η = 0.4	x: 0 m η = 13.5	η = 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.5	**CUMPLE h = 17.7**
N2538/N2540	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.8	η = 2.3	x: 0 m η = 0.4	x: 0 m η = 12.8	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.1	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 17.1**
N2540/N2542	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.0	η = 2.3	x: 0 m η = 0.3	x: 0 m η = 12.7	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.1	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 17.1**
N2542/N2544	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.1	η = 2.3	x: 0 m η = 0.3	x: 0 m η = 12.0	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 16.1**
N2544/N2546	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.2	η = 2.4	x: 2.5 m η = 0.5	x: 0 m η = 11.7	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.8	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 15.8**
N2546/N2548	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.2	η = 2.4	x: 0 m η = 0.5	x: 0 m η = 11.1	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.2	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 15.2**
N2548/N2550	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.2	η = 2.4	x: 2.5 m η = 0.3	x: 0 m η = 11.0	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 14.8**
N2550/N2552	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.2	η = 2.3	x: 2.5 m η = 0.4	x: 2.5 m η = 11.1	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 15.2**
N2552/N2554	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.2	η = 2.3	x: 0 m η = 0.4	x: 2.5 m η = 11.7	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.8	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 15.8**
N2554/N2556	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.1	η = 2.2	x: 0 m η = 0.3	x: 2.5 m η = 12.0	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.1	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 16.1**
N2556/N2558	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.0	η = 2.2	x: 2.5 m η = 0.3	x: 2.5 m η = 12.7	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.1	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 17.1**
N2558/N2560	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.8	η = 2.1	x: 2.5 m η = 0.4	x: 2.5 m η = 12.8	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.1	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 17.1**
N2560/N2562	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.6	η = 2.0	x: 0 m η = 0.4	x: 2.5 m η = 13.5	η = 0.1	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.7	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.5	**CUMPLE h = 17.7**
N2562/N2564	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.4	η = 1.9	x: 0 m η = 0.2	x: 2.5 m η = 13.4	η < 0.1	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.3	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	**CUMPLE h = 17.3**
N2564/N2566	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.2	η = 1.8	x: 2.5 m η = 0.3	x: 2.5 m η = 14.0	η < 0.1	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.3	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.5	**CUMPLE h = 18.3**
N2566/N2568	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.9	η = 1.7	x: 2.5 m η = 1.3	x: 2.5 m η = 13.8	η = 0.2	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.7	η < 0.1	η = 0.1	η = 0.2	x: 2.5 m η = 1.5	**CUMPLE h = 18.7**
N2568/N2570	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.7	η = 1.6	x: 0 m η = 1.3	x: 2.5 m η = 14.3	η = 0.1	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.2	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.5	**CUMPLE h = 18.2**
N2570/N2572	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.4	η = 1.4	x: 2.5 m η = 2.1	x: 2.5 m η = 13.6	η = 0.3	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.9	η < 0.1	η = 0.3	η = 0.3	x: 2.5 m η = 1.5	**CUMPLE h = 18.9**
N2572/N2574	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.4	x: 0 m η = 2.1	x: 2.5 m η = 14.7	η = 0.2	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.1	η < 0.1	η = 0.2	η = 0.2	x: 2.5 m η = 1.5	**CUMPLE h = 18.1**
N2574/N1894	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.0	η = 1.2	x: 2.5 m η = 4.8	x: 2.5 m η = 13.0	η = 0.6	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 20.5	η < 0.1	η = 0.2	η = 0.6	x: 2.5 m η = 1.5	**CUMPLE h = 20.5**
N1894/N1835	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 0.9	x: 2.5 m η = 9.0	x: 2.5 m η = 18.0	η = 2.2	x: 2.5 m η = 1.6	η < 0.1	η < 0.1	x: 2.5 m η = 29.2	η < 0.1	η < 0.1	η = 2.2	x: 2.5 m η = 1.6	**CUMPLE h = 29.2**
N1830/N1898	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.3	x: 2.5 m η = 5.7	x: 0 m η = 12.0	η = 1.5	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η < 0.1	η = 1.5	x: 0 m η = 1.4	**CUMPLE h = 16.1**
N1898/N2525	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.4	x: 0 m η = 2.7	x: 0 m η = 10.5	η = 0.4	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 12.8	η < 0.1	η = 0.1	η = 0.4	x: 0 m η = 1.3	**CUMPLE h = 12.8**
N2525/N2527	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.4	x: 2.5 m η = 0.2	x: 0 m η = 10.9	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 11.2**
N2527/N2529	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.4	x: 2.5 m η = 0.3	x: 0 m η = 10.6	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 11.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 11.0**
N2529/N2531	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.4	x: 0 m η = 0.3	x: 0 m η = 10.6	η = 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η < 0.1	η = 0.1	x: 0 m η = 1.3	**CUMPLE h = 11.2**
N2531/N2533	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η = 0.2	x: 0 m η = 10.6	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 11.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 11.0**
N2533/N2535	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η = 0.2	x: 0 m η = 10.4	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.9**
N2535/N2537	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η = 0.1	x: 0 m η = 10.4	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.9**
N2537/N2539	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η < 0.1	x: 0 m η = 10.3	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.7**
N2539/N2541	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η < 0.1	x: 0 m η = 10.3	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.7**
N2541/N2543	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η < 0.1	x: 0 m η = 10.2	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.6**
N2543/N2545	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η = 0.1	x: 0 m η = 10.2	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.6**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2545/N2547	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η = 0.1	x: 0 m η = 10.1	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.5**
N2547/N2549	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η < 0.1	x: 0 m η = 10.1	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.5**
N2549/N2551	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η < 0.1	x: 0 m η = 10.1	η < 0.1	x: 0 m η = 1.3	N.P.[1]	η < 0.1	x: 2.5 m η = 10.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 10.4**
N2551/N2553	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η < 0.1	x: 2.5 m η = 10.1	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.5**
N2553/N2555	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 2.5 m η < 0.1	x: 2.5 m η = 10.1	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.5	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.5**
N2555/N2557	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 0 m η < 0.1	x: 2.5 m η = 10.2	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.6**
N2557/N2559	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 0 m η < 0.1	x: 2.5 m η = 10.2	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.6**
N2559/N2561	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 0 m η < 0.1	x: 2.5 m η = 10.3	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.7**
N2561/N2563	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 2.5 m η < 0.1	x: 2.5 m η = 10.3	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.7**
N2563/N2565	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 2.5 m η = 0.1	x: 2.5 m η = 10.4	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.9	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.9**
N2565/N2567	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 2.5 m η = 0.2	x: 2.5 m η = 10.4	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.9	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 10.9**
N2567/N2569	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 0 m η = 0.2	x: 2.5 m η = 10.6	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 11.0	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 11.0**
N2569/N2571	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.3	x: 2.5 m η = 0.3	x: 2.5 m η = 10.6	η = 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η < 0.1	η = 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 11.2**
N2571/N2573	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.2	x: 0 m η = 0.3	x: 2.5 m η = 10.6	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 11.0	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 11.0**
N2573/N2575	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.2	x: 0 m η = 0.2	x: 2.5 m η = 10.9	η < 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 11.2**
N2575/N1895	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 0.2	x: 2.5 m η = 2.8	x: 2.5 m η = 10.5	η = 0.4	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 12.8	η < 0.1	η = 0.1	η = 0.4	x: 2.5 m η = 1.3	**CUMPLE h = 12.8**
N1895/N1834	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 5.7	x: 2.5 m η = 12.0	η = 1.5	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.1	η < 0.1	η < 0.1	η = 1.5	x: 2.5 m η = 1.4	**CUMPLE h = 16.1**
N1832/N1879	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 2.7	x: 2.5 m η = 2.7	x: 0 m η = 11.2	η = 0.5	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 13.4	η < 0.1	η = 0.1	η = 0.5	x: 0 m η = 1.3	**CUMPLE h = 13.4**
N1879/N1878	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 2.5	x: 2.5 m η = 6.5	x: 2.5 m η = 13.8	η = 0.9	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.9	η < 0.1	η = 0.2	η = 0.9	x: 2.5 m η = 1.5	**CUMPLE h = 18.9**
N1878/N2081	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.4	x: 2.5 m η = 14.5	x: 0 m η = 10.5	η = 2.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 25.0	η < 0.1	η = 0.5	η = 2.8	x: 2.5 m η = 1.4	**CUMPLE h = 25.0**
N2081/N1877	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 1.3	x: 0 m η = 14.5	x: 2.5 m η = 14.0	η = 2.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 21.7	η < 0.1	η = 0.6	η = 2.8	x: 2.5 m η = 1.4	**CUMPLE h = 21.7**
N1877/N1876	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.8	η = 3.4	x: 0 m η = 7.0	x: 2.5 m η = 11.1	η = 0.7	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 18.6	η < 0.1	η = 0.1	η = 0.7	x: 2.5 m η = 1.4	**CUMPLE h = 18.6**
N1876/N1875	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.2	η = 3.2	x: 0 m η = 1.5	x: 2.5 m η = 13.3	η = 0.4	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 20.5	η < 0.1	η = 0.1	η = 0.4	x: 2.5 m η = 1.4	**CUMPLE h = 20.5**
N1875/N1874	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 12.3	η = 5.5	x: 0 m η = 1.0	x: 2.5 m η = 11.1	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 22.4	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 22.4**
N1874/N1873	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 11.8	η = 5.3	x: 2.5 m η = 0.2	x: 2.5 m η = 12.6	η < 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 24.3	η < 0.1	η = 0.1	η < 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 24.3**
N1873/N1872	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 17.1	η = 11.2	x: 0 m η = 0.4	x: 2.5 m η = 10.9	η < 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 27.2	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 27.2**
N1872/N1871	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 16.7	η = 10.9	x: 2.5 m η = 0.4	x: 2.5 m η = 11.8	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 28.4	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 28.4**
N1871/N1870	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 20.9	η = 13.5	x: 0 m η = 0.4	x: 2.5 m η = 10.7	η = 0.1	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 30.8	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.4	**CUMPLE h = 30.8**
N1870/N1869	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 20.7	η = 13.3	x: 2.5 m η = 0.4	x: 2.5 m η = 10.3	η = 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 30.6	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 30.6**
N1869/N1868	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 22.4	η = 14.2	x: 0 m η = 0.4	x: 2.5 m η = 10.2	η = 0.1	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 31.8	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 31.8**
N1868/N1867	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 22.3	η = 14.1	x: 0 m η = 0.3	x: 0 m η = 10.1	η = 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 31.3	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.3	**CUMPLE h = 31.3**
N1867/N1880	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 23.0	η = 14.5	x: 2.5 m η = 0.2	x: 0 m η = 9.5	η < 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 31.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.3	**CUMPLE h = 31.4**
N1880/N1881	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 22.4	η = 14.1	x: 2.5 m η = 0.3	x: 2.5 m η = 10.1	η = 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 31.4	η < 0.1	η = 0.1	η = 0.1	x: 2.5 m η = 1.3	**CUMPLE h = 31.4**
N1881/N1882	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 22.5	η = 14.2	x: 2.5 m η = 0.4	x: 0 m η = 10.2	η = 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 31.9	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.3	**CUMPLE h = 31.9**
N1882/N1883	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 20.8	η = 13.2	x: 0 m η = 0.4	x: 0 m η = 10.3	η = 0.1	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 30.7	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.3	**CUMPLE h = 30.7**
N1883/N1884	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 21.0	η = 13.3	x: 2.5 m η = 0.3	x: 0 m η = 10.7	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 30.9	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 30.9**
N1884/N1885	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 16.8	η = 10.6	x: 0 m η = 0.4	x: 0 m η = 11.8	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 28.4	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 28.4**
N1885/N1886	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 17.1	η = 10.9	x: 2.5 m η = 0.4	x: 0 m η = 10.9	η < 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 27.2	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.4	**CUMPLE h = 27.2**
N1886/N1887	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 11.8	η = 5.0	x: 0 m η = 0.2	x: 0 m η = 12.6	η < 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 24.3	η < 0.1	η = 0.1	η < 0.1	x: 0 m η = 1.4	**CUMPLE h = 24.3**
N1887/N1888	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 12.3	η = 5.2	x: 2.5 m η = 1.0	x: 0 m η = 11.1	η = 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 22.4	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.4	**CUMPLE h = 22.4**
N1888/N1889	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.2	η = 2.8	x: 2.5 m η = 1.5	x: 0 m η = 13.3	η = 0.4	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 20.5	η < 0.1	η = 0.1	η = 0.4	x: 0 m η = 1.4	**CUMPLE h = 20.5**
N1889/N1890	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.7	η = 3.0	x: 2.5 m η = 7.0	x: 0 m η = 11.1	η = 0.7	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η = 0.1	η = 0.7	x: 0 m η = 1.4	**CUMPLE h = 18.6**
N1890/N1891	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 1.3	x: 2.5 m η = 14.5	x: 0 m η = 14.0	η = 2.8	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 21.6	η < 0.1	η = 0.6	η = 2.8	x: 0 m η = 1.4	**CUMPLE h = 21.6**
N1891/N1892	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.3	x: 0 m η = 14.5	x: 2.5 m η = 10.5	η = 2.8	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 24.9	η < 0.1	η = 0.6	η = 2.8	x: 0 m η = 1.4	**CUMPLE h = 24.9**
N1892/N1893	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 2.2	x: 0 m η = 6.5	x: 0 m η = 13.5	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η = 0.2	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 18.7**
N1893/N1836	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 2.7	x: 0 m η = 2.8	x: 2.5 m η = 11.1	η = 0.5	x: 2.5 m η = 1.3	η < 0.1	η < 0.1	x: 2.5 m η = 13.4	η < 0.1	η = 0.1	η = 0.5	x: 2.5 m η = 1.3	**CUMPLE h = 13.4**
N1903/N2440	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.7	x: 2.5 m η = 5.4	x: 0 m η = 9.1	η = 0.8	x: 2.5 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 12.6	η < 0.1	η = 0.2	η = 0.8	x: 2.5 m η = 0.5	**CUMPLE h = 12.6**
N2440/N2441	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.8	x: 0 m η = 5.6	x: 2.5 m η = 4.8	η = 0.7	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 8.9	η < 0.1	η = 1.0	η = 0.7	x: 2.5 m η = 0.3	**CUMPLE h = 8.9**
N2441/N2442	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.8	x: 0 m η = 2.9	x: 2.5 m η = 4.3	η = 0.6	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 7.4	η < 0.1	η = 0.6	η = 0.6	x: 2.5 m η = 0.3	**CUMPLE h = 7.4**
N2442/N2654	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.9	x: 2.5 m η = 3.1	x: 2.5 m η = 5.4	η = 0.6	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 9.8	η < 0.1	η = 1.5	η = 0.6	x: 2.5 m η = 0.3	**CUMPLE h = 9.8**
N2654/N2443	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 1.0	x: 2.5 m η = 5.4	x: 2.5 m η = 3.7	η = 1.1	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 10.6	η < 0.1	η = 0.4	η = 1.1	x: 2.5 m η = 0.3	**CUMPLE h = 10.6**
N2443/N2444	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 1.0	x: 2.5 m η = 5.9	x: 2.5 m η = 5.1	η = 1.4	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 12.6	η < 0.1	η = 1.6	η = 1.4	x: 2.5 m η = 0.3	**CUMPLE h = 12.6**
N2444/N2445	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 1.1	x: 2.5 m η = 8.3	x: 2.5 m η = 3.4	η = 1.9	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 13.5	η < 0.1	η = 0.2	η = 1.9	x: 2.5 m η = 0.3	**CUMPLE h = 13.5**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2445/N2446	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.1	x: 0 m η = 8.1	x: 2.5 m η = 4.5	η = 2.1	x: 2.5 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 14.2	η < 0.1	η = 1.5	η = 2.1	x: 2.5 m η = 0.3	**CUMPLE h = 14.2**
N2446/N2447	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.1	x: 2.5 m η = 11.2	x: 2.5 m η = 2.8	η = 2.5	x: 2.5 m η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 16.0	η < 0.1	η = 0.2	η = 2.5	x: 2.5 m η = 0.2	**CUMPLE h = 16.0**
N2447/N2448	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.2	x: 0 m η = 11.0	x: 2.5 m η = 3.8	η = 2.7	x: 2.5 m η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 15.7	η < 0.1	η = 1.3	η = 2.7	x: 2.5 m η = 0.2	**CUMPLE h = 15.7**
N2448/N2449	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.2	x: 0 m η = 9.9	x: 2.5 m η = 2.3	η = 2.3	x: 2.5 m η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 13.1	η < 0.1	η = 0.4	η = 2.3	x: 2.5 m η = 0.2	**CUMPLE h = 13.1**
N2449/N2450	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.2	x: 0 m η = 7.6	x: 2.5 m η = 3.0	η = 1.5	x: 2.5 m η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η = 1.3	η = 1.5	x: 2.5 m η = 0.2	**CUMPLE h = 11.2**
N2450/N2451	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.2	x: 0 m η = 4.3	x: 2.5 m η = 1.8	η = 0.9	x: 2.5 m η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 6.8	η < 0.1	η = 0.5	η = 0.9	x: 2.5 m η = 0.2	**CUMPLE h = 6.8**
N2451/N2452	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.2	x: 2.5 m η = 2.7	x: 2.5 m η = 1.7	η = 0.2	x: 2.5 m η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 6.3	η < 0.1	η = 0.3	η = 0.2	x: 2.5 m η = 0.2	**CUMPLE h = 6.3**
N2452/N2453	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.2	x: 2.5 m η = 2.9	x: 2.5 m η = 1.4	η = 0.2	x: 2.5 m η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.0	η < 0.1	η = 0.2	η = 0.2	x: 2.5 m η = 0.1	**CUMPLE h = 6.0**
N2453/N2454	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.2	x: 0 m η = 3.0	x: 0 m η = 1.4	η = 0.2	x: 0 m η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.5	η < 0.1	η = 0.3	η = 0.2	x: 0 m η = 0.1	**CUMPLE h = 6.5**
N2454/N2455	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.2	x: 2.5 m η = 4.3	x: 0 m η = 1.5	η = 0.9	x: 0 m η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.7	η < 0.1	η = 0.5	η = 0.9	x: 0 m η = 0.1	**CUMPLE h = 6.7**
N2455/N2456	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 7.7	x: 0 m η = 2.8	η = 1.5	x: 0 m η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 11.4	η < 0.1	η = 1.3	η = 1.5	x: 0 m η = 0.2	**CUMPLE h = 11.4**
N2456/N2457	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 2.5 m η = 10.0	x: 0 m η = 2.1	η = 2.3	x: 0 m η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 13.0	η < 0.1	η = 0.4	η = 2.3	x: 0 m η = 0.2	**CUMPLE h = 13.0**
N2457/N2458	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.0	x: 2.5 m η = 11.2	x: 0 m η = 3.6	η = 2.7	x: 0 m η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 15.6	η < 0.1	η = 1.3	η = 2.7	x: 0 m η = 0.2	**CUMPLE h = 15.6**
N2458/N2459	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 0.9	x: 0 m η = 11.4	x: 0 m η = 3.0	η = 2.5	x: 0 m η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 16.4	η < 0.1	η = 0.2	η = 2.5	x: 0 m η = 0.2	**CUMPLE h = 16.4**
N2459/N2460	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 0.9	x: 2.5 m η = 8.3	x: 0 m η = 4.3	η = 2.1	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 14.2	η < 0.1	η = 1.5	η = 2.1	x: 0 m η = 0.3	**CUMPLE h = 14.2**
N2460/N2461	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.8	x: 0 m η = 8.5	x: 0 m η = 3.6	η = 1.9	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 13.8	η < 0.1	η = 0.2	η = 1.9	x: 0 m η = 0.3	**CUMPLE h = 13.8**
N2461/N2462	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 0.7	x: 0 m η = 6.1	x: 0 m η = 4.9	η = 1.5	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 12.6	η < 0.1	η = 1.6	η = 1.5	x: 0 m η = 0.3	**CUMPLE h = 12.6**
N2462/N2463	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 6.0	x: 0 m η = 3.9	η = 1.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 11.3	η < 0.1	η = 0.4	η = 1.3	x: 0 m η = 0.3	**CUMPLE h = 11.3**
N2463/N2464	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 4.0	x: 0 m η = 5.2	η = 0.8	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η = 1.5	η = 0.8	x: 0 m η = 0.3	**CUMPLE h = 10.5**
N2464/N2465	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.5	x: 2.5 m η = 4.2	x: 0 m η = 4.2	η = 0.9	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 8.5	η < 0.1	η = 0.6	η = 0.9	x: 0 m η = 0.3	**CUMPLE h = 8.5**
N2465/N2466	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.4	x: 2.5 m η = 4.8	x: 0 m η = 4.7	η = 0.6	x: 0 m η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 9.6	η < 0.1	η = 1.0	η = 0.6	x: 0 m η = 0.3	**CUMPLE h = 9.6**
N2466/N1907	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.4	x: 0 m η = 4.7	x: 2.5 m η = 8.8	η = 0.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 12.5	η < 0.1	η = 0.2	η = 0.7	x: 0 m η = 0.5	**CUMPLE h = 12.5**
N1901/N2082	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 1.0	x: 2.5 m η = 3.9	x: 0 m η = 16.1	η = 0.7	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.1	η = 0.7	x: 0 m η = 1.6	**CUMPLE h = 18.1**
N2082/N2604	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 1.1	x: 0 m η = 7.5	x: 0 m η = 12.7	η = 1.4	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η = 0.2	η = 1.4	x: 0 m η = 1.4	**CUMPLE h = 19.5**
N2604/N2606	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 1.1	x: 0 m η = 3.5	x: 0 m η = 13.1	η = 0.5	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.6	η < 0.1	η = 0.3	η = 0.5	x: 0 m η = 1.5	**CUMPLE h = 16.6**
N2606/N2608	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.2	x: 2.5 m η = 3.3	x: 0 m η = 12.9	η = 0.6	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 16.3	η < 0.1	η = 0.3	η = 0.6	x: 0 m η = 1.4	**CUMPLE h = 16.3**
N2608/N2610	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 1.2	x: 0 m η = 3.3	x: 0 m η = 13.1	η = 0.8	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 18.2	η < 0.1	η = 0.4	η = 0.8	x: 0 m η = 1.5	**CUMPLE h = 18.2**
N2610/N2612	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.3	x: 2.5 m η = 3.5	x: 0 m η = 13.0	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.4	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 18.1**
N2612/N2614	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.4	x: 0 m η = 3.5	x: 0 m η = 12.9	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 18.3	η < 0.1	η = 0.5	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 18.3**
N2614/N2616	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.4	x: 2.5 m η = 3.6	x: 0 m η = 12.7	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.4	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 17.9**
N2616/N2618	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.5	x: 0 m η = 3.6	x: 0 m η = 12.6	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.5	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 18.1**
N2618/N2620	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.0	η = 1.5	x: 2.5 m η = 3.5	x: 0 m η = 12.3	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.4	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 17.5**
N2620/N2622	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.1	η = 1.6	x: 2.5 m η = 3.6	x: 0 m η = 12.2	η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.6	η < 0.1	η = 0.5	η = 0.9	x: 0 m η = 1.4	**CUMPLE h = 17.6**
N2622/N2624	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.6	x: 2.5 m η = 4.4	x: 0 m η = 11.7	η = 1.0	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.0	η < 0.1	η = 0.5	η = 1.0	x: 0 m η = 1.4	**CUMPLE h = 17.0**
N2624/N2626	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.6	x: 0 m η = 4.4	x: 0 m η = 11.6	η = 0.8	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.5	η = 0.8	x: 0 m η = 1.4	**CUMPLE h = 17.7**
N2626/N2628	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 1.6	x: 0 m η = 2.1	x: 0 m η = 11.4	η = 0.3	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.2	η < 0.1	η < 0.1	η = 0.3	x: 0 m η = 1.4	**CUMPLE h = 15.2**
N2628/N2630	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 1.6	x: 2.5 m η = 0.3	x: 0 m η = 11.1	η < 0.1	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 1.4	**CUMPLE h = 13.4**
N2630/N2632	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 1.6	x: 2.5 m η = 2.0	x: 2.5 m η = 11.2	η = 0.3	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 14.7	η < 0.1	η < 0.1	η = 0.3	x: 2.5 m η = 1.4	**CUMPLE h = 14.7**
N2632/N2634	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.5	x: 2.5 m η = 4.3	x: 2.5 m η = 11.5	η = 0.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.5	η < 0.1	η = 0.5	η = 0.8	x: 2.5 m η = 1.4	**CUMPLE h = 17.5**
N2634/N2636	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.5	x: 0 m η = 4.3	x: 2.5 m η = 11.4	η = 1.0	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.5	η < 0.1	η = 0.5	η = 1.0	x: 2.5 m η = 1.4	**CUMPLE h = 16.5**
N2636/N2638	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.1	η = 1.5	x: 0 m η = 3.6	x: 2.5 m η = 12.1	η = 0.9	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.4	η < 0.1	η = 0.5	η = 0.9	x: 2.5 m η = 1.4	**CUMPLE h = 17.4**
N2638/N2640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.0	η = 1.4	x: 0 m η = 3.4	x: 2.5 m η = 12.0	η = 0.9	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.0	η < 0.1	η = 0.4	η = 0.9	x: 2.5 m η = 1.4	**CUMPLE h = 17.0**
N2640/N2642	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.9	η = 1.3	x: 2.5 m η = 3.4	x: 2.5 m η = 12.4	η = 0.9	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.9	η < 0.1	η = 0.5	η = 0.9	x: 2.5 m η = 1.4	**CUMPLE h = 17.9**
N2642/N2644	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.3	x: 0 m η = 3.4	x: 2.5 m η = 12.5	η = 0.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.4	η < 0.1	η = 0.4	η = 0.8	x: 2.5 m η = 1.4	**CUMPLE h = 17.4**
N2644/N2646	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 1.2	x: 2.5 m η = 3.3	x: 2.5 m η = 12.8	η = 0.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 18.1	η < 0.1	η = 0.5	η = 0.8	x: 2.5 m η = 1.4	**CUMPLE h = 18.1**
N2646/N2648	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.1	x: 0 m η = 3.3	x: 2.5 m η = 12.8	η = 0.8	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.6	η < 0.1	η = 0.3	η = 0.8	x: 2.5 m η = 1.4	**CUMPLE h = 17.6**
N2648/N2650	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.0	x: 2.5 m η = 2.9	x: 2.5 m η = 13.0	η = 0.7	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.8	η < 0.1	η = 0.4	η = 0.7	x: 2.5 m η = 1.4	**CUMPLE h = 17.8**
N2650/N2655	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 0.9	x: 0 m η = 2.9	x: 2.5 m η = 12.9	η = 0.6	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.0	η < 0.1	η = 0.2	η = 0.6	x: 2.5 m η = 1.4	**CUMPLE h = 16.0**
N2655/N2656	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.8	η = 0.8	x: 2.5 m η = 3.4	x: 2.5 m η = 13.0	η = 0.4	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.7	η < 0.1	η = 0.3	η = 0.4	x: 2.5 m η = 1.4	**CUMPLE h = 16.7**
N2656/N2083	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 0.7	x: 2.5 m η = 7.5	x: 2.5 m η = 12.7	η = 1.4	x: 2.5 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 19.9	η < 0.1	η = 0.2	η = 1.4	x: 2.5 m η = 1.4	**CUMPLE h = 19.9**
N2083/N1905	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.6	x: 0 m η = 3.9	x: 2.5 m η = 16.0	η = 0.7	x: 2.5 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.3	η < 0.1	η = 0.1	η = 0.7	x: 2.5 m η = 1.5	**CUMPLE h = 18.3**
N1900/N2084	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.4	x: 2.5 m η = 2.4	x: 0 m η = 11.3	η = 0.4	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 11.5	η < 0.1	η < 0.1	η = 0.4	x: 0 m η = 1.4	**CUMPLE h = 11.5**
N2084/N2605	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.4	x: 0 m η = 5.3	x: 0 m η = 10.3	η = 0.9	x: 0 m η = 1.3	η < 0.1	η < 0.1	x: 0 m η = 14.0	η < 0.1	η = 0.4	η = 0.9	x: 0 m η = 1.3	**CUMPLE h = 14.0**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2605/N2607	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.3$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 10.5$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 11.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	**CUMPLE h = 11.1**
N2607/N2609	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.3$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 10.3$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.7$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2609/N2611	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 1.0$	x: 0 m $\eta = 10.4$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.6$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.6**
N2611/N2613	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 10.2$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.4$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.4**
N2613/N2615	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 1.1$	x: 0 m $\eta = 10.3$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.8$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.8**
N2615/N2617	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 10.2$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.7$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2617/N2619	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 1.1$	x: 0 m $\eta = 10.3$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.9$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.9**
N2619/N2621	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 1.2$	x: 0 m $\eta = 10.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2621/N2623	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	x: 0 m $\eta = 10.2$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 11.0$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 11.0**
N2623/N2625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	x: 0 m $\eta = 10.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2625/N2627	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 10.2$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.7$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.2$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2627/N2629	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 0.7$	x: 0 m $\eta = 10.1$	$\eta = 0.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.4**
N2629/N2631	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 0.2$	x: 0 m $\eta = 10.1$	$\eta < 0.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.2$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.2**
N2631/N2633	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 2.5 m $\eta = 0.7$	x: 0 m $\eta = 10.1$	$\eta = 0.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.3**
N2633/N2635	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 2.5 m $\eta = 0.8$	x: 2.5 m $\eta = 10.1$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.6$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.6**
N2635/N2637	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 2.5 m $\eta = 1.3$	x: 0 m $\eta = 10.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2637/N2639	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 0 m $\eta = 1.3$	x: 2.5 m $\eta = 10.2$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.8$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.8**
N2639/N2641	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 0 m $\eta = 1.2$	x: 2.5 m $\eta = 10.1$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.9$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.9**
N2641/N2643	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 0 m $\eta = 1.1$	x: 2.5 m $\eta = 10.2$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.7$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2643/N2645	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 2.5 m $\eta = 1.1$	x: 2.5 m $\eta = 10.2$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.6**
N2645/N2647	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 0 m $\eta = 1.1$	x: 2.5 m $\eta = 10.2$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.7$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2647/N2649	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 2.5 m $\eta = 1.0$	x: 2.5 m $\eta = 10.2$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.5$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.5**
N2649/N2651	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 0 m $\eta = 1.0$	x: 2.5 m $\eta = 10.3$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.4$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.4**
N2651/N2652	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.1$	x: 2.5 m $\eta = 1.7$	x: 2.5 m $\eta = 10.2$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.7$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 10.7**
N2652/N2653	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 1.9$	x: 2.5 m $\eta = 10.3$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 11.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 0.2$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 11.1**
N2653/N2085	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.2$	x: 2.5 m $\eta = 5.3$	x: 2.5 m $\eta = 10.2$	$\eta = 0.9$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.1$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 0.9$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 14.1**
N2085/N1904	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.3$	x: 0 m $\eta = 2.4$	x: 2.5 m $\eta = 11.2$	$\eta = 0.4$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 11.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta = 0.4$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 11.4**
N1902/N2086	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 2.9$	x: 2.5 m $\eta = 4.4$	x: 2.5 m $\eta = 11.3$	$\eta = 0.9$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.7$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.9$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 14.7**
N2086/N2087	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.5$	$\eta = 1.4$	x: 2.5 m $\eta = 11.9$	x: 2.5 m $\eta = 10.3$	$\eta = 2.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 21.6$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 2.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 21.6**
N2087/N2113	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 1.6$	x: 2.5 m $\eta = 15.5$	x: 2.5 m $\eta = 11.5$	$\eta = 3.6$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 26.2$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 3.6$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 26.2**
N2113/N2088	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.2$	$\eta = 2.3$	x: 2.5 m $\eta = 21.2$	x: 0 m $\eta = 10.3$	$\eta = 4.9$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 33.6$	$\eta < 0.1$	$\eta = 0.5$	$\eta = 4.9$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 33.6**
N2088/N2089	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.0$	$\eta = 2.3$	x: 2.5 m $\eta = 23.8$	x: 2.5 m $\eta = 12.9$	$\eta = 5.8$	x: 2.5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 39.3$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 5.8$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 39.3**
N2089/N2090	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 8.6$	$\eta = 4.1$	x: 2.5 m $\eta = 26.6$	x: 2.5 m $\eta = 10.9$	$\eta = 6.6$	x: 2.5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 45.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 6.6$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 45.1**
N2090/N2091	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 8.4$	$\eta = 4.0$	x: 2.5 m $\eta = 28.1$	x: 2.5 m $\eta = 11.8$	$\eta = 7.1$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 47.6$	$\eta < 0.1$	$\eta = 0.8$	$\eta = 7.1$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 47.6**
N2091/N2092	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 11.6$	$\eta = 5.4$	x: 2.5 m $\eta = 29.7$	x: 2.5 m $\eta = 10.7$	$\eta = 7.5$	x: 2.5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 51.2$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 7.5$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 51.2**
N2092/N2093	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 11.3$	$\eta = 5.3$	x: 2.5 m $\eta = 31.4$	x: 2.5 m $\eta = 10.7$	$\eta = 7.9$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 53.1$	$\eta < 0.1$	$\eta = 0.8$	$\eta = 7.9$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 53.1**
N2093/N2094	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 13.0$	$\eta = 5.8$	x: 2.5 m $\eta = 32.5$	x: 2.5 m $\eta = 10.5$	$\eta = 8.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 55.2$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 8.3$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 55.2**
N2094/N2095	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 12.8$	$\eta = 5.7$	x: 2.5 m $\eta = 32.6$	x: 2.5 m $\eta = 10.2$	$\eta = 8.4$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 55.3$	$\eta < 0.1$	$\eta = 0.8$	$\eta = 8.5$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 55.3**
N2095/N2096	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 14.0$	$\eta = 6.1$	x: 0 m $\eta = 32.7$	x: 2.5 m $\eta = 10.2$	$\eta = 8.1$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 53.2$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 8.1$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 53.2**
N2096/N2097	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 13.8$	$\eta = 6.0$	x: 0 m $\eta = 29.7$	x: 2.5 m $\eta = 11.2$	$\eta = 6.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 51.8$	$\eta < 0.1$	$\eta = 0.6$	$\eta = 6.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 51.8**
N2097/N2098	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 17.9$	$\eta = 11.8$	x: 0 m $\eta = 15.1$	x: 2.5 m $\eta = 10.6$	$\eta = 2.4$	x: 2.5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 38.1$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.4$	x: 2.5 m $\eta = 1.4$	**CUMPLE h = 38.1**
N2098/N2099	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 18.4$	$\eta = 12.1$	x: 0 m $\eta = 2.3$	x: 2.5 m $\eta = 9.2$	$\eta = 0.1$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.0$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.1$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 29.0**
N2099/N2100	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 17.6$	$\eta = 11.6$	x: 2.5 m $\eta = 15.1$	x: 2.5 m $\eta = 9.9$	$\eta = 2.4$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 39.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 2.4$	x: 0 m $\eta = 1.3$	**CUMPLE h = 39.9**
N2100/N2101	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 14.0$	$\eta = 6.0$	x: 2.5 m $\eta = 29.8$	x: 2.5 m $\eta = 9.9$	$\eta = 6.3$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 52.5$	$\eta < 0.1$	$\eta = 0.7$	$\eta = 6.3$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 52.5**
N2101/N2102	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 14.2$	$\eta = 6.1$	x: 2.5 m $\eta = 32.7$	x: 0 m $\eta = 9.7$	$\eta = 8.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 55.3$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 8.1$	x: 0 m $\eta = 1.3$	**CUMPLE h = 55.3**
N2102/N2103	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 12.8$	$\eta = 5.5$	x: 0 m $\eta = 32.7$	x: 2.5 m $\eta = 10.0$	$\eta = 8.5$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 54.9$	$\eta < 0.1$	$\eta = 0.9$	$\eta = 8.5$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 54.9**
N2103/N2104	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 13.0$	$\eta = 5.6$	x: 0 m $\eta = 32.6$	x: 0 m $\eta = 9.9$	$\eta = 8.4$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 54.6$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 8.4$	x: 0 m $\eta = 1.3$	**CUMPLE h = 54.6**
N2104/N2105	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 11.5$	$\eta = 5.1$	x: 0 m $\eta = 31.6$	x: 2.5 m $\eta = 10.0$	$\eta = 8.0$	x: 2.5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 51.1$	$\eta < 0.1$	$\eta = 0.8$	$\eta = 8.0$	x: 2.5 m $\eta = 1.3$	**CUMPLE h = 51.1**
N2105/N2106	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 11.8$	$\eta = 5.2$	x: 0 m $\eta = 29.8$	x: 0 m $\eta = 10.2$	$\eta = 7.6$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 51.1$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 7.6$	x: 0 m $\eta = 1.3$	**CUMPLE h = 51.1**
N2106/N2107	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 8.5$	$\eta = 3.7$	x: 0 m $\eta = 28.3$	x: 0 m $\eta = 9.9$	$\eta = 7.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 45.9$	$\eta < 0.1$	$\eta = 0.9$	$\eta = 7.2$	x: 0 m $\eta = 1.3$	**CUMPLE h = 45.9**
N2107/N2108	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 8.8$	$\eta = 3.8$	x: 0 m $\eta = 26.8$	x: 0 m $\eta = 10.5$	$\eta = 6.6$	x: 0 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 45.1$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 6.6$	x: 0 m $\eta = 1.4$	**CUMPLE h = 45.1**
N2108/N2109	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.2$	$\eta = 2.4$	x: 0 m $\eta = 23.9$	x: 0 m $\eta = 11.4$	$\eta = 5.8$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 38.1$	$\eta < 0.1$	$\eta = 0.8$	$\eta = 5.9$	x: 0 m $\eta = 1.3$	**CUMPLE h = 38.1**
N2109/N2110	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.5$	$\eta = 2.4$	x: 0 m $\eta = 21.2$	x: 0 m $\eta = 10.2$	$\eta = 5.0$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 34.1$	$\eta < 0.1$	$\eta = 0.4$	$\eta = 5.0$	x: 0 m $\eta = 1.4$	**CUMPLE h = 34.1**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N98/N2240	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.8	x: 2.5 m η = 14.0	x: 0 m η = 7.0	η = 3.2	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.1	η < 0.1	η = 0.3	η = 3.3	x: 0 m η = 0.4	**CUMPLE h = 16.1**
N2240/N171	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 13.5	x: 0 m η = 8.0	η = 3.4	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.3	η = 3.4	x: 0 m η = 0.5	**CUMPLE h = 18.1**
N171/N2244	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 12.4	x: 0 m η = 6.8	η = 3.2	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.6	η < 0.1	η = 0.2	η = 3.2	x: 0 m η = 0.4	**CUMPLE h = 15.6**
N2244/N243	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 11.9	x: 0 m η = 8.3	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 16.8**
N243/N2248	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 11.8	x: 0 m η = 6.7	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 14.6**
N2248/N315	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 12.1	x: 0 m η = 8.1	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 16.8**
N315/N2252	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 11.9	x: 0 m η = 6.7	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 14.8**
N2252/N387	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 12.0	x: 0 m η = 8.0	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.6	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 16.6**
N387/N2256	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 11.9	x: 0 m η = 6.6	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 14.6**
N2256/N459	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.7	x: 0 m η = 12.0	x: 0 m η = 7.9	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.4	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 16.4**
N459/N2260	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.7	x: 2.5 m η = 11.9	x: 0 m η = 6.6	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 14.8**
N2260/N531	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.7	x: 2.5 m η = 12.3	x: 0 m η = 7.8	η = 3.2	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.4	η < 0.1	η = 0.2	η = 3.2	x: 0 m η = 0.5	**CUMPLE h = 16.4**
N531/N2264	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 12.3	x: 0 m η = 6.6	η = 3.2	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η = 0.2	η = 3.2	x: 0 m η = 0.4	**CUMPLE h = 15.2**
N2264/N603	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 11.9	x: 0 m η = 7.8	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 15.6	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 15.6**
N603/N2268	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 11.8	x: 0 m η = 6.4	η = 3.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.4	**CUMPLE h = 15.2**
N2268/N675	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 12.1	x: 0 m η = 7.6	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.5**
N675/N2272	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 11.9	x: 0 m η = 6.4	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.5**
N2272/N747	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 0 m η = 11.9	x: 0 m η = 7.4	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 14.8**
N747/N2276	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 0 m η = 11.8	x: 0 m η = 6.3	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.6**
N2276/N819	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 2.5 m η = 11.7	x: 0 m η = 7.2	η = 3.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.4	**CUMPLE h = 14.6**
N819/N2280	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.7	x: 2.5 m η = 11.9	x: 0 m η = 6.2	η = 3.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.4	**CUMPLE h = 15.6**
N2280/N891	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.8	x: 2.5 m η = 13.7	x: 0 m η = 6.8	η = 3.5	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η = 0.3	η = 3.5	x: 0 m η = 0.4	**CUMPLE h = 15.9**
N891/N2284	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.8	x: 0 m η = 13.9	x: 0 m η = 6.6	η = 3.6	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.6	η < 0.1	η = 0.3	η = 3.6	x: 0 m η = 0.4	**CUMPLE h = 16.6**
N2284/N963	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.8	x: 0 m η = 12.1	x: 0 m η = 6.8	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.4	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.4**
N963/N2288	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.9	x: 0 m η = 12.0	x: 2.5 m η = 10.3	η = 2.7	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 21.5	η < 0.1	η = 0.1	η = 2.7	x: 2.5 m η = 0.6	**CUMPLE h = 21.5**
N2288/N2082	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.9	x: 2.5 m η = 4.5	x: 0 m η = 7.3	η = 0.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 9.6	η < 0.1	η < 0.1	η = 0.7	x: 0 m η = 0.4	**CUMPLE h = 9.6**
N1879/N1809	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 1.1	x: 2.72 m η = 14.9	x: 2.72 m η = 5.7	x: 0 m η = 3.8	η = 0.2	η < 0.1	η < 0.1	x: 2.72 m η = 20.0	η < 0.1	η = 0.9	x: 0 m η = 3.8	η = 0.2	**CUMPLE h = 20.0**
N1809/N2142	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.4	η = 2.9	x: 2.5 m η = 3.7	x: 2.5 m η = 9.3	x: 2.5 m η = 1.1	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 19.5	η < 0.1	η = 0.9	x: 2.5 m η = 1.1	η = 0.4	**CUMPLE h = 19.5**
N2142/N1737	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 8.1	η = 4.3	x: 0 m η = 8.0	x: 2.5 m η = 13.7	x: 0 m η = 2.3	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 29.7	η < 0.1	η = 0.9	x: 0 m η = 2.3	η = 0.7	**CUMPLE h = 29.7**
N1737/N2143	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.6	η = 1.9	x: 2.5 m η = 3.3	x: 2.5 m η = 10.8	x: 2.5 m η = 1.0	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.6	η < 0.1	η = 0.9	x: 2.5 m η = 1.0	η = 0.5	**CUMPLE h = 17.6**
N2143/N1665	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.6	η = 2.8	x: 0 m η = 6.7	x: 0 m η = 12.4	x: 0 m η = 1.9	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 23.7	η < 0.1	η = 0.9	x: 0 m η = 2.0	η = 0.6	**CUMPLE h = 23.7**
N1665/N2144	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.2	η = 2.4	x: 2.5 m η = 3.3	x: 0 m η = 11.2	x: 2.5 m η = 1.0	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.6	η < 0.1	η = 0.9	x: 2.5 m η = 1.1	η = 0.5	**CUMPLE h = 18.6**
N2144/N1593	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.4	η = 1.9	x: 0 m η = 5.8	x: 2.5 m η = 10.6	x: 0 m η = 1.7	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η = 0.7	x: 0 m η = 1.7	η = 0.5	**CUMPLE h = 19.5**
N1593/N2145	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.6	x: 2.5 m η = 2.8	x: 0 m η = 9.4	x: 2.5 m η = 0.9	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η = 0.7	x: 2.5 m η = 0.9	η = 0.4	**CUMPLE h = 15.2**
N2145/N1521	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.7	x: 0 m η = 5.6	x: 0 m η = 10.2	x: 0 m η = 1.7	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.8	η < 0.1	η = 0.7	x: 0 m η = 1.7	η = 0.5	**CUMPLE h = 18.8**
N1521/N2146	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.3	x: 2.5 m η = 3.0	x: 0 m η = 9.7	x: 2.5 m η = 0.9	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 15.4	η < 0.1	η = 0.7	x: 2.5 m η = 0.9	η = 0.5	**CUMPLE h = 15.4**
N2146/N1449	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.5	x: 0 m η = 5.5	x: 0 m η = 10.4	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.5	η < 0.1	η = 0.8	x: 0 m η = 1.7	η = 0.5	**CUMPLE h = 18.5**
N1449/N2147	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.2	x: 2.5 m η = 3.1	x: 0 m η = 10.3	x: 2.5 m η = 1.0	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 15.8	η < 0.1	η = 0.7	x: 2.5 m η = 1.0	η = 0.5	**CUMPLE h = 15.8**
N2147/N1377	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.3	x: 0 m η = 5.4	x: 2.5 m η = 11.5	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.5	η < 0.1	η = 0.8	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 18.5**
N1377/N2148	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.9	η = 1.5	x: 2.5 m η = 3.2	x: 2.5 m η = 9.3	x: 2.5 m η = 1.0	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.3	η < 0.1	η = 0.8	x: 2.5 m η = 1.0	η = 0.4	**CUMPLE h = 15.3**
N2148/N1305	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.5	x: 0 m η = 5.3	x: 2.5 m η = 10.3	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.7	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 17.7**
N1305/N2149	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 1.3	x: 2.5 m η = 3.3	x: 2.5 m η = 9.8	x: 2.5 m η = 1.0	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 15.7	η < 0.1	η = 0.7	x: 2.5 m η = 1.0	η = 0.5	**CUMPLE h = 15.7**
N2149/N1233	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.4	x: 0 m η = 5.2	x: 2.5 m η = 10.4	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.7	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 17.5**
N1233/N2150	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.3	x: 2.5 m η = 3.4	x: 2.5 m η = 9.8	x: 2.5 m η = 1.1	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η = 0.7	x: 2.5 m η = 1.1	η = 0.5	**CUMPLE h = 15.6**
N2150/N1161	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.2	x: 0 m η = 5.1	x: 2.5 m η = 10.5	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.0	η < 0.1	η = 0.7	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.0**
N1161/N2151	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 1.1	x: 2.5 m η = 3.5	x: 2.5 m η = 9.4	x: 2.5 m η = 1.1	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 14.8	η < 0.1	η = 0.7	x: 2.5 m η = 1.1	η = 0.4	**CUMPLE h = 14.8**
N2151/N1089	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.9	x: 0 m η = 5.1	x: 0 m η = 10.4	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η = 0.7	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 15.9**
N1089/N2152	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.7	x: 2.5 m η = 3.2	x: 0 m η = 13.9	x: 2.5 m η = 1.0	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 16.9	η < 0.1	η = 0.7	x: 2.5 m η = 1.0	η = 0.7	**CUMPLE h = 16.9**
N2152/N1017	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.1	η = 1.1	x: 0 m η = 5.2	x: 2.5 m η = 15.9	x: 0 m η = 1.5	η = 0.7	η < 0.1	η < 0.1	x: 0 m η = 23.1	η < 0.1	η = 0.8	x: 0 m η = 1.5	η = 0.7	**CUMPLE h = 23.1**
N1017/N2439	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.6	x: 2.5 m η = 6.9	x: 2.5 m η = 4.3	x: 0 m η = 2.1	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 13.0	η < 0.1	η = 0.7	x: 0 m η = 2.1	η = 0.2	**CUMPLE h = 13.0**
N2439/N51	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.0	η = 1.7	x: 0 m η = 5.6	x: 2.5 m η = 5.4	x: 2.5 m η = 1.7	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 13.1	η < 0.1	η = 0.7	x: 2.5 m η = 1.7	η = 0.3	**CUMPLE h = 13.1**
N51/N2153	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.0	x: 2.5 m η = 3.7	x: 0 m η = 15.7	x: 2.5 m η = 1.0	η = 0.7	η < 0.1	η < 0.1	x: 2.5 m η = 22.0	η < 0.1	η = 0.7	x: 2.5 m η = 1.0	η = 0.7	**CUMPLE h = 22.0**
N2153/N153	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.9	x: 0 m η = 4.9	x: 0 m η = 12.9	x: 0 m η = 1.5	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.7	x: 0 m η = 1.5	η = 0.6	**CUMPLE h = 18.1**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N153/N2154	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 2.5 m η = 3.6	x: 0 m η = 10.6	x: 2.5 m η = 1.1	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 14.7	η < 0.1	η = 0.7	x: 2.5 m η = 1.1	η = 0.5	**CUMPLE h = 14.7**
N2154/N225	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 0.9	x: 0 m η = 5.1	x: 2.5 m η = 11.3	x: 0 m η = 1.6	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.3	η < 0.1	η = 0.8	x: 0 m η = 1.6	η = 0.5	**CUMPLE h = 17.3**
N225/N2155	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.2	x: 2.5 m η = 3.7	x: 2.5 m η = 9.1	x: 2.5 m η = 1.1	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η = 0.8	x: 2.5 m η = 1.1	η = 0.4	**CUMPLE h = 15.2**
N2155/N297	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 1.3	x: 0 m η = 5.1	x: 2.5 m η = 10.4	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.3	η < 0.1	η = 0.7	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.3**
N297/N2156	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 1.3	x: 2.5 m η = 3.8	x: 2.5 m η = 9.8	x: 2.5 m η = 1.2	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 16.1	η < 0.1	η = 0.7	x: 2.5 m η = 1.2	η = 0.5	**CUMPLE h = 16.1**
N2156/N369	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.3	x: 0 m η = 5.0	x: 2.5 m η = 10.4	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.4	η < 0.1	η = 0.8	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.4**
N369/N2157	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.3	x: 2.5 m η = 3.9	x: 2.5 m η = 9.8	x: 2.5 m η = 1.2	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 16.4	η < 0.1	η = 0.8	x: 2.5 m η = 1.2	η = 0.5	**CUMPLE h = 16.4**
N2157/N441	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.4	x: 0 m η = 4.9	x: 2.5 m η = 10.5	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.4	η < 0.1	η = 0.8	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.4**
N441/N2158	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.4	x: 2.5 m η = 4.0	x: 2.5 m η = 9.5	x: 2.5 m η = 1.2	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.3	η < 0.1	η = 0.8	x: 2.5 m η = 1.2	η = 0.4	**CUMPLE h = 16.3**
N2158/N513	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.5	x: 0 m η = 4.9	x: 0 m η = 10.1	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.2	η < 0.1	η = 0.7	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.2**
N513/N2159	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.2	x: 2.5 m η = 4.1	x: 0 m η = 11.6	x: 2.5 m η = 1.2	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.4	η < 0.1	η = 0.7	x: 2.5 m η = 1.3	η = 0.5	**CUMPLE h = 17.4**
N2159/N585	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.9	η = 1.2	x: 0 m η = 4.9	x: 2.5 m η = 11.1	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.5	η < 0.1	η = 0.8	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.5**
N585/N2160	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.6	η = 1.7	x: 2.5 m η = 4.2	x: 2.5 m η = 9.2	x: 2.5 m η = 1.3	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.0	η < 0.1	η = 0.8	x: 2.5 m η = 1.3	η = 0.4	**CUMPLE h = 17.0**
N2160/N657	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.5	η = 1.6	x: 0 m η = 4.7	x: 2.5 m η = 10.3	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.7	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 17.5**
N657/N2161	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.6	η = 1.7	x: 2.5 m η = 4.5	x: 2.5 m η = 10.0	x: 2.5 m η = 1.3	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.0	η < 0.1	η = 0.7	x: 2.5 m η = 1.3	η = 0.5	**CUMPLE h = 18.0**
N2161/N729	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.7	η = 1.6	x: 0 m η = 4.6	x: 2.5 m η = 10.0	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.4	η < 0.1	η = 0.7	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 17.4**
N729/N2162	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.9	η = 1.7	x: 2.5 m η = 4.7	x: 2.5 m η = 10.0	x: 2.5 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.6	η < 0.1	η = 0.7	x: 2.5 m η = 1.4	η = 0.5	**CUMPLE h = 18.6**
N2162/N801	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.7	η = 1.4	x: 0 m η = 4.3	x: 2.5 m η = 10.3	x: 0 m η = 1.3	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.7	x: 0 m η = 1.3	η = 0.5	**CUMPLE h = 16.8**
N801/N2163	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.9	η = 1.4	x: 2.5 m η = 4.9	x: 2.5 m η = 10.2	x: 2.5 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 19.0	η < 0.1	η = 0.7	x: 2.5 m η = 1.5	η = 0.5	**CUMPLE h = 19.0**
N2163/N873	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.4	η = 2.4	x: 0 m η = 4.2	x: 2.5 m η = 11.7	x: 0 m η = 1.2	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η = 0.8	x: 0 m η = 1.2	η = 0.5	**CUMPLE h = 17.8**
N873/N2164	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.5	η = 3.5	x: 2.5 m η = 6.2	x: 0 m η = 12.6	x: 2.5 m η = 1.8	η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 25.2	η < 0.1	η = 0.8	x: 2.5 m η = 1.8	η = 0.6	**CUMPLE h = 25.2**
N2164/N945	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 8.3	η = 3.2	x: 2.5 m η = 7.3	x: 0 m η = 8.1	x: 0 m η = 2.0	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 23.3	η < 0.1	η = 0.9	x: 0 m η = 2.0	η = 0.4	**CUMPLE h = 23.3**
N945/N2165	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 2.2	x: 0 m η = 13.8	x: 0 m η = 7.5	x: 2.5 m η = 3.8	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 24.5	η < 0.1	η = 1.1	x: 2.5 m η = 3.8	η = 0.3	**CUMPLE h = 24.5**
N2165/N2086	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.1	η = 2.4	x: 0 m η = 5.1	x: 0 m η = 3.6	x: 0 m η = 1.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η = 0.2	x: 0 m η = 1.3	η = 0.1	**CUMPLE h = 11.8**
N1895/N1825	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 2.72 m η = 10.0	x: 0 m η = 8.5	η = 2.2	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 2.72 m η = 12.6	η < 0.1	η = 0.3	η = 2.2	x: 0 m η = 0.5	**CUMPLE h = 12.6**
N1825/N2437	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 0 m η = 9.2	x: 0 m η = 7.4	η = 2.3	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.9	η < 0.1	η = 0.3	η = 2.3	x: 0 m η = 0.4	**CUMPLE h = 10.9**
N2437/N1753	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 0 m η = 8.2	x: 0 m η = 7.8	η = 2.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 10.9	η < 0.1	η = 0.3	η = 2.1	x: 0 m η = 0.5	**CUMPLE h = 10.9**
N1753/N2433	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 0 m η = 8.4	x: 0 m η = 7.5	η = 2.2	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.4	η < 0.1	η = 0.3	η = 2.2	x: 0 m η = 0.4	**CUMPLE h = 10.4**
N2433/N1681	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 7.9	x: 0 m η = 7.8	η = 2.0	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η = 0.2	η = 2.0	x: 0 m η = 0.5	**CUMPLE h = 10.5**
N1681/N2429	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 0 m η = 8.1	x: 0 m η = 7.6	η = 2.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.2	η < 0.1	η = 0.3	η = 2.1	x: 0 m η = 0.4	**CUMPLE h = 10.2**
N2429/N1609	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 0 m η = 6.8	x: 0 m η = 7.8	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 10.1**
N1609/N2425	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.6	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.0**
N2425/N1537	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.7	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.3	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.3**
N1537/N2421	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.6	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 11.0**
N2421/N1465	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.7	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.2**
N1465/N2417	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 6.9	x: 0 m η = 7.6	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.3**
N2417/N1393	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.6	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N1393/N2413	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.5	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N2413/N1321	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.6	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N1321/N2409	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.5	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N2409/N1249	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.5	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N1249/N2405	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N2405/N1177	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.7	x: 0 m η = 7.5	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N1177/N2401	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.0**
N2401/N1105	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.7	x: 0 m η = 7.4	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.0**
N1105/N2397	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 6.8	x: 0 m η = 7.3	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N2397/N1033	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 6.7	x: 0 m η = 7.4	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.9	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.9**
N1033/N2393	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 6.8	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.9	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 11.9**
N2393/N97	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 6.6	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.8**
N97/N2341	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 6.6	x: 0 m η = 7.2	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.6	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.6**
N2341/N169	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 7.0	x: 0 m η = 7.3	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.0**
N169/N2345	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 7.0	x: 0 m η = 7.2	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.0**
N2345/N241	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 0 m η = 6.8	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.8**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N241/N2349	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.1	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.6	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 11.6**
N2349/N313	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.2	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 11.8**
N313/N2353	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.1	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.3**
N2353/N385	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.2	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 11.8**
N385/N2357	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.1	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.2**
N2357/N457	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 6.8	x: 0 m η = 7.2	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.6	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.6**
N457/N2361	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 6.8	x: 0 m η = 7.0	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.0**
N2361/N529	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 2.5 m η = 7.0	x: 0 m η = 7.1	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.6	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.6**
N529/N2365	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 6.9	x: 0 m η = 7.1	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.2**
N2365/N601	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 6.8	x: 0 m η = 7.2	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.3	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 10.3**
N601/N2369	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.3	x: 2.5 m η = 6.7	x: 0 m η = 7.0	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.4	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.4**
N2369/N673	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.3	x: 2.5 m η = 6.9	x: 0 m η = 7.1	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.7	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 9.7**
N673/N2373	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.3	x: 0 m η = 6.7	x: 0 m η = 7.0	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.6	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.6**
N2373/N745	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.3	x: 0 m η = 6.8	x: 0 m η = 7.2	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.7	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 9.7**
N745/N2377	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.4	x: 0 m η = 6.7	x: 0 m η = 7.1	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.6	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.6**
N2377/N817	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.4	x: 2.5 m η = 6.7	x: 0 m η = 7.2	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.6	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.6**
N817/N2381	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.5	x: 2.5 m η = 6.7	x: 0 m η = 7.1	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.3	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.3**
N2381/N889	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.5	x: 2.5 m η = 7.8	x: 0 m η = 7.1	η = 2.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.4	η < 0.1	η = 0.2	η = 2.0	x: 0 m η = 0.4	**CUMPLE h = 9.4**
N889/N2385	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.6	x: 0 m η = 7.7	x: 0 m η = 7.2	η = 2.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.4	η < 0.1	η = 0.3	η = 2.0	x: 0 m η = 0.4	**CUMPLE h = 9.4**
N2385/N961	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.6	x: 2.5 m η = 7.4	x: 0 m η = 7.3	η = 1.9	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.2	η < 0.1	η = 0.2	η = 1.9	x: 0 m η = 0.4	**CUMPLE h = 9.2**
N961/N2389	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.7	x: 0 m η = 7.7	x: 0 m η = 7.1	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.2	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.2**
N2389/N2085	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.7	x: 2.5 m η = 2.9	x: 0 m η = 7.7	η = 0.5	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 9.0	η < 0.1	η = 0.1	η = 0.5	x: 0 m η = 0.5	**CUMPLE h = 9.0**
N1894/N1824	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.72 m η = 14.9	x: 0 m η = 12.7	η = 3.3	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 2.72 m η = 21.9	η < 0.1	η = 0.2	η = 3.3	x: 0 m η = 0.6	**CUMPLE h = 21.9**
N1824/N2435	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.2	x: 0 m η = 14.3	x: 0 m η = 8.9	η = 3.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.3	η = 3.7	x: 0 m η = 0.5	**CUMPLE h = 17.9**
N2435/N1752	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.2	x: 2.5 m η = 14.7	x: 0 m η = 10.2	η = 3.8	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 21.9	η < 0.1	η = 0.3	η = 3.8	x: 0 m η = 0.6	**CUMPLE h = 21.9**
N1752/N2431	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.3	x: 0 m η = 14.4	x: 0 m η = 8.5	η = 3.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.3	η = 3.7	x: 0 m η = 0.5	**CUMPLE h = 18.1**
N2431/N1680	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 0.4	x: 0 m η = 14.1	x: 0 m η = 9.9	η = 3.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 21.0	η < 0.1	η = 0.3	η = 3.7	x: 0 m η = 0.6	**CUMPLE h = 21.0**
N1680/N2427	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.4	x: 0 m η = 14.0	x: 0 m η = 8.2	η = 3.5	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.3	η = 3.5	x: 0 m η = 0.4	**CUMPLE h = 17.5**
N2427/N1608	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.8	η = 0.5	x: 0 m η = 12.2	x: 0 m η = 9.5	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.4	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 18.4**
N1608/N2423	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 0.5	x: 2.5 m η = 11.7	x: 0 m η = 8.0	η = 3.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.4	**CUMPLE h = 16.1**
N2423/N1536	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 11.9	x: 0 m η = 9.3	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 18.1**
N1536/N2419	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.0	η = 0.5	x: 2.5 m η = 11.8	x: 0 m η = 7.8	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.9**
N2419/N1464	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 2.5 m η = 12.2	x: 0 m η = 9.0	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 18.1**
N1464/N2415	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.1	η = 0.6	x: 0 m η = 12.0	x: 0 m η = 7.6	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 16.2	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 16.2**
N2415/N1392	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 12.0	x: 0 m η = 8.9	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 17.9**
N1392/N2411	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 11.9	x: 0 m η = 7.4	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.5**
N2411/N1320	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 12.0	x: 0 m η = 8.7	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 17.7**
N1320/N2407	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 0 m η = 11.9	x: 0 m η = 7.2	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.5**
N2407/N1248	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 0.6	x: 2.5 m η = 12.0	x: 0 m η = 8.6	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 17.5**
N1248/N2403	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 0 m η = 11.9	x: 0 m η = 7.1	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.4	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.4**
N2403/N1176	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 11.9	x: 0 m η = 8.4	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.3	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 17.3**
N1176/N2399	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 11.8	x: 0 m η = 7.0	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.2	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.2**
N2399/N1104	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.6	x: 2.5 m η = 11.9	x: 0 m η = 8.3	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.1	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 17.1**
N1104/N2395	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.7	x: 0 m η = 11.9	x: 0 m η = 7.0	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 15.5**
N2395/N1032	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 11.7	x: 0 m η = 8.3	η = 3.0	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.5	**CUMPLE h = 16.8**
N1032/N2391	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 11.7	x: 0 m η = 6.8	η = 3.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.4	**CUMPLE h = 14.8**
N2391/N96	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 11.5	x: 0 m η = 8.2	η = 3.0	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.5	η < 0.1	η = 0.2	η = 3.0	x: 0 m η = 0.5	**CUMPLE h = 16.5**
N96/N2339	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 11.3	x: 0 m η = 6.6	η = 2.9	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.3	η < 0.1	η = 0.2	η = 2.9	x: 0 m η = 0.4	**CUMPLE h = 14.3**
N2339/N168	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 0.7	x: 2.5 m η = 12.5	x: 0 m η = 8.0	η = 3.2	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.9	η < 0.1	η = 0.3	η = 3.2	x: 0 m η = 0.5	**CUMPLE h = 16.9**
N168/N2343	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 12.3	x: 0 m η = 6.7	η = 3.2	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 15.3	η < 0.1	η = 0.2	η = 3.2	x: 0 m η = 0.4	**CUMPLE h = 15.3**
N2343/N240	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 0 m η = 11.9	x: 0 m η = 8.0	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 16.5**
N240/N2347	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 11.9	x: 0 m η = 6.5	η = 3.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 14.4	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.4	**CUMPLE h = 14.4**
N2347/N312	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 0.7	x: 2.5 m η = 12.0	x: 0 m η = 7.9	η = 3.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.5	η < 0.1	η = 0.2	η = 3.1	x: 0 m η = 0.5	**CUMPLE h = 16.5**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N312/N2351	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 0.7$	x: 0 m $\eta = 11.9$	x: 0 m $\eta = 6.5$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.6$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 14.6**
N2351/N384	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 0.7$	x: 2.5 m $\eta = 12.0$	x: 0 m $\eta = 7.8$	$\eta = 3.1$	x: 0 m $\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.3$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.5$	**CUMPLE h = 16.3**
N384/N2355	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 0.6$	x: 2.5 m $\eta = 11.9$	x: 0 m $\eta = 6.5$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 14.8$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 14.8**
N2355/N456	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 0.6$	x: 0 m $\eta = 12.0$	x: 0 m $\eta = 7.7$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.1$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 16.1**
N456/N2359	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 0.6$	x: 2.5 m $\eta = 11.9$	x: 0 m $\eta = 6.4$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.0$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.0**
N2359/N528	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 0.6$	x: 2.5 m $\eta = 12.3$	x: 0 m $\eta = 7.6$	$\eta = 3.2$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.2$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.2$	x: 0 m $\eta = 0.4$	**CUMPLE h = 16.2**
N528/N2363	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 0.6$	x: 0 m $\eta = 12.4$	x: 0 m $\eta = 6.4$	$\eta = 3.2$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.4$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.2$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.4**
N2363/N600	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 0.6$	x: 0 m $\eta = 11.8$	x: 0 m $\eta = 7.6$	$\eta = 3.0$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 15.4$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.4**
N600/N2367	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 0.6$	x: 2.5 m $\eta = 11.8$	x: 0 m $\eta = 6.2$	$\eta = 3.0$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.4$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.0$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.4**
N2367/N672	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 0.6$	x: 2.5 m $\eta = 12.0$	x: 0 m $\eta = 7.4$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 15.1$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.1**
N672/N2371	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 0.6$	x: 0 m $\eta = 11.9$	x: 0 m $\eta = 6.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.7$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.7**
N2371/N744	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 0.5$	x: 0 m $\eta = 11.9$	x: 0 m $\eta = 7.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 14.6$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 14.6**
N744/N2375	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.1$	$\eta = 0.6$	x: 0 m $\eta = 11.8$	x: 0 m $\eta = 6.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.9$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.9**
N2375/N816	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.1$	$\eta = 0.6$	x: 2.5 m $\eta = 11.7$	x: 0 m $\eta = 7.0$	$\eta = 3.0$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 14.4$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.0$	x: 0 m $\eta = 0.4$	**CUMPLE h = 14.4**
N816/N2379	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 0.7$	x: 2.5 m $\eta = 11.9$	x: 0 m $\eta = 6.1$	$\eta = 3.0$	x: 0 m $\eta = 0.3$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.8$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.0$	x: 0 m $\eta = 0.3$	**CUMPLE h = 15.8**
N2379/N888	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 0.8$	x: 2.5 m $\eta = 13.8$	x: 0 m $\eta = 6.6$	$\eta = 3.5$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 15.8$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 3.5$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.8**
N888/N2383	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.9$	$\eta = 0.8$	x: 0 m $\eta = 14.1$	x: 0 m $\eta = 6.4$	$\eta = 3.6$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 16.9$	$\eta < 0.1$	$\eta = 0.3$	$\eta = 3.6$	x: 0 m $\eta = 0.4$	**CUMPLE h = 16.9**
N2383/N960	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.9$	$\eta = 0.8$	x: 0 m $\eta = 12.1$	x: 0 m $\eta = 6.6$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 15.3$	$\eta < 0.1$	$\eta = 0.2$	$\eta = 3.1$	x: 0 m $\eta = 0.4$	**CUMPLE h = 15.3**
N960/N2387	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.6$	$\eta = 0.9$	x: 0 m $\eta = 12.0$	x: 2.5 m $\eta = 10.4$	$\eta = 2.6$	x: 2.5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 21.6$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 2.6$	x: 2.5 m $\eta = 0.6$	**CUMPLE h = 21.6**
N2387/N2083	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.6$	$\eta = 0.9$	x: 2.5 m $\eta = 4.7$	x: 0 m $\eta = 7.1$	$\eta = 0.7$	x: 0 m $\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 10.1$	$\eta < 0.1$	$\eta = 0.1$	$\eta = 0.7$	x: 0 m $\eta = 0.4$	**CUMPLE h = 10.1**
N1893/N1823	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.1$	$\eta = 1.1$	x: 2.72 m $\eta = 14.3$	x: 2.72 m $\eta = 5.7$	x: 0 m $\eta = 3.7$	$\eta = 0.2$	$\eta < 0.1$	$\eta < 0.1$	x: 2.72 m $\eta = 19.4$	$\eta < 0.1$	$\eta = 0.9$	x: 0 m $\eta = 3.7$	$\eta = 0.2$	**CUMPLE h = 19.4**
N1823/N2190	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 6.5$	$\eta = 2.9$	x: 2.5 m $\eta = 3.8$	x: 2.5 m $\eta = 9.4$	x: 2.5 m $\eta = 1.2$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 19.7$	$\eta < 0.1$	$\eta = 0.9$	x: 2.5 m $\eta = 1.2$	$\eta = 0.4$	**CUMPLE h = 19.7**
N2190/N1751	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 8.2$	$\eta = 4.2$	x: 0 m $\eta = 7.9$	x: 2.5 m $\eta = 13.7$	x: 0 m $\eta = 2.2$	$\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 29.7$	$\eta < 0.1$	$\eta = 0.9$	x: 0 m $\eta = 2.2$	$\eta = 0.7$	**CUMPLE h = 29.7**
N1751/N2191	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.7$	$\eta = 1.9$	x: 2.5 m $\eta = 3.4$	x: 2.5 m $\eta = 10.8$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 17.8$	$\eta < 0.1$	$\eta = 0.9$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	**CUMPLE h = 17.8**
N2191/N1679	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.7$	$\eta = 2.8$	x: 0 m $\eta = 6.8$	x: 0 m $\eta = 12.5$	x: 0 m $\eta = 2.0$	$\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 23.9$	$\eta < 0.1$	$\eta = 0.9$	x: 0 m $\eta = 2.0$	$\eta = 0.6$	**CUMPLE h = 23.9**
N1679/N2192	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.3$	$\eta = 2.3$	x: 2.5 m $\eta = 3.3$	x: 0 m $\eta = 11.2$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 18.6$	$\eta < 0.1$	$\eta = 0.9$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	**CUMPLE h = 18.6**
N2192/N1607	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.4$	$\eta = 1.7$	x: 0 m $\eta = 5.8$	x: 2.5 m $\eta = 10.6$	x: 0 m $\eta = 1.7$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 19.5$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.7$	$\eta = 0.5$	**CUMPLE h = 19.5**
N1607/N2193	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.2$	$\eta = 1.5$	x: 2.5 m $\eta = 2.8$	x: 0 m $\eta = 9.4$	x: 2.5 m $\eta = 0.9$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.2$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 0.9$	$\eta = 0.4$	**CUMPLE h = 15.2**
N2193/N1535	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.2$	$\eta = 1.6$	x: 0 m $\eta = 5.6$	x: 0 m $\eta = 10.2$	x: 0 m $\eta = 1.7$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.8$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.7$	$\eta = 0.5$	**CUMPLE h = 18.8**
N1535/N2194	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.2$	x: 2.5 m $\eta = 2.9$	x: 0 m $\eta = 9.7$	x: 2.5 m $\eta = 0.9$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.3$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 0.9$	$\eta = 0.5$	**CUMPLE h = 15.3**
N2194/N1463	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.4$	x: 0 m $\eta = 5.5$	x: 0 m $\eta = 10.4$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.5$	$\eta < 0.1$	$\eta = 0.8$	x: 0 m $\eta = 1.7$	$\eta = 0.5$	**CUMPLE h = 18.5**
N1463/N2195	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.1$	x: 2.5 m $\eta = 3.1$	x: 0 m $\eta = 10.3$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.7$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	**CUMPLE h = 15.7**
N2195/N1391	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.2$	x: 0 m $\eta = 5.4$	x: 2.5 m $\eta = 11.6$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 18.5$	$\eta < 0.1$	$\eta = 0.8$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	**CUMPLE h = 18.5**
N1391/N2196	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 1.3$	x: 2.5 m $\eta = 3.1$	x: 2.5 m $\eta = 9.2$	x: 2.5 m $\eta = 1.0$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.2$	$\eta < 0.1$	$\eta = 0.8$	x: 2.5 m $\eta = 1.0$	$\eta = 0.4$	**CUMPLE h = 15.2**
N2196/N1319	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.4$	x: 0 m $\eta = 5.3$	x: 2.5 m $\eta = 10.4$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 17.7$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	**CUMPLE h = 17.7**
N1319/N2197	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.2$	x: 2.5 m $\eta = 3.3$	x: 2.5 m $\eta = 9.8$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.5$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	**CUMPLE h = 15.5**
N2197/N1247	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.3$	x: 0 m $\eta = 5.2$	x: 2.5 m $\eta = 10.4$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 17.6$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	**CUMPLE h = 17.6**
N1247/N2198	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.1$	x: 2.5 m $\eta = 3.3$	x: 2.5 m $\eta = 9.8$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.4$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.0$	$\eta = 0.5$	**CUMPLE h = 15.4**
N2198/N1175	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 1.2$	x: 0 m $\eta = 5.2$	x: 2.5 m $\eta = 10.4$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 17.2$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	**CUMPLE h = 17.2**
N1175/N2199	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 1.1$	x: 2.5 m $\eta = 3.4$	x: 2.5 m $\eta = 9.5$	x: 2.5 m $\eta = 1.1$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.2$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.1$	$\eta = 0.5$	**CUMPLE h = 15.2**
N2199/N1103	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 1.3$	x: 0 m $\eta = 5.1$	x: 0 m $\eta = 9.6$	x: 0 m $\eta = 1.5$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.8$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.5$	$\eta = 0.4$	**CUMPLE h = 16.8**
N1103/N2200	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 0.9$	x: 2.5 m $\eta = 3.5$	x: 0 m $\eta = 10.9$	x: 2.5 m $\eta = 1.1$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.7$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.1$	$\eta = 0.5$	**CUMPLE h = 15.7**
N2200/N1031	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 1.0$	x: 0 m $\eta = 5.1$	x: 2.5 m $\eta = 11.1$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 17.4$	$\eta < 0.1$	$\eta = 0.8$	x: 0 m $\eta = 1.6$	$\eta = 0.5$	**CUMPLE h = 17.4**
N1031/N2239	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 1.3$	x: 2.5 m $\eta = 3.5$	x: 2.5 m $\eta = 9.0$	x: 2.5 m $\eta = 1.1$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.2$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.1$	$\eta = 0.4$	**CUMPLE h = 15.2**
N2239/N65	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.9$	$\eta = 1.4$	x: 0 m $\eta = 5.0$	x: 0 m $\eta = 9.1$	x: 0 m $\eta = 1.5$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.5$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.5$	$\eta = 0.4$	**CUMPLE h = 16.5**
N65/N2201	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.0$	x: 2.5 m $\eta = 3.6$	x: 2.5 m $\eta = 8.8$	x: 2.5 m $\eta = 1.1$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.1$	$\eta < 0.1$	$\eta = 0.8$	x: 2.5 m $\eta = 1.1$	$\eta = 0.4$	**CUMPLE h = 15.1**
N2201/N167	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.0$	$\eta = 1.1$	x: 0 m $\eta = 5.0$	x: 2.5 m $\eta = 10.9$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 17.2$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	**CUMPLE h = 17.2**
N167/N2202	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.7$	$\eta = 0.9$	x: 2.5 m $\eta = 3.7$	x: 0 m $\eta = 10.7$	x: 2.5 m $\eta = 1.1$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.9$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.1$	$\eta = 0.5$	**CUMPLE h = 15.9**
N2202/N239	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.9$	x: 0 m $\eta = 5.0$	x: 2.5 m $\eta = 11.3$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 17.3$	$\eta < 0.1$	$\eta = 0.8$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	**CUMPLE h = 17.3**
N239/N2203	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 1.3$	x: 2.5 m $\eta = 3.7$	x: 2.5 m $\eta = 9.2$	x: 2.5 m $\eta = 1.1$	$\eta = 0.4$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 15.6$	$\eta < 0.1$	$\eta = 0.8$	x: 2.5 m $\eta = 1.1$	$\eta = 0.4$	**CUMPLE h = 15.6**
N2203/N311	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.3$	x: 0 m $\eta = 5.0$	x: 2.5 m $\eta = 10.4$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 17.1$	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	**CUMPLE h = 17.1**
N311/N2204	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 1.2$	x: 2.5 m $\eta = 3.8$	x: 2.5 m $\eta = 9.8$	x: 2.5 m $\eta = 1.2$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 16.2$	$\eta < 0.1$	$\eta = 0.7$	x: 2.5 m $\eta = 1.2$	$\eta = 0.5$	**CUMPLE h = 16.2**
N2204/N383	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.2$	x: 0 m $\eta = 4.9$	x: 2.5 m $\eta = 10.4$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 17.2$	$\eta < 0.1$	$\eta = 0.8$	x: 0 m $\eta = 1.5$	$\eta = 0.5$	**CUMPLE h = 17.2**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N383/N2205	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 1.2	x: 2.5 m η = 3.9	x: 2.5 m η = 9.9	x: 2.5 m η = 1.2	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 16.4	η < 0.1	η = 0.8	x: 2.5 m η = 1.2	η = 0.5	**CUMPLE h = 16.4**
N2205/N455	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.3	x: 0 m η = 4.9	x: 2.5 m η = 10.5	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.2	η < 0.1	η = 0.8	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.2**
N455/N2206	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.3	x: 2.5 m η = 4.0	x: 2.5 m η = 9.6	x: 2.5 m η = 1.2	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 16.3	η < 0.1	η = 0.8	x: 2.5 m η = 1.2	η = 0.4	**CUMPLE h = 16.3**
N2206/N527	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.4	x: 0 m η = 4.8	x: 0 m η = 10.1	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.0	η < 0.1	η = 0.7	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.0**
N527/N2207	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 1.1	x: 2.5 m η = 4.2	x: 0 m η = 11.5	x: 2.5 m η = 1.3	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.4	η < 0.1	η = 0.7	x: 2.5 m η = 1.3	η = 0.5	**CUMPLE h = 17.4**
N2207/N599	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.9	η = 1.1	x: 0 m η = 4.8	x: 2.5 m η = 11.1	x: 0 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 17.4	η < 0.1	η = 0.8	x: 0 m η = 1.5	η = 0.5	**CUMPLE h = 17.4**
N599/N2208	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.5	η = 1.6	x: 2.5 m η = 4.3	x: 2.5 m η = 9.2	x: 2.5 m η = 1.3	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 17.0	η < 0.1	η = 0.8	x: 2.5 m η = 1.3	η = 0.4	**CUMPLE h = 17.0**
N2208/N671	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.5	η = 1.5	x: 0 m η = 4.7	x: 2.5 m η = 10.3	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.4	η < 0.1	η = 0.7	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 17.4**
N671/N2209	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.6	η = 1.6	x: 2.5 m η = 4.5	x: 2.5 m η = 10.0	x: 2.5 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.1	η < 0.1	η = 0.7	x: 2.5 m η = 1.4	η = 0.5	**CUMPLE h = 18.1**
N2209/N743	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.7	η = 1.5	x: 0 m η = 4.5	x: 2.5 m η = 10.1	x: 0 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 17.3	η < 0.1	η = 0.7	x: 0 m η = 1.4	η = 0.5	**CUMPLE h = 17.3**
N743/N2210	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.9	η = 1.6	x: 2.5 m η = 4.7	x: 2.5 m η = 10.0	x: 2.5 m η = 1.4	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 18.6	η < 0.1	η = 0.7	x: 2.5 m η = 1.4	η = 0.5	**CUMPLE h = 18.6**
N2210/N815	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.7	η = 1.3	x: 0 m η = 4.2	x: 2.5 m η = 10.4	x: 0 m η = 1.3	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 16.7	η < 0.1	η = 0.7	x: 0 m η = 1.3	η = 0.5	**CUMPLE h = 16.7**
N815/N2211	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.0	η = 1.3	x: 2.5 m η = 4.9	x: 2.5 m η = 10.1	x: 2.5 m η = 1.5	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 19.0	η < 0.1	η = 0.7	x: 2.5 m η = 1.5	η = 0.5	**CUMPLE h = 19.0**
N2211/N887	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.3	η = 2.4	x: 0 m η = 4.2	x: 2.5 m η = 12.1	x: 0 m η = 1.3	η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 17.9	η < 0.1	η = 0.8	x: 0 m η = 1.3	η = 0.6	**CUMPLE h = 17.9**
N887/N2212	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.2	η = 3.4	x: 2.5 m η = 6.1	x: 0 m η = 12.9	x: 2.5 m η = 1.7	η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 25.1	η < 0.1	η = 0.8	x: 2.5 m η = 1.7	η = 0.6	**CUMPLE h = 25.1**
N2212/N959	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 8.5	η = 3.2	x: 2.5 m η = 7.5	x: 0 m η = 7.9	x: 0 m η = 2.0	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 23.4	η < 0.1	η = 0.9	x: 0 m η = 2.1	η = 0.4	**CUMPLE h = 23.4**
N959/N2213	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.6	η = 2.3	x: 0 m η = 13.7	x: 0 m η = 7.4	x: 2.5 m η = 3.8	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 24.6	η < 0.1	η = 1.1	x: 2.5 m η = 3.8	η = 0.3	**CUMPLE h = 24.6**
N2213/N2112	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.4	η = 2.5	x: 0 m η = 5.2	x: 2.5 m η = 3.7	x: 0 m η = 1.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.9	η < 0.1	η = 0.3	x: 0 m η = 1.3	η = 0.1	**CUMPLE h = 11.9**
N1769/N1697	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 1.0	x: 0 m η = 33.4	x: 5 m η = 1.6	x: 5 m η = 3.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 35.6	η < 0.1	η = 0.1	x: 5 m η = 3.1	η < 0.1	**CUMPLE h = 35.6**
N1697/N1625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 0.7	x: 0 m η = 10.4	x: 5 m η = 1.9	x: 0 m η = 1.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η = 0.1	x: 0 m η = 1.3	η < 0.1	**CUMPLE h = 10.5**
N1625/N1553	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 1.3	x: 5 m η = 3.6	x: 5 m η = 1.8	x: 5 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 5.9	η < 0.1	η = 0.1	x: 5 m η = 0.9	η < 0.1	**CUMPLE h = 5.9**
N1553/N1481	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 6.0	x: 0 m η = 2.3	x: 5 m η = 1.5	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 7.7	η < 0.1	η = 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 7.7**
N1481/N1409	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 6.4	x: 5 m η = 6.5	x: 5 m η = 2.1	x: 5 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 9.5	η < 0.1	η < 0.1	x: 5 m η = 1.0	η < 0.1	**CUMPLE h = 9.5**
N1409/N1337	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 6.4	x: 5 m η = 4.1	x: 0 m η = 1.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 8.6	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 8.6**
N1337/N1265	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.4	η = 1.5	x: 0 m η = 7.0	x: 5 m η = 1.6	x: 0 m η = 1.0	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.6	η < 0.1	η < 0.1	x: 0 m η = 1.0	η < 0.1	**CUMPLE h = 8.6**
N1265/N1193	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 1.3	x: 0 m η = 2.1	x: 5 m η = 1.8	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 3.8	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 3.8**
N1193/N1121	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 1.1	x: 0 m η = 2.4	x: 5 m η = 1.9	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 4.8	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 4.8**
N1121/N1049	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 1.0	x: 5 m η = 7.1	x: 5 m η = 2.8	x: 5 m η = 1.0	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 9.4	η < 0.1	η < 0.1	x: 5 m η = 1.0	η = 0.1	**CUMPLE h = 9.4**
N1049/N977	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 1.2	x: 3.125 m η = 4.2	x: 0 m η = 1.8	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 5.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 5.1**
N977/N68	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 1.0	x: 0 m η = 7.3	x: 5 m η = 2.5	x: 0 m η = 1.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.7	η < 0.1	η < 0.1	x: 0 m η = 1.1	η = 0.1	**CUMPLE h = 8.7**
N68/N113	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.7	η = 1.0	x: 5 m η = 6.9	x: 5 m η = 2.1	x: 5 m η = 1.1	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 7.7	η < 0.1	η < 0.1	x: 5 m η = 1.1	η < 0.1	**CUMPLE h = 7.7**
N113/N185	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 1.6	x: 5 m η = 4.1	x: 0 m η = 1.6	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 5.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 5.1**
N185/N257	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 1.3	x: 0 m η = 7.6	x: 5 m η = 2.3	x: 0 m η = 1.1	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.6	η < 0.1	η < 0.1	x: 0 m η = 1.1	η = 0.1	**CUMPLE h = 8.6**
N257/N329	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 1.5	x: 0 m η = 2.2	x: 5 m η = 2.6	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 5.0	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 5.0**
N329/N401	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 5.9	x: 0 m η = 2.8	x: 5 m η = 2.7	x: 0 m η = 0.8	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 10.0	η < 0.1	η < 0.1	x: 0 m η = 0.8	η = 0.1	**CUMPLE h = 10.0**
N401/N473	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 6.8	x: 5 m η = 6.2	x: 5 m η = 3.6	x: 0 m η = 0.9	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 12.6	η < 0.1	η < 0.1	x: 0 m η = 0.9	η = 0.1	**CUMPLE h = 12.6**
N473/N545	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 9.9	x: 3.125 m η = 4.2	x: 0 m η = 2.2	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 12.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 12.4**
N545/N617	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 9.8	x: 0 m η = 8.4	x: 5 m η = 3.2	x: 0 m η = 1.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η < 0.1	x: 0 m η = 1.2	η = 0.1	**CUMPLE h = 15.9**
N617/N689	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 11.9	x: 0 m η = 2.3	x: 5 m η = 3.5	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 16.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 16.4**
N689/N761	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 14.6	x: 0 m η = 3.6	x: 5 m η = 3.9	x: 0 m η = 0.8	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.9	η < 0.1	η = 0.1	x: 0 m η = 0.8	η = 0.1	**CUMPLE h = 19.9**
N761/N833	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.3	η = 24.6	x: 0 m η = 4.0	x: 5 m η = 5.1	x: 0 m η = 0.9	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 31.1	η < 0.1	η = 0.1	x: 0 m η = 0.9	η = 0.1	**CUMPLE h = 31.1**
N833/N905	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.2	η = 22.8	x: 5 m η = 6.3	x: 5 m η = 6.1	x: 5 m η = 1.2	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 33.0	η < 0.1	η = 0.1	x: 5 m η = 1.2	η = 0.1	**CUMPLE h = 33.0**
N1807/N1735	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 7.6	η = 14.3	x: 0 m η = 4.2	x: 0 m η = 0.6	x: 0 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 0.625 m η = 15.5	η < 0.1	η = 0.1	x: 0 m η = 0.9	η < 0.1	**CUMPLE h = 15.5**
N1735/N1663	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 6.0	x: 0 m η = 3.8	x: 5 m η = 2.0	x: 5 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 7.8	η < 0.1	η = 0.1	x: 5 m η = 0.9	η < 0.1	**CUMPLE h = 7.8**
N1663/N1591	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 0.6	x: 5 m η = 3.8	x: 0 m η = 1.4	x: 5 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 5.7	η < 0.1	η = 0.1	x: 5 m η = 0.9	η < 0.1	**CUMPLE h = 5.7**
N1591/N1519	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 0.3	x: 0 m η = 2.1	x: 5 m η = 2.3	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 5.4	η < 0.1	η = 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 5.4**
N1519/N1447	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 0.1	x: 0 m η = 2.3	x: 5 m η = 3.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 7.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 7.5**
N1447/N1375	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 0.4	x: 5 m η = 2.4	x: 5 m η = 2.8	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 7.7	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 7.7**
N1375/N1303	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 0.3	x: 0 m η = 2.2	x: 0 m η = 3.2	x: 5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 5.1	η < 0.1	η < 0.1	x: 5 m η = 0.7	η = 0.1	**CUMPLE h = 5.1**
N1303/N1231	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 0.2	x: 0 m η = 2.1	x: 0 m η = 1.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 4.5	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 4.5**
N1231/N1159	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 0.3	x: 5 m η = 1.8	x: 0 m η = 1.7	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 4.2	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 4.2**
N1159/N1087	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 0.4	x: 5 m η = 2.3	x: 5 m η = 4.9	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 6.8	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 6.8**
N1087/N1015	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.7	η = 1.2	x: 0 m η = 3.0	x: 0 m η = 2.8	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 8.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1015/N49	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.6$	x: 0 m $\eta = 2.4$	x: 5 m $\eta = 2.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 1.563 m $\eta = 4.9$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 4.9**
N49/N151	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 0.8$	x: 0 m $\eta = 2.5$	x: 5 m $\eta = 2.9$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 7.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 7.1**
N151/N223	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 1.0$	x: 0 m $\eta = 2.1$	x: 5 m $\eta = 2.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.0$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 7.0**
N223/N295	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.5$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 3.0$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.3$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 5.3**
N295/N367	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.5$	x: 0 m $\eta = 2.3$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 5.1**
N367/N439	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.5$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 4.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 4.4**
N439/N511	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 0.5$	x: 0 m $\eta = 2.5$	x: 5 m $\eta = 5.0$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	**CUMPLE** **h = 7.5**
N511/N583	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.9$	$\eta = 0.9$	x: 0 m $\eta = 2.9$	x: 0 m $\eta = 2.8$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 8.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 8.3**
N583/N655	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 0.4$	x: 0 m $\eta = 2.3$	x: 0 m $\eta = 2.7$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.9$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 5.9**
N655/N727	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 0.5$	x: 0 m $\eta = 2.7$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 6.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 6.5**
N727/N799	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.4$	$\eta = 1.3$	x: 0 m $\eta = 2.7$	x: 5 m $\eta = 2.2$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 6.6$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 6.6**
N799/N871	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.2$	$\eta = 12.0$	x: 0 m $\eta = 3.5$	x: 0 m $\eta = 2.4$	x: 5 m $\eta = 0.8$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 14.1$	$\eta < 0.1$	$\eta = 0.1$	x: 5 m $\eta = 0.8$	$\eta = 0.1$	**CUMPLE** **h = 14.1**
N871/N943	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 9.2$	$\eta = 21.8$	x: 5 m $\eta = 16.4$	x: 0 m $\eta = 0.6$	x: 0 m $\eta = 2.2$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 27.6$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 2.2$	$\eta < 0.1$	**CUMPLE** **h = 27.6**
N1777/N1705	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.5$	$\eta = 7.6$	x: 2.813 m $\eta = 12.8$	x: 0 m $\eta = 0.6$	x: 5 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 16.7$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.8$	$\eta < 0.1$	**CUMPLE** **h = 16.7**
N1705/N1633	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.9$	$\eta = 18.5$	x: 0 m $\eta = 12.9$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 1.5$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 24.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.5$	$\eta < 0.1$	**CUMPLE** **h = 24.7**
N1633/N1561	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.2$	$\eta = 32.1$	x: 5 m $\eta = 7.5$	x: 5 m $\eta = 0.8$	x: 5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 35.0$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.4$	$\eta < 0.1$	**CUMPLE** **h = 35.0**
N1561/N1489	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 5.4$	$\eta = 35.0$	x: 0 m $\eta = 2.8$	x: 5 m $\eta = 0.6$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 3.438 m $\eta = 36.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 36.6**
N1489/N1417	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 6.7$	$\eta = 35.0$	x: 5 m $\eta = 10.4$	x: 0 m $\eta = 0.5$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 39.6$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	**CUMPLE** **h = 39.6**
N1417/N1345	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 6.3$	$\eta = 27.6$	x: 2.188 m $\eta = 6.2$	x: 0 m $\eta = 0.4$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 1.875 m $\eta = 30.2$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 30.2**
N1345/N1273	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.3$	$\eta = 27.9$	x: 0 m $\eta = 10.2$	x: 0 m $\eta = 0.4$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 31.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	**CUMPLE** **h = 31.5**
N1273/N1201	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.2$	$\eta = 23.2$	x: 5 m $\eta = 2.6$	x: 5 m $\eta = 0.3$	x: 5 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 24.7$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.8$	$\eta < 0.1$	**CUMPLE** **h = 24.7**
N1201/N1129	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 19.5$	x: 0 m $\eta = 2.8$	x: 5 m $\eta = 0.4$	x: 0 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 20.2$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.8$	$\eta < 0.1$	**CUMPLE** **h = 20.2**
N1129/N1057	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.6$	$\eta = 16.4$	x: 5 m $\eta = 10.2$	x: 5 m $\eta = 0.9$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 21.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	**CUMPLE** **h = 21.1**
N1057/N985	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.7$	$\eta = 12.4$	x: 2.813 m $\eta = 6.0$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 2.188 m $\eta = 14.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 14.6**
N985/N76	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 19.1$	x: 0 m $\eta = 10.3$	x: 0 m $\eta = 0.7$	x: 0 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 23.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.4$	$\eta < 0.1$	**CUMPLE** **h = 23.8**
N76/N121	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.3$	$\eta = 19.6$	x: 5 m $\eta = 10.9$	x: 0 m $\eta = 1.2$	x: 5 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 24.3$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.4$	$\eta < 0.1$	**CUMPLE** **h = 24.3**
N121/N193	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.0$	$\eta = 17.4$	x: 2.5 m $\eta = 6.0$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 2.188 m $\eta = 19.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 19.7**
N193/N265	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.3$	$\eta = 25.2$	x: 0 m $\eta = 10.7$	x: 0 m $\eta = 0.6$	x: 0 m $\eta = 1.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 30.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.4$	$\eta < 0.1$	**CUMPLE** **h = 30.1**
N265/N337	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.2$	$\eta = 27.4$	x: 0 m $\eta = 2.5$	x: 5 m $\eta = 0.4$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 28.7$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 28.7**
N337/N409	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 30.4$	x: 0 m $\eta = 2.7$	x: 5 m $\eta = 0.5$	x: 0 m $\eta = 0.8$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 32.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.8$	$\eta < 0.1$	**CUMPLE** **h = 32.4**
N409/N481	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.7$	$\eta = 34.3$	x: 5 m $\eta = 9.7$	x: 5 m $\eta = 1.0$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 39.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	**CUMPLE** **h = 39.1**
N481/N553	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.6$	$\eta = 35.8$	x: 3.125 m $\eta = 6.1$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 3.75 m $\eta = 38.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 38.4**
N553/N625	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.7$	$\eta = 47.0$	x: 0 m $\eta = 11.3$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 1.5$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 52.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.5$	$\eta < 0.1$	**CUMPLE** **h = 52.6**
N625/N697	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$N_{Ed} = 0.00$ N.P.[4]	$\eta = 48.6$	x: 0 m $\eta = 2.4$	x: 5 m $\eta = 0.6$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 49.9$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 49.9**
N697/N769	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.6$	$\eta = 48.6$	x: 0 m $\eta = 4.7$	x: 0 m $\eta = 0.7$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 50.0$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	**CUMPLE** **h = 50.0**
N769/N841	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 55.0$	x: 5 m $\eta = 6.4$	x: 5 m $\eta = 1.3$	x: 0 m $\eta = 1.1$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 58.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.1$	$\eta < 0.1$	**CUMPLE** **h = 58.6**
N841/N913	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 25.9$	x: 5 m $\eta = 25.9$	x: 5 m $\eta = 1.1$	x: 5 m $\eta = 3.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 41.8$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 3.6$	$\eta < 0.1$	**CUMPLE** **h = 41.8**
N1799/N1727	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 34.0$	x: 0 m $\eta = 4.5$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 1.1$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 36.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.1$	$\eta < 0.1$	**CUMPLE** **h = 36.8**
N1727/N1655	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$N_{Ed} = 0.00$ N.P.[4]	$\eta = 12.7$	x: 0 m $\eta = 6.7$	x: 5 m $\eta = 0.9$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 16.2$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.3$	$\eta < 0.1$	**CUMPLE** **h = 16.2**
N1655/N1583	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.4$	$\eta = 31.0$	x: 5 m $\eta = 6.5$	x: 0 m $\eta = 0.9$	x: 5 m $\eta = 1.2$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 35.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.2$	$\eta < 0.1$	**CUMPLE** **h = 35.1**
N1583/N1511	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 7.0$	$\eta = 36.8$	x: 5 m $\eta = 3.5$	x: 5 m $\eta = 1.8$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 40.9$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 40.9**
N1511/N1439	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 7.4$	$\eta = 35.9$	x: 0 m $\eta = 2.7$	x: 5 m $\eta = 2.6$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 40.2$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 40.2**
N1439/N1367	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 6.6$	$\eta = 33.5$	x: 0 m $\eta = 2.7$	x: 5 m $\eta = 3.9$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 37.0$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 37.0**
N1367/N1295	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.9$	$\eta = 32.6$	x: 5 m $\eta = 2.3$	x: 0 m $\eta = 4.8$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 39.0$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 39.0**
N1295/N1223	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.9$	$\eta = 29.7$	x: 0 m $\eta = 2.4$	x: 5 m $\eta = 0.3$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 31.2$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 31.2**
N1223/N1151	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.1$	$\eta = 26.3$	x: 5 m $\eta = 2.1$	x: 5 m $\eta = 0.5$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 27.8$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 27.8**
N1151/N1079	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 23.6$	x: 0 m $\eta = 2.1$	x: 5 m $\eta = 4.1$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 28.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	**CUMPLE** **h = 28.5**
N1079/N1007	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 17.8$	x: 0 m $\eta = 2.1$	x: 5 m $\eta = 2.8$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 20.9$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE** **h = 20.9**
N1007/N41	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 18.4$	x: 5 m $\eta = 2.5$	x: 0 m $\eta = 4.7$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 24.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 24.1**
N41/N143	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 16.9$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 3.3$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 21.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 21.1**
N143/N215	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 14.9$	x: 0 m $\eta = 2.1$	x: 5 m $\eta = 4.0$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 19.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	**CUMPLE** **h = 19.3**
N215/N287	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 18.2$	x: 5 m $\eta = 2.2$	x: 0 m $\eta = 4.9$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 23.9$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE** **h = 23.9**
N287/N359	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.5$	$\eta = 18.2$	x: 0 m $\eta = 2.3$	x: 5 m $\eta = 0.4$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 19.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE** **h = 19.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N359/N431	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 18.9$	x: 5 m $\eta = 2.2$	x: 5 m $\eta = 0.7$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 20.4$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 20.4**
N431/N503	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.1$	$\eta = 19.5$	x: 0 m $\eta = 2.2$	x: 5 m $\eta = 4.2$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 23.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 23.5**
N503/N575	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 3.2$	$\eta = 18.2$	x: 0 m $\eta = 2.2$	x: 5 m $\eta = 2.7$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 21.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 21.1**
N575/N647	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.1$	$\eta = 20.1$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 5.1$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 25.2$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	**CUMPLE h = 25.2**
N647/N719	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.3$	$\eta = 19.9$	x: 0 m $\eta = 2.9$	x: 5 m $\eta = 0.5$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 21.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 21.5**
N719/N791	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 4.9$	$\eta = 15.7$	x: 0 m $\eta = 4.3$	x: 0 m $\eta = 0.6$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 18.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	**CUMPLE h = 18.1**
N791/N863	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 5.7$	$\eta = 12.7$	x: 5 m $\eta = 6.8$	x: 5 m $\eta = 1.5$	x: 5 m $\eta = 1.2$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 15.6$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.2$	$\eta < 0.1$	**CUMPLE h = 15.6**
N863/N935	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.3$	$\eta = 28.2$	x: 5 m $\eta = 55.7$	x: 5 m $\eta = 1.0$	x: 0 m $\eta = 5.4$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 61.8$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.4$	$\eta < 0.1$	**CUMPLE h = 61.8**
N1784/N1712	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.2$	$\eta = 0.9$	x: 0 m $\eta = 33.5$	x: 5 m $\eta = 1.6$	x: 5 m $\eta = 3.2$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 35.7$	$\eta < 0.1$	$\eta = 0.1$	x: 5 m $\eta = 3.2$	$\eta < 0.1$	**CUMPLE h = 35.7**
N1712/N1640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 0.7$	x: 0 m $\eta = 10.4$	x: 5 m $\eta = 1.9$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.5$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 1.3$	$\eta < 0.1$	**CUMPLE h = 10.5**
N1640/N1568	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.5$	$\eta = 1.3$	x: 5 m $\eta = 3.6$	x: 5 m $\eta = 1.8$	x: 5 m $\eta = 0.9$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 5.9$	$\eta < 0.1$	$\eta = 0.1$	x: 5 m $\eta = 0.9$	$\eta < 0.1$	**CUMPLE h = 5.9**
N1568/N1496	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.5$	$\eta = 5.8$	x: 0 m $\eta = 2.3$	x: 5 m $\eta = 1.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.4$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 7.4**
N1496/N1424	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.5$	$\eta = 6.1$	x: 5 m $\eta = 6.5$	x: 5 m $\eta = 2.1$	x: 5 m $\eta = 1.0$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 8.7$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.0$	$\eta < 0.1$	**CUMPLE h = 8.7**
N1424/N1352	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 6.1$	x: 2.813 m $\eta = 3.8$	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.9$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 7.9**
N1352/N1280	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.4$	$\eta = 1.4$	x: 0 m $\eta = 7.0$	x: 5 m $\eta = 1.6$	x: 0 m $\eta = 1.0$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 8.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.0$	$\eta < 0.1$	**CUMPLE h = 8.6**
N1280/N1208	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 1.2$	x: 5 m $\eta = 2.1$	x: 5 m $\eta = 1.8$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 3.7$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 3.7**
N1208/N1136	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 1.0$	x: 0 m $\eta = 2.4$	x: 5 m $\eta = 1.9$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 4.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 4.7**
N1136/N1064	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.1$	$\eta = 0.9$	x: 5 m $\eta = 6.9$	x: 5 m $\eta = 2.4$	x: 5 m $\eta = 1.0$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 8.6$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.0$	$\eta = 0.1$	**CUMPLE h = 8.6**
N1064/N992	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 1.1$	x: 2.813 m $\eta = 4.1$	x: 0 m $\eta = 1.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 2.5 m $\eta = 4.6$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 4.6**
N992/N82	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 0.9$	x: 0 m $\eta = 7.5$	x: 5 m $\eta = 2.1$	x: 0 m $\eta = 1.1$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 8.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.1$	$\eta < 0.1$	**CUMPLE h = 8.3**
N82/N128	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.8$	$\eta = 1.0$	x: 5 m $\eta = 6.5$	x: 5 m $\eta = 3.4$	x: 5 m $\eta = 1.1$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 9.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 1.1$	$\eta = 0.1$	**CUMPLE h = 9.1**
N128/N200	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 1.6$	x: 3.125 m $\eta = 3.9$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 2.813 m $\eta = 4.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 4.5**
N200/N272	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 1.3$	x: 0 m $\eta = 7.6$	x: 5 m $\eta = 2.4$	x: 0 m $\eta = 1.1$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 8.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.1$	$\eta = 0.1$	**CUMPLE h = 8.7**
N272/N344	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.4$	$\eta = 1.5$	x: 0 m $\eta = 2.0$	x: 5 m $\eta = 2.6$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta = 0.1$	**CUMPLE h = 5.1**
N344/N416	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.3$	$\eta = 6.0$	x: 0 m $\eta = 2.8$	x: 5 m $\eta = 2.7$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 10.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	**CUMPLE h = 10.1**
N416/N488	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.2$	$\eta = 6.8$	x: 5 m $\eta = 6.2$	x: 5 m $\eta = 3.6$	x: 5 m $\eta = 0.9$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 12.8$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.9$	$\eta = 0.1$	**CUMPLE h = 12.8**
N488/N560	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$N_{Ed} = 0.00$ N.P.[4]	$\eta = 9.9$	x: 3.125 m $\eta = 4.2$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 12.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 12.5**
N560/N632	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$N_{Ed} = 0.00$ N.P.[4]	$\eta = 9.9$	x: 0 m $\eta = 8.4$	x: 5 m $\eta = 3.3$	x: 0 m $\eta = 1.2$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 1.2$	$\eta = 0.1$	**CUMPLE h = 16.1**
N632/N704	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$N_{Ed} = 0.00$ N.P.[4]	$\eta = 11.9$	x: 0 m $\eta = 2.2$	x: 5 m $\eta = 3.5$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 16.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 16.5**
N704/N776	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 0.2$	$\eta = 14.5$	x: 0 m $\eta = 3.5$	x: 5 m $\eta = 3.9$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 19.8$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	**CUMPLE h = 19.8**
N776/N848	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.3$	$\eta = 23.9$	x: 0 m $\eta = 3.8$	x: 5 m $\eta = 5.2$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 30.6$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	**CUMPLE h = 30.6**
N848/N920	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.2$	$\eta = 22.6$	x: 5 m $\eta = 5.7$	x: 5 m $\eta = 5.7$	x: 5 m $\eta = 1.2$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 32.2$	$\eta < 0.1$	$\eta = 0.1$	x: 5 m $\eta = 1.2$	$\eta = 0.1$	**CUMPLE h = 32.2**
N1821/N1749	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 7.5$	$\eta = 14.1$	x: 0 m $\eta = 5.4$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 1.0$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0.313 m $\eta = 15.4$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 1.0$	$\eta < 0.1$	**CUMPLE h = 15.4**
N1749/N1677	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 1.8$	$\eta = 1.6$	x: 0 m $\eta = 3.9$	x: 5 m $\eta = 2.0$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 6.7$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	**CUMPLE h = 6.7**
N1677/N1605	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.6$	x: 5 m $\eta = 3.8$	x: 0 m $\eta = 1.5$	x: 0 m $\eta = 0.9$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 5.6$	$\eta < 0.1$	$\eta = 0.1$	x: 5 m $\eta = 0.9$	$\eta < 0.1$	**CUMPLE h = 5.6**
N1605/N1533	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 0.4$	x: 0 m $\eta = 2.1$	x: 5 m $\eta = 2.3$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 5.2$	$\eta < 0.1$	$\eta = 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 5.2**
N1533/N1461	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 0.2$	x: 0 m $\eta = 2.3$	x: 5 m $\eta = 3.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 7.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 7.4**
N1461/N1389	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 0.3$	x: 5 m $\eta = 2.4$	x: 5 m $\eta = 2.8$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.6$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 7.6**
N1389/N1317	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.3$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 3.2$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 5.1**
N1317/N1245	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.3$	x: 0 m $\eta = 2.1$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 4.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 4.4**
N1245/N1173	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.3$	x: 5 m $\eta = 1.8$	x: 0 m $\eta = 1.6$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 4.0$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 4.0**
N1173/N1101	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.4$	x: 0 m $\eta = 2.2$	x: 5 m $\eta = 4.5$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 6.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 6.4**
N1101/N1029	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 1.0$	x: 0 m $\eta = 2.5$	x: 0 m $\eta = 2.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 7.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 7.5**
N1029/N63	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.4$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 2.6$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 1.25 m $\eta = 4.8$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 4.8**
N63/N165	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.3$	$\eta = 0.7$	x: 0 m $\eta = 2.8$	x: 5 m $\eta = 4.3$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 9.2$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 9.2**
N165/N237	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.6$	$\eta = 0.9$	x: 5 m $\eta = 2.0$	x: 5 m $\eta = 2.5$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.0$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 7.0**
N237/N309	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.1$	$\eta = 0.5$	x: 0 m $\eta = 2.1$	x: 0 m $\eta = 2.9$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 5.1**
N309/N381	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.5$	x: 0 m $\eta = 2.3$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 5.1**
N381/N453	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.5$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 4.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 4.4**
N453/N525	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.2$	$\eta = 0.5$	x: 0 m $\eta = 2.5$	x: 5 m $\eta = 5.1$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 5 m $\eta = 7.5$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.8$	$\eta = 0.1$	**CUMPLE h = 7.5**
N525/N597	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.8$	$\eta = 0.7$	x: 0 m $\eta = 2.9$	x: 0 m $\eta = 2.9$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 8.3$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta < 0.1$	**CUMPLE h = 8.3**
N597/N669	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.4$	$\eta = 0.4$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 2.6$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 5.7$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.6$	$\eta < 0.1$	**CUMPLE h = 5.7**
N669/N741	$\lambda_w \leq \lambda_{w,máx}$ Cumple	$\eta = 2.7$	$\eta = 0.4$	x: 0 m $\eta = 2.7$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 6.4$	$\eta < 0.1$	$\eta < 0.1$	x: 0 m $\eta = 0.7$	$\eta = 0.1$	**CUMPLE h = 6.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N741/N813	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 1.1	x: 0 m η = 2.7	x: 5 m η = 2.4	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.5	η < 0.1	η = 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 6.5**
N813/N885	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.8	η = 11.0	x: 0 m η = 3.4	x: 0 m η = 2.8	x: 5 m η = 0.8	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 13.2	η < 0.1	η = 0.1	x: 5 m η = 0.8	η = 0.1	**CUMPLE h = 13.2**
N885/N957	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 9.3	η = 21.7	x: 5 m η = 8.9	x: 5 m η = 0.7	x: 0 m η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 25.4	η < 0.1	η = 0.1	x: 0 m η = 1.5	η < 0.1	**CUMPLE h = 25.4**
N1792/N1720	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.5	η = 7.6	x: 2.813 m η = 12.8	x: 0 m η = 0.6	x: 5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 16.7	η < 0.1	η < 0.1	x: 5 m η = 0.8	η < 0.1	**CUMPLE h = 16.7**
N1720/N1648	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 18.6	x: 0 m η = 13.1	x: 0 m η = 0.6	x: 0 m η = 1.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 24.8	η < 0.1	η < 0.1	x: 0 m η = 1.5	η < 0.1	**CUMPLE h = 24.8**
N1648/N1576	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 32.2	x: 5 m η = 7.5	x: 5 m η = 0.8	x: 5 m η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 35.1	η < 0.1	η < 0.1	x: 5 m η = 1.4	η < 0.1	**CUMPLE h = 35.1**
N1576/N1504	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.4	η = 35.1	x: 0 m η = 2.8	x: 5 m η = 0.6	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 3.438 m η = 36.7	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 36.7**
N1504/N1432	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.7	η = 35.1	x: 5 m η = 10.4	x: 0 m η = 0.5	x: 5 m η = 1.3	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 39.7	η < 0.1	η < 0.1	x: 5 m η = 1.3	η < 0.1	**CUMPLE h = 39.7**
N1432/N1360	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.3	η = 27.7	x: 2.188 m η = 6.2	x: 0 m η = 0.4	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 1.875 m η = 30.3	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 30.3**
N1360/N1288	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.2	η = 28.1	x: 0 m η = 10.3	x: 0 m η = 0.4	x: 0 m η = 1.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 31.8	η < 0.1	η < 0.1	x: 0 m η = 1.3	η < 0.1	**CUMPLE h = 31.8**
N1288/N1216	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.1	η = 23.4	x: 5 m η = 2.6	x: 5 m η = 0.3	x: 5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 24.9	η < 0.1	η < 0.1	x: 5 m η = 0.8	η < 0.1	**CUMPLE h = 24.9**
N1216/N1144	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 19.7	x: 0 m η = 2.8	x: 5 m η = 0.4	x: 0 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.4	η < 0.1	η < 0.1	x: 0 m η = 0.8	η < 0.1	**CUMPLE h = 20.4**
N1144/N1072	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.5	η = 16.7	x: 5 m η = 10.2	x: 5 m η = 0.5	x: 5 m η = 1.3	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 20.8	η < 0.1	η < 0.1	x: 5 m η = 1.3	η < 0.1	**CUMPLE h = 20.8**
N1072/N1000	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 12.3	x: 2.813 m η = 6.0	x: 0 m η = 0.3	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 14.4	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 14.4**
N1000/N90	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 18.9	x: 0 m η = 10.3	x: 5 m η = 0.9	x: 0 m η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.8	η < 0.1	η < 0.1	x: 0 m η = 1.4	η < 0.1	**CUMPLE h = 23.8**
N90/N136	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 19.6	x: 5 m η = 10.8	x: 5 m η = 1.2	x: 5 m η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 24.8	η < 0.1	η < 0.1	x: 5 m η = 1.4	η < 0.1	**CUMPLE h = 24.8**
N136/N208	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.9	η = 17.5	x: 2.5 m η = 6.0	x: 0 m η = 0.4	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.188 m η = 19.7	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 19.7**
N208/N280	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 25.3	x: 0 m η = 10.7	x: 0 m η = 0.6	x: 0 m η = 1.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 30.2	η < 0.1	η < 0.1	x: 0 m η = 1.4	η < 0.1	**CUMPLE h = 30.2**
N280/N352	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 27.5	x: 0 m η = 2.5	x: 5 m η = 0.4	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 28.8	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 28.8**
N352/N424	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 30.4	x: 0 m η = 2.7	x: 5 m η = 0.5	x: 0 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 32.5	η < 0.1	η < 0.1	x: 0 m η = 0.8	η < 0.1	**CUMPLE h = 32.5**
N424/N496	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 34.4	x: 5 m η = 9.7	x: 5 m η = 1.0	x: 5 m η = 1.3	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 39.1	η < 0.1	η < 0.1	x: 5 m η = 1.3	η < 0.1	**CUMPLE h = 39.1**
N496/N568	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.6	η = 35.9	x: 3.125 m η = 6.1	x: 0 m η = 0.5	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 3.75 m η = 38.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 38.5**
N568/N640	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 47.0	x: 0 m η = 11.3	x: 0 m η = 0.8	x: 0 m η = 1.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 52.7	η < 0.1	η < 0.1	x: 0 m η = 1.5	η < 0.1	**CUMPLE h = 52.7**
N640/N712	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.(4)	η = 48.6	x: 0 m η = 2.4	x: 5 m η = 0.6	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 49.9	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 49.9**
N712/N784	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.6	η = 48.6	x: 0 m η = 4.6	x: 0 m η = 0.7	x: 0 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 50.0	η < 0.1	η < 0.1	x: 0 m η = 0.9	η < 0.1	**CUMPLE h = 50.0**
N784/N856	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 54.5	x: 5 m η = 6.6	x: 5 m η = 1.4	x: 0 m η = 1.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 58.0	η < 0.1	η < 0.1	x: 0 m η = 1.1	η < 0.1	**CUMPLE h = 58.0**
N856/N928	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 25.8	x: 5 m η = 25.8	x: 5 m η = 1.1	x: 5 m η = 3.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 42.1	η < 0.1	η < 0.1	x: 5 m η = 3.6	η < 0.1	**CUMPLE h = 42.1**
N1813/N1741	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 34.3	x: 0 m η = 4.7	x: 0 m η = 0.2	x: 0 m η = 1.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 37.2	η < 0.1	η < 0.1	x: 0 m η = 1.1	η < 0.1	**CUMPLE h = 37.2**
N1741/N1669	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.(4)	η = 13.2	x: 0 m η = 7.0	x: 5 m η = 0.9	x: 5 m η = 1.3	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 16.6	η < 0.1	η < 0.1	x: 5 m η = 1.3	η < 0.1	**CUMPLE h = 16.6**
N1669/N1597	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 31.3	x: 5 m η = 6.5	x: 0 m η = 0.9	x: 5 m η = 1.2	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 35.5	η < 0.1	η < 0.1	x: 5 m η = 1.2	η < 0.1	**CUMPLE h = 35.5**
N1597/N1525	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.9	η = 37.1	x: 5 m η = 3.5	x: 5 m η = 1.8	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 41.3	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 41.3**
N1525/N1453	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 7.4	η = 36.2	x: 0 m η = 2.7	x: 5 m η = 2.6	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 40.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 40.5**
N1453/N1381	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 6.5	η = 33.8	x: 0 m η = 2.7	x: 5 m η = 3.9	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 37.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 37.4**
N1381/N1309	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.9	η = 33.0	x: 5 m η = 2.3	x: 0 m η = 4.8	x: 5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 39.4	η < 0.1	η < 0.1	x: 5 m η = 0.7	η = 0.1	**CUMPLE h = 39.4**
N1309/N1237	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.9	η = 30.0	x: 0 m η = 2.4	x: 5 m η = 0.3	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 31.6	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 31.6**
N1237/N1165	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.0	η = 26.6	x: 5 m η = 2.1	x: 5 m η = 0.5	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 28.1	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 28.1**
N1165/N1093	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 23.9	x: 0 m η = 2.2	x: 5 m η = 4.6	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 29.3	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 29.3**
N1093/N1021	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 18.2	x: 0 m η = 2.0	x: 5 m η = 2.7	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 21.4	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 21.4**
N1021/N55	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.1	η = 19.2	x: 5 m η = 2.5	x: 0 m η = 4.0	x: 5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 24.1	η < 0.1	η < 0.1	x: 5 m η = 0.7	η = 0.1	**CUMPLE h = 24.1**
N55/N157	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.9	η = 17.7	x: 0 m η = 2.3	x: 0 m η = 2.0	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 20.5**
N157/N229	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 1.7	η = 15.5	x: 0 m η = 2.1	x: 5 m η = 3.8	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 19.9	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 19.9**
N229/N301	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.3	η = 18.9	x: 5 m η = 2.2	x: 0 m η = 4.9	x: 5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 24.6	η < 0.1	η < 0.1	x: 5 m η = 0.7	η = 0.1	**CUMPLE h = 24.6**
N301/N373	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.6	η = 18.9	x: 0 m η = 2.3	x: 5 m η = 0.4	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 20.1**
N373/N445	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.9	η = 19.5	x: 5 m η = 2.1	x: 5 m η = 0.7	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 21.2	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 21.2**
N445/N517	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 20.1	x: 0 m η = 2.2	x: 5 m η = 4.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 5 m η = 24.3	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 24.3**
N517/N589	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.3	η = 18.9	x: 0 m η = 2.2	x: 5 m η = 2.6	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 21.8	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 21.8**
N589/N661	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.2	η = 20.9	x: 0 m η = 1.9	x: 0 m η = 5.1	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 25.9	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 25.9**
N661/N733	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.2	η = 20.8	x: 0 m η = 2.9	x: 5 m η = 0.4	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 22.2	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 22.2**
N733/N805	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.7	η = 16.6	x: 0 m η = 4.2	x: 0 m η = 0.6	x: 0 m η = 0.9	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.0	η < 0.1	η < 0.1	x: 0 m η = 0.9	η < 0.1	**CUMPLE h = 19.0**
N805/N877	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.5	η = 12.6	x: 5 m η = 6.9	x: 5 m η = 1.7	x: 5 m η = 1.2	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 15.6	η < 0.1	η < 0.1	x: 5 m η = 1.2	η < 0.1	**CUMPLE h = 15.6**
N877/N949	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 28.3	x: 5 m η = 55.2	x: 5 m η = 0.6	x: 0 m η = 5.4	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 61.8	η < 0.1	η < 0.1	x: 0 m η = 5.4	η < 0.1	**CUMPLE h = 61.8**
N47/N149	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 9.5	x: 0 m η = 2.9	x: 5 m η = 2.6	x: 5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 13.2	η < 0.1	η < 0.1	x: 5 m η = 0.4	η < 0.1	**CUMPLE h = 13.2**
N45/N147	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 12.6	x: 5 m η = 7.7	x: 5 m η = 0.5	x: 5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 17.0	η < 0.1	η < 0.1	x: 5 m η = 0.8	η < 0.1	**CUMPLE h = 17.0**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N43/N145	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 11.5	x: 5 m η = 5.1	x: 0 m η = 2.5	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 16.9	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 16.9**
N39/N141	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 11.8	x: 5 m η = 2.8	x: 0 m η = 0.3	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 3.438 m η = 13.3	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 13.3**
N53/N155	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 11.8	x: 5 m η = 2.8	x: 0 m η = 1.0	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.0	η < 0.1	η < 0.1	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 14.0**
N57/N159	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 11.6	x: 5 m η = 5.0	x: 0 m η = 1.8	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 16.3	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 16.3**
N59/N161	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 12.6	x: 5 m η = 7.5	x: 5 m η = 1.0	x: 5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 17.6	η < 0.1	η < 0.1	x: 5 m η = 0.8	η < 0.1	**CUMPLE h = 17.6**
N61/N163	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 9.2	x: 0 m η = 2.7	x: 5 m η = 3.4	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 13.6	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 13.6**
N1517/N1445	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 9.8	x: 0 m η = 2.8	x: 5 m η = 2.8	x: 5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 14.1	η < 0.1	η < 0.1	x: 5 m η = 0.5	η < 0.1	**CUMPLE h = 14.1**
N1515/N1443	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 12.5	x: 5 m η = 7.9	x: 5 m η = 0.6	x: 5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 17.2	η < 0.1	η < 0.1	x: 5 m η = 0.8	η < 0.1	**CUMPLE h = 17.2**
N1513/N1441	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 12.3	x: 5 m η = 5.3	x: 0 m η = 2.2	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 17.0	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 17.0**
N1509/N1437	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 11.6	x: 5 m η = 2.8	x: 0 m η = 0.6	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 13.2**
N1523/N1451	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 11.6	x: 5 m η = 2.9	x: 0 m η = 0.6	x: 0 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 0 m η = 0.5	η < 0.1	**CUMPLE h = 13.2**
N1527/N1455	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 12.3	x: 5 m η = 5.3	x: 0 m η = 2.2	x: 5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 17.0	η < 0.1	η < 0.1	x: 5 m η = 0.7	η < 0.1	**CUMPLE h = 17.0**
N1529/N1457	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 12.5	x: 5 m η = 7.8	x: 5 m η = 0.6	x: 5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 17.2	η < 0.1	η < 0.1	x: 5 m η = 0.8	η < 0.1	**CUMPLE h = 17.2**
N1531/N1459	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 9.9	x: 0 m η = 2.7	x: 5 m η = 2.9	x: 5 m η = 0.5	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 14.1	η < 0.1	η < 0.1	x: 5 m η = 0.5	η < 0.1	**CUMPLE h = 14.1**
N2240/N2177	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.9	x: 3.536 m η = 12.5	x: 3.094 m η = 2.1	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.0	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.0**
N2241/N2240	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.9	x: 2.5 m η = 6.4	x: 0 m η = 4.3	x: 2.5 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 10.8	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 10.8**
N2242/N2241	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.1	x: 0 m η = 18.3	x: 3.536 m η = 1.0	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 18.5**
N2243/N2242	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.5	x: 2.5 m η = 8.0	x: 0 m η = 4.6	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 12.5**
N2015/N2243	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.7	x: 0 m η = 23.0	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 22.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 23.0**
N2244/N2178	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 3.536 m η = 12.7	x: 3.315 m η = 2.4	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.4**
N2245/N2244	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.9	x: 2.5 m η = 6.5	x: 0 m η = 4.5	x: 0 m η = 0.1	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2246/N2245	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 19.4	x: 3.536 m η = 1.1	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.5**
N2247/N2246	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 2.5 m η = 8.4	x: 0 m η = 4.6	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.1**
N2016/N2247	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.3	x: 0 m η = 23.8	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 23.8**
N2248/N2179	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.0	x: 3.536 m η = 12.4	x: 3.315 m η = 2.4	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 13.2**
N2249/N2248	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.0	x: 0 m η = 6.6	x: 0 m η = 4.4	x: 0 m η = 0.4	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2250/N2249	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.4	x: 0 m η = 19.1	x: 3.536 m η = 1.1	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.3	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.3**
N2251/N2250	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 2.5 m η = 8.4	x: 0 m η = 4.5	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.1**
N2017/N2251	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.1	x: 0 m η = 23.6	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 23.6**
N2252/N2180	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.1	x: 3.536 m η = 12.5	x: 3.315 m η = 2.4	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.2**
N2253/N2252	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 6.6	x: 0 m η = 4.5	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2254/N2253	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.5	x: 0 m η = 19.3	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.4	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.4**
N2255/N2254	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 2.5 m η = 8.4	x: 0 m η = 4.6	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.1**
N2018/N2255	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.3	x: 0 m η = 23.8	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 23.8**
N2256/N2181	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.1	x: 3.536 m η = 12.5	x: 3.315 m η = 2.4	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.2**
N2257/N2256	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 6.6	x: 0 m η = 4.5	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2258/N2257	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.5	x: 0 m η = 19.3	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.4	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.4**
N2259/N2258	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 2.5 m η = 8.4	x: 0 m η = 4.6	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.1	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.1**
N2019/N2259	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.3	x: 0 m η = 23.8	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.6	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 23.8**
N2260/N2182	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 0 m η = 12.7	x: 3.315 m η = 2.3	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 13.5**
N2261/N2260	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.1	x: 0 m η = 6.9	x: 0 m η = 4.5	x: 0 m η = 0.5	x: 0 m η = 0.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 11.6	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 0 m η = 0.6	η = 0.2	**CUMPLE h = 11.6**
N2262/N2261	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.6	x: 0 m η = 19.4	x: 3.536 m η = 1.1	x: 3.536 m η = 0.3	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.5**
N2263/N2262	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.7	x: 2.5 m η = 8.6	x: 0 m η = 4.6	x: 2.5 m η = 0.3	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.4**
N2020/N2263	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.5	x: 0 m η = 24.0	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.0**
N2264/N2183	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 3.536 m η = 12.7	x: 3.315 m η = 2.4	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.5**
N2265/N2264	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 2.5 m η = 6.8	x: 0 m η = 4.5	x: 0 m η = 0.2	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.5	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.5**
N2266/N2265	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 19.5	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.7	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.7**
N2267/N2266	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.7	x: 0 m η = 8.3	x: 0 m η = 4.6	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.9	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 12.9**
N2021/N2267	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.4	x: 0 m η = 24.1	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.1**
N2268/N2184	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.9	x: 0 m η = 12.8	x: 3.315 m η = 2.4	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.6	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 13.6**
N2269/N2268	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.1	x: 0 m η = 6.5	x: 0 m η = 4.4	x: 0 m η = 0.4	x: 0 m η = 0.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.2	**CUMPLE h = 11.1**
N2270/N2269	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.2	x: 0 m η = 19.4	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.5**
N2271/N2270	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.8	x: 0 m η = 8.3	x: 0 m η = 4.5	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.9	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2022/N2271	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.1	x: 0 m η = 24.1	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.9	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.1**
N2272/N2185	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.0	x: 0 m η = 13.2	x: 3.315 m η = 2.4	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.0	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 14.0**
N2273/N2272	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.2	x: 2.5 m η = 6.4	x: 0 m η = 4.4	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 10.9	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 10.9**
N2274/N2273	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.3	x: 0 m η = 20.0	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 20.1**
N2275/N2274	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.9	x: 0 m η = 8.3	x: 0 m η = 4.5	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.9	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**
N2023/N2275	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.2	x: 0 m η = 24.7	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 24.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.7**
N2276/N2186	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.9	x: 0 m η = 13.9	x: 3.315 m η = 2.3	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.7	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 14.7**
N2277/N2276	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.5	x: 2.5 m η = 6.5	x: 0 m η = 4.4	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 10.9	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 10.9**
N2278/N2277	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.1	x: 0 m η = 20.8	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 21.0	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 21.0**
N2279/N2278	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.2	x: 2.5 m η = 8.2	x: 0 m η = 4.5	x: 0 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 12.7**
N2024/N2279	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.0	x: 0 m η = 25.5	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 25.3	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 25.5**
N2280/N2187	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.8	x: 0 m η = 15.7	x: 3.315 m η = 2.3	x: 3.536 m η = 0.2	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 16.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 16.5**
N2281/N2280	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.5	x: 2.5 m η = 7.7	x: 0 m η = 4.6	x: 2.5 m η = 0.5	x: 0 m η = 0.7	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.2	**CUMPLE h = 12.7**
N2282/N2281	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 14.1	x: 0 m η = 22.9	x: 3.536 m η = 1.2	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.0	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 23.0**
N2283/N2282	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 7.0	x: 2.5 m η = 9.3	x: 0 m η = 4.7	x: 2.5 m η = 0.3	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.2	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 14.2**
N2025/N2283	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.8	x: 0 m η = 27.4	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.305 m η = 27.2	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 27.4**
N2284/N2188	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.8	x: 3.536 m η = 15.4	x: 3.315 m η = 2.3	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 16.1	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 16.1**
N2285/N2284	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.3	x: 2.5 m η = 7.8	x: 0 m η = 4.8	x: 2.5 m η = 0.5	x: 0 m η = 0.7	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 13.0	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.2	**CUMPLE h = 13.0**
N2286/N2285	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 14.1	x: 3.536 m η = 23.2	x: 3.536 m η = 1.1	x: 3.536 m η = 0.6	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.2	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 23.2**
N2287/N2286	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.8	x: 2.5 m η = 8.5	x: 0 m η = 4.9	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 13.4**
N2026/N2287	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.9	x: 0 m η = 28.1	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 27.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 28.1**
N2288/N2189	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 7.1	x: 0 m η = 11.8	x: 0 m η = 2.0	x: 0 m η = 0.9	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 12.5**
N2289/N2288	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.3	x: 2.5 m η = 14.2	x: 0 m η = 2.2	x: 2.5 m η = 2.7	x: 0 m η = 0.4	η = 0.9	η < 0.1	η < 0.1	x: 2.5 m η = 16.6	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.9	**CUMPLE h = 16.6**
N2290/N2289	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.9	x: 0 m η = 17.6	x: 3.536 m η = 1.4	x: 3.536 m η = 0.8	x: 3.536 m η = 0.2	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.2	**CUMPLE h = 17.9**
N2291/N2290	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.8	x: 2.5 m η = 9.0	x: 0 m η = 2.0	x: 2.5 m η = 1.7	x: 0 m η = 0.4	η = 0.6	η < 0.1	η < 0.1	x: 2.5 m η = 12.0	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.6	**CUMPLE h = 12.0**
N2027/N2291	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 8.9	x: 3.479 m η = 21.0	x: 0 m η = 1.6	x: 0 m η = 0.7	x: 0 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.479 m η = 20.5	η < 0.1	η = 0.1	x: 0 m η = 0.2	η = 0.1	**CUMPLE h = 21.0**
N2293/N2292	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 0.7	x: 0 m η = 7.7	x: 3.094 m η = 2.1	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 8.5**
N2294/N2293	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 1.5	x: 2.5 m η = 1.3	x: 0 m η = 2.3	x: 2.5 m η = 0.4	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 4.0	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 4.0**
N2295/N2176	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.5	x: 0 m η = 12.4	x: 3.094 m η = 2.1	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.2**
N2296/N2295	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.2	x: 0 m η = 6.2	x: 0 m η = 4.3	x: 0 m η = 0.2	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 10.6	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 10.6**
N2297/N2296	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.2	x: 3.536 m η = 18.7	x: 3.536 m η = 1.0	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 18.7**
N2298/N2297	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 2.5 m η = 8.1	x: 0 m η = 4.6	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 12.7**
N2014/N2298	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.2	x: 0 m η = 23.4	x: 0 m η = 2.3	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 1.087 m η = 23.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 23.4**
N2299/N2175	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 0 m η = 12.9	x: 3.315 m η = 2.3	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.7	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 13.7**
N2300/N2299	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.3	x: 0 m η = 7.2	x: 0 m η = 4.5	x: 0 m η = 0.4	x: 0 m η = 0.6	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.2	**CUMPLE h = 12.0**
N2301/N2300	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 14.0	x: 0 m η = 19.8	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.9**
N2302/N2301	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.8	x: 2.5 m η = 8.5	x: 0 m η = 4.6	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.2**
N2013/N2302	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.1	x: 0 m η = 24.6	x: 0 m η = 2.4	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 24.2	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.6**
N2303/N2174	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 3.536 m η = 12.7	x: 3.315 m η = 2.3	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.4**
N2304/N2303	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 6.6	x: 0 m η = 4.5	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2305/N2304	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 19.5	x: 3.536 m η = 1.1	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.6	η < 0.1	M_{tol} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.6**
N2306/N2305	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 0 m η = 8.3	x: 0 m η = 4.5	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.9	η < 0.1	η < 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 12.9**
N2012/N2306	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 24.1	x: 0 m η = 2.3	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 23.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.1**
N2307/N2173	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.4	x: 3.536 m η = 12.7	x: 3.315 m η = 2.4	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.4**
N2308/N2307	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 6.6	x: 0 m η = 4.5	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2309/N2308	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 19.5	x: 3.536 m η = 1.1	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.7	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.7**
N2310/N2309	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 0 m η = 8.2	x: 0 m η = 4.5	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.9	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 12.9**
N2011/N2310	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 24.1	x: 0 m η = 2.3	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 23.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.1**
N2311/N2172	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.4	x: 3.536 m η = 12.8	x: 3.315 m η = 2.4	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.4	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.4**
N2312/N2311	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 6.6	x: 0 m η = 4.5	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2313/N2312	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 19.5	x: 3.536 m η = 1.1	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.7	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 19.7**
N2314/N2313	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.6	x: 0 m η = 8.2	x: 0 m η = 4.5	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.8	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 12.8**
N2010/N2314	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 24.1	x: 0 m η = 2.3	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 23.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.1**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2315/N2171	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.6	x: 3.536 m η = 13.2	x: 3.315 m η = 2.4	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.9	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 13.9**
N2316/N2315	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.0	x: 0 m η = 6.5	x: 0 m η = 4.5	x: 0 m η = 0.2	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2317/N2316	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.9	x: 0 m η = 20.0	x: 3.536 m η = 1.1	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 20.1**
N2318/N2317	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.7	x: 0 m η = 8.3	x: 0 m η = 4.6	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.0	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 13.0**
N2009/N2318	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.7	x: 0 m η = 24.4	x: 0 m η = 2.3	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 24.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.4**
N2319/N2170	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.5	x: 3.536 m η = 13.4	x: 3.315 m η = 2.4	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.0	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 14.0**
N2320/N2319	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.2	x: 2.5 m η = 6.8	x: 0 m η = 4.5	x: 0 m η = 0.4	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.4	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.4**
N2321/N2320	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 20.3	x: 3.536 m η = 1.1	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 20.5**
N2322/N2321	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.8	x: 2.5 m η = 8.2	x: 0 m η = 4.6	x: 2.5 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.9	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**
N2008/N2322	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.7	x: 0 m η = 24.9	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 24.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 24.9**
N2323/N2169	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.4	x: 3.536 m η = 14.0	x: 3.315 m η = 2.3	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.6	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 14.6**
N2324/N2323	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.3	x: 2.5 m η = 6.6	x: 0 m η = 4.4	x: 0 m η = 0.3	x: 0 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.2	η < 0.1	η < 0.1	x: 0 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2325/N2324	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.6	x: 0 m η = 21.0	x: 3.536 m η = 1.1	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 21.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 21.1**
N2326/N2325	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.0	x: 0 m η = 8.1	x: 0 m η = 4.5	x: 2.5 m η = 0.1	x: 0 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.7	η < 0.1	**CUMPLE h = 12.7**
N2007/N2326	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.4	x: 0 m η = 25.4	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.87 m η = 25.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 25.4**
N2327/N2168	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.4	x: 3.536 m η = 15.3	x: 3.315 m η = 2.4	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 15.9**
N2328/N2327	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 5.0	x: 2.5 m η = 7.8	x: 0 m η = 4.7	x: 2.5 m η = 0.4	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.7	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 12.7**
N2329/N2328	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 15.0	x: 0 m η = 22.7	x: 3.536 m η = 1.2	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 22.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 22.8**
N2330/N2329	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 6.7	x: 2.5 m η = 9.4	x: 0 m η = 4.8	x: 2.5 m η = 0.3	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.4	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 14.4**
N2006/N2330	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.6	x: 0 m η = 27.1	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.652 m η = 26.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 27.1**
N2331/N2167	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.7	x: 3.536 m η = 15.9	x: 3.315 m η = 2.4	x: 3.536 m η = 0.3	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 16.4	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 16.4**
N2332/N2331	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.9	x: 0 m η = 7.3	x: 0 m η = 5.1	x: 2.5 m η = 0.7	x: 0 m η = 0.7	η = 0.3	η < 0.1	η < 0.1	x: 0 m η = 12.5	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.3	**CUMPLE h = 12.5**
N2333/N2332	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 15.9	x: 0 m η = 23.7	x: 3.536 m η = 1.2	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 23.9**
N2334/N2333	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.8	x: 2.5 m η = 12.9	x: 0 m η = 5.2	x: 2.5 m η = 0.3	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 17.8**
N2005/N2334	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.0	x: 0 m η = 28.5	x: 0 m η = 2.5	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.652 m η = 28.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 28.5**
N2335/N2166	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.0	x: 3.536 m η = 15.6	x: 3.315 m η = 2.5	x: 3.536 m η = 0.5	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 15.9**
N2336/N2335	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.1	x: 0 m η = 7.8	x: 0 m η = 5.2	x: 0 m η = 0.2	x: 0 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 13.3	η < 0.1	η < 0.1	x: 0 m η = 0.7	η = 0.1	**CUMPLE h = 13.3**
N2337/N2336	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 23.6	x: 3.536 m η = 1.2	x: 0 m η = 0.6	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 23.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 23.8**
N2338/N2337	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.8	x: 0 m η = 9.5	x: 0 m η = 5.3	x: 0 m η = 0.1	x: 0 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 14.9	η < 0.1	η < 0.1	x: 0 m η = 0.8	η < 0.1	**CUMPLE h = 14.9**
N2004/N2338	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 18.0	x: 0 m η = 28.5	x: 0 m η = 2.5	x: 0 m η = 0.7	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0.652 m η = 28.2	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 28.5**
N2339/N2226	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.9	x: 0 m η = 8.8	x: 3.094 m η = 2.1	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 10.8	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 10.8**
N2339/N2340	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.2	x: 0 m η = 7.2	x: 2.5 m η = 4.4	x: 2.5 m η = 0.5	x: 2.5 m η = 0.6	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 12.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.2	**CUMPLE h = 12.0**
N2341/N2340	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.0	x: 0 m η = 11.2	x: 3.536 m η = 1.1	x: 0 m η = 0.3	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.1**
N2341/N2342	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.4	x: 2.5 m η = 4.5	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 13.0**
N2042/N2342	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.9	x: 0 m η = 12.4	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.3	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.3**
N2343/N2227	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.5	x: 3.536 m η = 9.2	x: 3.094 m η = 2.1	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.4	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.4**
N2343/N2344	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.0	x: 0 m η = 6.6	x: 2.5 m η = 4.5	x: 2.5 m η = 0.1	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.3	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 2.5 m η = 0.6	η < 0.1	**CUMPLE h = 11.3**
N2345/N2344	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.8	x: 0 m η = 11.9	x: 3.536 m η = 1.1	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 15.0	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 15.0**
N2345/N2346	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.5	x: 2.5 m η = 8.3	x: 2.5 m η = 4.6	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 13.0**
N2041/N2346	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.5	x: 0 m η = 12.9	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 18.0**
N2347/N2228	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.0	x: 3.536 m η = 8.9	x: 3.094 m η = 2.1	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 10.9	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 10.9**
N2347/N2348	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.0	x: 2.5 m η = 6.5	x: 2.5 m η = 4.5	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.1	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2349/N2348	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.4	x: 0 m η = 11.6	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.6	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.6**
N2349/N2350	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.2	x: 2.5 m η = 4.5	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**
N2040/N2350	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.3	x: 0 m η = 12.7	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.7**
N2351/N2229	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.1	x: 3.536 m η = 8.9	x: 3.094 m η = 2.1	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 11.0	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.0**
N2351/N2352	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.0	x: 2.5 m η = 6.5	x: 2.5 m η = 4.5	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.1	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2353/N2352	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.5	x: 0 m η = 11.7	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.7	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.7**
N2353/N2354	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.3	x: 2.5 m η = 4.6	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**
N2039/N2354	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.4	x: 0 m η = 12.8	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.7**
N2355/N2230	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.1	x: 3.536 m η = 8.9	x: 3.094 m η = 2.1	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 2.873 m η = 10.9	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 10.9**
N2355/N2356	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.0	x: 2.5 m η = 6.5	x: 2.5 m η = 4.5	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.1	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2357/N2356	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.5	x: 0 m η = 11.7	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.7	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.7**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_yV_z	M_tV_y	
N2357/N2358	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.3	x: 2.5 m η = 4.6	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 12.9**
N2038/N2358	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.4	x: 0 m η = 12.8	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.7**
N2359/N2231	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 0 m η = 9.1	x: 3.094 m η = 2.0	x: 3.536 m η = 0.2	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 11.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 11.2**
N2359/N2360	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.1	x: 2.5 m η = 6.8	x: 2.5 m η = 4.5	x: 2.5 m η = 0.5	x: 2.5 m η = 0.6	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 11.5	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 2.5 m η = 0.6	η = 0.2	**CUMPLE h = 11.5**
N2361/N2360	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 11.8	x: 3.536 m η = 1.1	x: 3.536 m η = 0.3	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.8**
N2361/N2362	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.6	x: 0 m η = 8.5	x: 2.5 m η = 4.6	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.3	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 13.3**
N2037/N2362	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 13.0	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 18.0**
N2363/N2232	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 0 m η = 9.1	x: 3.094 m η = 2.1	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 11.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.2**
N2363/N2364	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.0	x: 0 m η = 6.9	x: 2.5 m η = 4.5	x: 2.5 m η = 0.2	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.5	η < 0.1	M_{tu} = 0.00 N.P.[2]	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.5**
N2365/N2364	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 12.0	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.9**
N2365/N2366	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.6	x: 0 m η = 8.3	x: 2.5 m η = 4.6	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 13.0**
N2036/N2366	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.5	x: 0 m η = 13.1	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.8**
N2367/N2233	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.0	x: 0 m η = 9.2	x: 3.094 m η = 2.1	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 10.8	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 10.8**
N2367/N2368	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.1	x: 2.5 m η = 6.5	x: 2.5 m η = 4.4	x: 2.5 m η = 0.4	x: 2.5 m η = 0.6	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 11.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.2	**CUMPLE h = 11.0**
N2369/N2368	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.2	x: 0 m η = 11.9	x: 3.536 m η = 1.1	x: 3.536 m η = 0.3	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.3	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.3**
N2369/N2370	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.7	x: 2.5 m η = 8.2	x: 2.5 m η = 4.5	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 12.9**
N2035/N2370	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.1	x: 0 m η = 13.1	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.4**
N2371/N2234	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.0	x: 0 m η = 9.7	x: 3.094 m η = 2.0	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 10.9	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 10.9**
N2371/N2372	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.3	x: 0 m η = 6.4	x: 2.5 m η = 4.4	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.0**
N2373/N2372	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.3	x: 0 m η = 12.5	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.5**
N2373/N2374	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.8	x: 2.5 m η = 8.2	x: 2.5 m η = 4.5	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**
N2034/N2374	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.2	x: 0 m η = 13.7	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.5**
N2375/N2235	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.9	x: 0 m η = 10.4	x: 3.094 m η = 2.0	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.094 m η = 10.8	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 10.8**
N2375/N2376	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.6	x: 0 m η = 6.5	x: 2.5 m η = 4.4	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 10.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 10.9**
N2377/N2376	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.1	x: 0 m η = 13.4	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.3	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.3**
N2377/N2378	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.1	x: 0 m η = 8.2	x: 2.5 m η = 4.5	x: 2.5 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 12.7**
N2033/N2378	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 15.0	x: 0 m η = 14.5	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.2	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.2**
N2379/N2236	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.0	x: 0 m η = 12.1	x: 3.094 m η = 2.0	x: 3.536 m η = 0.2	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 12.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 12.5**
N2379/N2380	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.5	x: 0 m η = 7.9	x: 2.5 m η = 4.6	x: 0 m η = 0.5	x: 2.5 m η = 0.7	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.2	**CUMPLE h = 12.9**
N2381/N2380	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 14.3	x: 0 m η = 15.4	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 15.6	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 15.6**
N2381/N2382	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.9	x: 0 m η = 9.4	x: 2.5 m η = 4.7	x: 0 m η = 0.3	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 14.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 14.4**
N2032/N2382	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.0	x: 0 m η = 16.3	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 18.4**
N2383/N2237	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.9	x: 3.536 m η = 11.6	x: 3.094 m η = 2.3	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 12.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 12.5**
N2383/N2384	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.3	x: 0 m η = 8.1	x: 2.5 m η = 4.8	x: 0 m η = 0.6	x: 2.5 m η = 0.7	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 13.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.2	**CUMPLE h = 13.4**
N2385/N2384	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 14.2	x: 3.536 m η = 15.3	x: 3.536 m η = 1.1	x: 3.536 m η = 0.6	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 15.5	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 15.5**
N2385/N2386	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.6	x: 0 m η = 8.6	x: 2.5 m η = 4.9	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.6	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 13.6**
N2031/N2386	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 16.0	x: 0 m η = 16.7	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.4	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 18.4**
N2387/N2214	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 7.0	x: 0 m η = 8.1	x: 0 m η = 1.8	x: 0 m η = 0.9	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 9.5	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 9.5**
N2387/N2388	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.8	x: 0 m η = 14.4	x: 2.5 m η = 2.1	x: 0 m η = 2.7	x: 2.5 m η = 0.4	η = 1.0	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 1.0	**CUMPLE h = 16.8**
N2389/N2388	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.7	x: 3.536 m η = 9.8	x: 3.536 m η = 1.3	x: 3.536 m η = 0.8	x: 3.536 m η = 0.2	η = 0.2	η < 0.1	η < 0.1	x: 3.536 m η = 10.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.2	**CUMPLE h = 10.9**
N2389/N2390	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.6	x: 0 m η = 8.9	x: 2.5 m η = 1.9	x: 0 m η = 1.8	x: 2.5 m η = 0.4	η = 0.6	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.6	**CUMPLE h = 12.0**
N2030/N2390	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.479 m η = 8.6	x: 3.479 m η = 9.6	x: 0 m η = 1.6	x: 0 m η = 0.7	x: 0 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.1	x: 0 m η = 0.2	η = 0.1	**CUMPLE h = 9.8**
N2391/N2238	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 8.6	x: 3.536 m η = 8.4	x: 3.094 m η = 2.1	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 10.5	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 10.5**
N2391/N2392	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 2.7	x: 0 m η = 6.0	x: 2.5 m η = 4.3	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 10.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 10.4**
N2393/N2392	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 12.7	x: 0 m η = 10.9	x: 3.536 m η = 1.1	x: 3.536 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 13.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 13.9**
N2393/N2394	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.2	x: 2.5 m η = 7.7	x: 2.5 m η = 4.4	x: 0 m η = 0.1	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.1	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 12.1**
N2043/N2394	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 14.4	x: 0 m η = 12.0	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 16.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 16.8**
N2395/N2225	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.0	x: 3.536 m η = 8.8	x: 3.094 m η = 2.1	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.0	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.0**
N2395/N2396	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 2.8	x: 0 m η = 6.2	x: 2.5 m η = 4.4	x: 2.5 m η = 0.1	x: 2.5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 10.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η < 0.1	**CUMPLE h = 10.7**
N2397/N2396	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.2	x: 0 m η = 11.5	x: 3.536 m η = 1.1	x: 3.536 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.4	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.4**
N2397/N2398	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.3	x: 2.5 m η = 7.9	x: 2.5 m η = 4.5	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 12.5**
N2044/N2398	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.0	x: 0 m η = 12.4	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.3	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.3**
N2399/N2224	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.1	x: 3.536 m η = 8.9	x: 3.094 m η = 2.0	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.0	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.0**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2399/N2400	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 2.9	x: 2.5 m η = 6.4	x: 2.5 m η = 4.4	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.0**
N2401/N2400	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.4	x: 0 m η = 11.7	x: 3.536 m η = 1.1	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.6	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.6**
N2401/N2402	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.4	x: 0 m η = 8.1	x: 2.5 m η = 4.5	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.7**
N2045/N2402	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.2	x: 0 m η = 12.7	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.7**
N2403/N2223	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.3	x: 3.536 m η = 9.1	x: 3.094 m η = 2.0	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.2**
N2403/N2404	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.0	x: 2.5 m η = 6.5	x: 2.5 m η = 4.4	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.1	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N2405/N2404	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.6	x: 0 m η = 11.8	x: 3.536 m η = 1.1	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.8**
N2405/N2406	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.2	x: 2.5 m η = 4.5	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 12.8**
N2046/N2406	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.4	x: 0 m η = 12.9	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.8**
N2407/N2222	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.4	x: 3.536 m η = 9.2	x: 3.094 m η = 2.0	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.3	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.3**
N2407/N2408	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.0	x: 2.5 m η = 6.6	x: 2.5 m η = 4.5	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2409/N2408	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.6	x: 0 m η = 11.9	x: 3.536 m η = 1.1	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.9**
N2409/N2410	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.2	x: 2.5 m η = 4.5	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 12.8**
N2047/N2410	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.5	x: 0 m η = 13.0	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.9**
N2411/N2221	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.4	x: 3.536 m η = 9.2	x: 3.094 m η = 2.0	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.3	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.3**
N2411/N2412	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.1	x: 2.5 m η = 6.7	x: 2.5 m η = 4.5	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2413/N2412	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.6	x: 0 m η = 11.9	x: 3.536 m η = 1.1	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.9**
N2413/N2414	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.5	x: 0 m η = 8.2	x: 2.5 m η = 4.5	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.8**
N2048/N2414	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.5	x: 0 m η = 13.0	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.9	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.9**
N2415/N2220	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.7	x: 3.536 m η = 9.7	x: 3.094 m η = 2.1	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 11.6	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.6**
N2415/N2416	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.0	x: 2.5 m η = 6.6	x: 2.5 m η = 4.5	x: 2.5 m η = 0.2	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2417/N2416	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.8	x: 0 m η = 12.4	x: 3.536 m η = 1.1	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 15.1	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 15.1**
N2417/N2418	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.6	x: 2.5 m η = 8.2	x: 2.5 m η = 4.6	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 12.9**
N2049/N2418	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 13.4	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 18.1**
N2419/N2219	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.5	x: 3.536 m η = 9.8	x: 3.094 m η = 2.0	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.4	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.4**
N2419/N2420	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.2	x: 0 m η = 6.9	x: 2.5 m η = 4.5	x: 2.5 m η = 0.4	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.5**
N2421/N2420	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 13.7	x: 0 m η = 12.8	x: 3.536 m η = 1.1	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.9	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.9**
N2421/N2422	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.7	x: 0 m η = 8.3	x: 2.5 m η = 4.6	x: 0 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.9**
N2050/N2422	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 13.8	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 18.0**
N2423/N2218	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 9.4	x: 3.536 m η = 10.4	x: 3.094 m η = 2.0	x: 3.536 m η = 0.4	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 11.3	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 11.3**
N2423/N2424	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.3	x: 0 m η = 6.7	x: 2.5 m η = 4.4	x: 2.5 m η = 0.3	x: 2.5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 11.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.6	η = 0.1	**CUMPLE h = 11.2**
N2425/N2424	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 13.5	x: 0 m η = 13.4	x: 3.536 m η = 1.1	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 14.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 14.8**
N2425/N2426	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 3.9	x: 0 m η = 8.1	x: 2.5 m η = 4.5	x: 0 m η = 0.1	x: 2.5 m η = 0.7	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η < 0.1	**CUMPLE h = 12.7**
N2051/N2426	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.3	x: 0 m η = 14.4	x: 0 m η = 2.3	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 17.8**
N2427/N2217	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.4	x: 3.536 m η = 11.7	x: 3.094 m η = 2.1	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 12.8	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 12.8**
N2427/N2428	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.0	x: 0 m η = 7.7	x: 2.5 m η = 4.7	x: 0 m η = 0.4	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 12.6	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 12.6**
N2429/N2428	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 14.9	x: 0 m η = 15.1	x: 3.536 m η = 1.1	x: 0 m η = 0.5	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 16.4	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 16.4**
N2429/N2430	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 4.6	x: 0 m η = 9.4	x: 2.5 m η = 4.8	x: 0 m η = 0.3	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 14.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 14.4**
N2052/N2430	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 16.5	x: 0 m η = 16.0	x: 0 m η = 2.4	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 19.1	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 19.1**
N2431/N2216	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.6	x: 3.536 m η = 12.1	x: 3.094 m η = 2.3	x: 3.536 m η = 0.3	x: 0 m η = 0.3	η < 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 13.2	η < 0.1	η < 0.1	x: 0 m η = 0.3	η < 0.1	**CUMPLE h = 13.2**
N2431/N2432	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.9	x: 2.5 m η = 7.4	x: 2.5 m η = 5.1	x: 0 m η = 0.7	x: 2.5 m η = 0.7	η = 0.3	η < 0.1	η < 0.1	x: 2.5 m η = 12.6	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.3	**CUMPLE h = 12.6**
N2433/N2432	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 15.8	x: 0 m η = 15.9	x: 3.536 m η = 1.2	x: 0 m η = 0.4	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 17.2	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 17.2**
N2433/N2434	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.6	x: 0 m η = 12.8	x: 2.5 m η = 5.2	x: 0 m η = 0.3	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 17.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 17.7**
N2053/N2434	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.9	x: 0 m η = 17.2	x: 0 m η = 2.5	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.6	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 20.6**
N2435/N2215	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 3.536 m η = 10.0	x: 3.536 m η = 11.8	x: 3.315 m η = 2.5	x: 3.536 m η = 0.5	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 3.315 m η = 12.6	η < 0.1	η < 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 12.6**
N2435/N2436	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 3.9	x: 2.5 m η = 7.8	x: 2.5 m η = 5.2	x: 2.5 m η = 0.2	x: 2.5 m η = 0.7	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 13.3	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.1	**CUMPLE h = 13.3**
N2437/N2436	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 15.6	x: 0 m η = 15.8	x: 3.536 m η = 1.1	x: 0 m η = 0.6	x: 3.536 m η = 0.2	η = 0.1	η < 0.1	η < 0.1	x: 3.536 m η = 16.8	η < 0.1	η < 0.1	x: 3.536 m η = 0.2	η = 0.1	**CUMPLE h = 16.8**
N2437/N2438	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 4.7	x: 2.5 m η = 9.5	x: 2.5 m η = 5.3	x: 2.5 m η = 0.1	x: 2.5 m η = 0.8	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 15.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.8	η < 0.1	**CUMPLE h = 15.0**
N2054/N2438	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 17.9	x: 0 m η = 17.2	x: 0 m η = 2.5	x: 0 m η = 0.6	x: 0 m η = 0.3	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.7	η < 0.1	η = 0.1	x: 0 m η = 0.3	η = 0.1	**CUMPLE h = 20.7**
N2177/N2153	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.3	x: 0 m η = 5.2	x: 0 m η = 2.5	x: 0 m η = 0.6	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 6.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 6.5**
N2178/N2154	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.2	x: 0 m η = 4.6	x: 0 m η = 2.8	x: 2.5 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 6.8**
N2179/N2155	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.5	x: 2.5 m η = 5.1	x: 0 m η = 2.8	x: 2.5 m η = 0.4	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.1	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.1**
N2180/N2156	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 2.5 m η = 4.8	x: 0 m η = 2.8	x: 2.5 m η = 0.3	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 6.9**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2181/N2157	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 2.5 m η = 4.8	x: 0 m η = 2.8	x: 2.5 m η = 0.3	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 6.9**
N2182/N2158	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 5.2	x: 0 m η = 2.8	x: 0 m η = 0.5	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.2**
N2183/N2159	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 5.1	x: 0 m η = 2.8	x: 0 m η = 0.2	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 7.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 7.2**
N2184/N2160	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.5	x: 2.5 m η = 5.0	x: 0 m η = 2.8	x: 2.5 m η = 0.4	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.0**
N2185/N2161	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 0 m η = 4.6	x: 0 m η = 2.8	x: 2.5 m η = 0.3	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 6.7**
N2186/N2162	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.4	x: 0 m η = 4.9	x: 0 m η = 2.8	x: 0 m η = 0.3	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 7.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 7.0**
N2187/N2163	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.0	x: 0 m η = 5.4	x: 0 m η = 2.8	x: 0 m η = 0.7	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.7	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.7**
N2188/N2164	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.7	x: 0 m η = 8.4	x: 0 m η = 2.9	x: 0 m η = 1.4	x: 2.5 m η = 0.4	η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 11.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.5	**CUMPLE h = 11.4**
N2189/N2165	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 1.7	x: 2.5 m η = 5.8	x: 0 m η = 3.3	x: 2.5 m η = 1.2	x: 2.5 m η = 0.4	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 8.7	η < 0.1	η = 0.2	x: 2.5 m η = 0.4	η = 0.4	**CUMPLE h = 8.7**
N2292/N2439	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.8	x: 0 m η = 2.1	x: 0 m η = 5.1	x: 0 m η = 0.6	x: 2.5 m η = 0.7	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.7	η = 0.2	**CUMPLE h = 7.0**
N2176/N2152	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.8	x: 0 m η = 4.7	x: 0 m η = 2.5	x: 0 m η = 0.4	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.2	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 6.2**
N2175/N2151	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.6	x: 0 m η = 5.5	x: 0 m η = 2.7	x: 0 m η = 0.5	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.5	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.5**
N2174/N2150	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.4	x: 2.5 m η = 4.8	x: 0 m η = 2.8	x: 2.5 m η = 0.3	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 6.9**
N2173/N2149	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.4	x: 2.5 m η = 4.8	x: 0 m η = 2.8	x: 2.5 m η = 0.2	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.9	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 6.9**
N2172/N2148	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.5	x: 2.5 m η = 5.0	x: 0 m η = 2.8	x: 2.5 m η = 0.4	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 7.0	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 7.0**
N2171/N2147	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 2.5 m η = 4.9	x: 0 m η = 2.8	x: 2.5 m η = 0.1	x: 2.5 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 6.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η < 0.1	**CUMPLE h = 6.8**
N2170/N2146	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.4	x: 0 m η = 5.2	x: 0 m η = 2.8	x: 0 m η = 0.4	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.4**
N2169/N2145	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 5.2	x: 0 m η = 2.8	x: 0 m η = 0.4	x: 2.5 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 7.3	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.1	**CUMPLE h = 7.3**
N2168/N2144	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.6	x: 0 m η = 5.4	x: 0 m η = 2.9	x: 0 m η = 0.5	x: 2.5 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 7.6	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.2	**CUMPLE h = 7.6**
N2167/N2143	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.2	x: 0 m η = 6.8	x: 0 m η = 3.0	x: 0 m η = 1.1	x: 2.5 m η = 0.4	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.4	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.4	**CUMPLE h = 9.4**
N2166/N2142	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.6	x: 0 m η = 8.6	x: 0 m η = 3.0	x: 0 m η = 1.3	x: 2.5 m η = 0.4	η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η < 0.1	x: 2.5 m η = 0.4	η = 0.4	**CUMPLE h = 11.8**
N2201/N2226	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.9	x: 2.5 m η = 5.9	x: 2.5 m η = 2.3	x: 2.5 m η = 0.6	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 7.8	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 7.8**
N2202/N2227	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.2	x: 2.5 m η = 4.8	x: 2.5 m η = 2.2	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 6.2**
N2203/N2228	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.4	x: 0 m η = 5.0	x: 2.5 m η = 2.3	x: 0 m η = 0.4	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.3	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.3**
N2204/N2229	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 4.8	x: 2.5 m η = 2.2	x: 0 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.1	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.1**
N2205/N2230	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 4.8	x: 2.5 m η = 2.2	x: 0 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.1	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.1**
N2206/N2231	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 2.5 m η = 5.1	x: 2.5 m η = 2.2	x: 2.5 m η = 0.4	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 6.5	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 6.5**
N2207/N2232	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 2.5 m η = 5.1	x: 2.5 m η = 2.3	x: 2.5 m η = 0.2	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.5	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.5**
N2208/N2233	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.5	x: 0 m η = 5.0	x: 2.5 m η = 2.3	x: 0 m η = 0.4	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 6.3	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 6.3**
N2209/N2234	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 2.5 m η = 4.6	x: 2.5 m η = 2.3	x: 0 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.0	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.0**
N2210/N2235	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.4	x: 2.5 m η = 4.9	x: 2.5 m η = 2.3	x: 2.5 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.3	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.3**
N2211/N2236	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 1.0	x: 0 m η = 5.6	x: 2.5 m η = 2.2	x: 2.5 m η = 0.7	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 6.9	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 6.9**
N2212/N2237	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 1.8	x: 2.5 m η = 8.8	x: 2.5 m η = 2.4	x: 2.5 m η = 1.5	x: 0 m η = 0.4	η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 11.9	η < 0.1	η = 0.1	x: 0 m η = 0.4	η = 0.5	**CUMPLE h = 11.9**
N2213/N2214	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 1.8	x: 0 m η = 5.8	x: 2.5 m η = 2.9	x: 0 m η = 1.2	x: 0 m η = 0.4	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 8.3	η < 0.1	η = 0.1	x: 0 m η = 0.4	η = 0.4	**CUMPLE h = 8.3**
N2239/N2238	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.2	x: 2.5 m η = 4.2	x: 2.5 m η = 2.4	x: 0 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 5.9	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 5.9**
N2200/N2225	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.2	x: 2.5 m η = 4.5	x: 2.5 m η = 2.4	x: 2.5 m η = 0.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.0	η < 0.1	η < 0.1	x: 0 m η = 0.4	η < 0.1	**CUMPLE h = 6.0**
N2199/N2224	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.2	x: 2.5 m η = 4.6	x: 2.5 m η = 2.3	x: 2.5 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 5.9	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 5.9**
N2198/N2223	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 4.7	x: 2.5 m η = 2.2	x: 0 m η = 0.2	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.1	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.1**
N2197/N2222	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 2.5 m η = 4.8	x: 2.5 m η = 2.2	x: 0 m η = 0.3	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.2**
N2196/N2221	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.5	x: 0 m η = 5.1	x: 2.5 m η = 2.2	x: 0 m η = 0.4	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.3	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.3**
N2195/N2220	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 0.3	x: 0 m η = 4.9	x: 2.5 m η = 2.3	x: 0 m η = 0.1	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.1	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.1**
N2194/N2219	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.5	x: 2.5 m η = 5.3	x: 2.5 m η = 2.2	x: 2.5 m η = 0.4	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 6.7	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 6.7**
N2193/N2218	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.3	x: 2.5 m η = 5.2	x: 2.5 m η = 2.2	x: 2.5 m η = 0.4	x: 0 m η = 0.4	η = 0.1	η < 0.1	η < 0.1	x: 2.5 m η = 6.7	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.1	**CUMPLE h = 6.7**
N2192/N2217	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 0.6	x: 2.5 m η = 5.5	x: 2.5 m η = 2.3	x: 2.5 m η = 0.5	x: 0 m η = 0.4	η = 0.2	η < 0.1	η < 0.1	x: 2.5 m η = 7.1	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.2	**CUMPLE h = 7.1**
N2191/N2216	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 1.2	x: 2.5 m η = 6.8	x: 2.5 m η = 2.4	x: 2.5 m η = 1.1	x: 0 m η = 0.4	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 9.2	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.4	**CUMPLE h = 9.2**
N2190/N2215	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 2.5 m η = 1.5	x: 2.5 m η = 8.6	x: 2.5 m η = 2.4	x: 2.5 m η = 1.3	x: 0 m η = 0.4	η = 0.4	η < 0.1	η < 0.1	x: 2.5 m η = 11.8	η < 0.1	η < 0.1	x: 0 m η = 0.4	η = 0.4	**CUMPLE h = 11.8**
N1830/N1758	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.72 m η = 7.2	x: 0 m η = 17.1	η = 1.5	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η = 0.1	η = 1.5	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N1758/N2338	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 6.3	x: 0 m η = 16.2	η = 1.6	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.9	η < 0.1	η < 0.1	η = 1.6	x: 0 m η = 1.6	**CUMPLE h = 19.9**
N2338/N1686	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 5.6	x: 0 m η = 13.3	η = 1.4	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.5	**CUMPLE h = 14.8**
N1686/N2334	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 5.7	x: 0 m η = 16.5	η = 1.5	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.5	η < 0.1	η < 0.1	η = 1.5	x: 0 m η = 1.6	**CUMPLE h = 19.5**
N2334/N1614	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 5.3	x: 0 m η = 13.3	η = 1.4	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 15.1	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.5	**CUMPLE h = 15.1**
N1614/N2330	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 5.5	x: 0 m η = 16.5	η = 1.4	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 19.1	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.6	**CUMPLE h = 19.1**
N2330/N1542	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.3	η = 1.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η < 0.1	η = 1.1	x: 0 m η = 1.5	**CUMPLE h = 15.0**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1542/N2326	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 16.4	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.6**
N2326/N1470	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 13.3	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 14.9**
N1470/N2322	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 16.4	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.6**
N2322/N1398	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 13.3	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 15.0**
N1398/N2318	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.7	x: 0 m η = 16.3	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.7**
N2318/N1326	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.2	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 14.8**
N1326/N2314	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 16.4	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.6**
N2314/N1254	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.2	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 14.8**
N1254/N2310	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 16.3	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.0**
N2310/N1182	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.2	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 14.7**
N1182/N2306	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 16.3	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.0**
N2306/N1110	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 13.2	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 14.8**
N1110/N2302	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 0.1	x: 2.5 m η = 4.7	x: 0 m η = 16.3	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.0**
N2302/N1038	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 0.1	x: 2.5 m η = 4.7	x: 0 m η = 13.2	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 14.9**
N1038/N2298	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.2	x: 2.5 m η = 5.3	x: 0 m η = 16.0	η = 1.4	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.0	η < 0.1	η < 0.1	η = 1.4	x: 0 m η = 1.6	**CUMPLE h = 18.0**
N2298/N966	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.2	x: 0 m η = 5.1	x: 0 m η = 14.5	η = 1.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 16.4	η < 0.1	η = 0.1	η = 1.1	x: 0 m η = 1.5	**CUMPLE h = 16.4**
N101/N2243	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.2	x: 2.5 m η = 5.2	x: 0 m η = 14.8	η = 1.2	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 16.3	η < 0.1	η = 0.1	η = 1.2	x: 0 m η = 1.5	**CUMPLE h = 16.3**
N2243/N102	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.2	x: 0 m η = 5.3	x: 0 m η = 13.1	η = 1.3	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.0	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.4	**CUMPLE h = 15.0**
N102/N2247	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 15.9	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 17.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 17.7**
N2247/N174	$\lambda_w \leq \lambda_{w,máx}$ Cumple	N_{Ed} = 0.00 N.P.[4]	η = 0.1	x: 0 m η = 4.7	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 14.4	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 14.4**
N174/N2251	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 16.0	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 17.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 17.6**
N2251/N246	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 2.5 m η = 4.7	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.2	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.2**
N246/N2255	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 15.9	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 17.8**
N2255/N318	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.8**
N318/N2259	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 15.9	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N2259/N390	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.8**
N390/N2263	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 15.9	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.8	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.8**
N2263/N462	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.7	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.9**
N462/N2267	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 4.7	x: 0 m η = 15.7	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.9	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.9**
N2267/N534	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 12.7	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.5	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.5**
N534/N2271	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 15.8	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.7**
N2271/N606	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.6	x: 0 m η = 12.8	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 0 m η = 15.7	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.7**
N606/N2275	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 15.7	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.6**
N2275/N678	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 4.6	x: 0 m η = 12.9	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.6**
N678/N2279	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 4.5	x: 0 m η = 15.6	η = 1.2	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 18.4	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.6	**CUMPLE h = 18.4**
N2279/N750	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 13.0	η = 1.2	x: 0 m η = 1.4	η < 0.1	η < 0.1	x: 2.5 m η = 15.6	η < 0.1	η < 0.1	η = 1.2	x: 0 m η = 1.4	**CUMPLE h = 15.6**
N750/N2283	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 4.5	x: 0 m η = 15.5	η = 1.1	x: 0 m η = 1.6	η < 0.1	η < 0.1	x: 0 m η = 17.8	η < 0.1	η < 0.1	η = 1.1	x: 0 m η = 1.6	**CUMPLE h = 17.8**
N2283/N822	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 5.3	x: 0 m η = 13.2	η = 1.3	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 15.8	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.5	**CUMPLE h = 15.8**
N822/N2287	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 5.2	x: 0 m η = 15.0	η = 1.3	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 17.2	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.5	**CUMPLE h = 17.2**
N2287/N894	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 5.2	x: 0 m η = 13.2	η = 1.3	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 2.5 m η = 15.7	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.5	**CUMPLE h = 15.7**
N894/N2291	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 5.6	x: 0 m η = 14.7	η = 1.3	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 16.6	η < 0.1	η < 0.1	η = 1.3	x: 0 m η = 1.5	**CUMPLE h = 16.6**
N2291/N1900	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η < 0.1	x: 2.5 m η = 0.8	x: 0 m η = 14.0	η = 0.1	x: 0 m η = 1.5	η < 0.1	η < 0.1	x: 0 m η = 14.2	η < 0.1	η = 0.1	η = 0.1	x: 0 m η = 1.5	**CUMPLE h = 14.2**
N1898/N1828	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 2.72 m η = 9.9	x: 0 m η = 8.7	η = 2.2	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 2.72 m η = 12.6	η < 0.1	η = 0.3	η = 2.2	x: 0 m η = 0.5	**CUMPLE h = 12.6**
N1828/N2337	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 0 m η = 9.1	x: 0 m η = 7.6	η = 2.3	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.0	η < 0.1	η = 0.2	η = 2.3	x: 0 m η = 0.4	**CUMPLE h = 11.0**
N2337/N1756	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 2.5 m η = 8.2	x: 0 m η = 8.0	η = 2.1	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 11.0	η < 0.1	η = 0.3	η = 2.1	x: 0 m η = 0.5	**CUMPLE h = 11.0**
N1756/N2333	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 0 m η = 8.5	x: 0 m η = 7.7	η = 2.2	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η = 0.3	η = 2.2	x: 0 m η = 0.4	**CUMPLE h = 10.5**
N2333/N1684	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 0 m η = 7.9	x: 0 m η = 7.9	η = 2.0	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 10.5	η < 0.1	η = 0.2	η = 2.0	x: 0 m η = 0.5	**CUMPLE h = 10.5**
N1684/N2329	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 0 m η = 8.1	x: 0 m η = 7.7	η = 2.1	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.4	η < 0.1	η = 0.3	η = 2.1	x: 0 m η = 0.4	**CUMPLE h = 10.4**
N2329/N1612	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 0 m η = 6.7	x: 0 m η = 7.9	η = 1.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 10.3	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.5	**CUMPLE h = 10.3**
N1612/N2325	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.8	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.2**
N2325/N1540	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η < 0.1	η = 0.1	x: 2.5 m η = 6.6	x: 0 m η = 7.9	η = 1.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 10.2	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.5	**CUMPLE h = 10.2**
N1540/N2321	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.8	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.2**
N2321/N1468	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.9	η = 1.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 11.4	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.5	**CUMPLE h = 11.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)														Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1468/N2317	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 0 m η = 6.9	x: 0 m η = 7.7	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 11.3**
N2317/N1396	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.8	η = 1.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 12.2	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.5	**CUMPLE h = 12.2**
N1396/N2313	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.1	x: 2.5 m η = 6.9	x: 0 m η = 7.7	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.3**
N2313/N1324	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.8	η = 1.7	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 12.3	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.5	**CUMPLE h = 12.3**
N1324/N2309	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.9	x: 0 m η = 7.7	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.3**
N2309/N1252	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.7	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.2	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.2**
N1252/N2305	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.9	x: 0 m η = 7.6	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.3**
N2305/N1180	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 6.7	x: 0 m η = 7.7	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.2	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 12.2**
N1180/N2301	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.8	x: 0 m η = 7.6	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.2**
N2301/N1108	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 7.0	x: 0 m η = 7.7	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.3	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.3**
N1108/N2297	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 7.4	x: 0 m η = 7.7	η = 1.9	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.8	η < 0.1	η = 0.2	η = 1.9	x: 0 m η = 0.4	**CUMPLE h = 12.8**
N2297/N1036	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 7.1	x: 0 m η = 8.1	η = 1.5	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 0 m η = 12.8	η < 0.1	η = 0.3	η = 1.5	x: 0 m η = 0.5	**CUMPLE h = 12.8**
N99/N2242	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 7.3	x: 0 m η = 7.8	η = 1.6	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	η = 0.3	η = 1.6	x: 0 m η = 0.4	**CUMPLE h = 11.1**
N2242/N172	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 7.3	x: 0 m η = 7.4	η = 1.9	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.4	η < 0.1	η = 0.2	η = 1.9	x: 0 m η = 0.4	**CUMPLE h = 12.4**
N172/N2246	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 6.9	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.2	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.2**
N2246/N244	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 6.8	x: 0 m η = 7.5	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N244/N2250	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.4	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.8	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.8**
N2250/N316	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.9	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.1	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.1**
N316/N2254	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 11.9	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 11.9**
N2254/N388	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.9	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 12.0	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 12.0**
N388/N2258	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 2.5 m η = 6.7	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.3	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 10.3**
N2258/N460	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.1	x: 0 m η = 6.8	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.7	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.7**
N460/N2262	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 2.5 m η = 6.7	x: 0 m η = 7.2	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 10.1**
N2262/N532	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 2.5 m η = 7.0	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 10.7	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 10.7**
N532/N2266	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 0 m η = 6.9	x: 0 m η = 7.3	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 9.8**
N2266/N604	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 0 m η = 6.8	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 9.8**
N604/N2270	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 2.5 m η = 6.7	x: 0 m η = 7.2	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.6	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.6**
N2270/N676	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.2	x: 2.5 m η = 6.9	x: 0 m η = 7.3	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.9	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 9.9**
N676/N2274	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.3	x: 0 m η = 6.7	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.8**
N2274/N748	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.3	x: 0 m η = 6.8	x: 0 m η = 7.4	η = 1.8	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.9	η < 0.1	η = 0.2	η = 1.8	x: 0 m η = 0.4	**CUMPLE h = 9.9**
N748/N2278	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.4	x: 0 m η = 6.7	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.8**
N2278/N820	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.4	x: 2.5 m η = 6.8	x: 0 m η = 7.4	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.8	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.8**
N820/N2282	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.5	x: 2.5 m η = 6.7	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.5	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.5**
N2282/N892	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.5	x: 2.5 m η = 7.8	x: 0 m η = 7.3	η = 2.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.6	η < 0.1	η = 0.2	η = 2.0	x: 0 m η = 0.4	**CUMPLE h = 9.6**
N892/N2286	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.6	x: 0 m η = 7.6	x: 0 m η = 7.4	η = 2.0	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.5	η < 0.1	η = 0.3	η = 2.0	x: 0 m η = 0.4	**CUMPLE h = 9.5**
N2286/N964	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.6	x: 2.5 m η = 7.5	x: 0 m η = 7.5	η = 1.9	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.3	η < 0.1	η = 0.2	η = 1.9	x: 0 m η = 0.4	**CUMPLE h = 9.3**
N964/N2290	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.2	η = 0.7	x: 0 m η = 7.7	x: 0 m η = 7.3	η = 1.7	x: 0 m η = 0.4	η < 0.1	η < 0.1	x: 0 m η = 9.1	η < 0.1	η = 0.2	η = 1.7	x: 0 m η = 0.4	**CUMPLE h = 9.1**
N2290/N2084	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.3	η = 0.7	x: 2.5 m η = 2.9	x: 0 m η = 7.9	η = 0.5	x: 0 m η = 0.5	η < 0.1	η < 0.1	x: 2.5 m η = 9.1	η < 0.1	η = 0.1	η = 0.5	x: 0 m η = 0.5	**CUMPLE h = 9.1**
N2439/N66	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 5.2	x: 0 m η = 15.9	x: 0 m η = 1.3	x: 0 m η = 2.9	x: 3.706 m η = 0.2	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 18.3	η < 0.1	η = 0.3	x: 3.706 m η = 0.2	η = 0.2	**CUMPLE h = 18.3**
N2439/N975	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 0 m η = 6.2	x: 0 m η = 16.4	x: 3.706 m η = 1.3	x: 0 m η = 3.2	x: 3.706 m η = 0.2	η = 0.2	η < 0.1	η < 0.1	x: 0 m η = 18.8	η < 0.1	η = 0.4	x: 3.706 m η = 0.2	η = 0.2	**CUMPLE h = 18.8**
N1853/N1782	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.1	η = 0.2	x: 2.72 m η = 15.1	x: 2.72 m η = 17.5	x: 0 m η = 3.5	η = 0.7	η < 0.1	η < 0.1	x: 2.72 m η = 27.3	η < 0.1	η = 1.3	x: 0 m η = 3.5	η = 0.7	**CUMPLE h = 27.3**
N1782/N1710	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 11.7	η = 18.4	x: 5 m η = 1.8	x: 0 m η = 2.3	x: 5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 20.2	η < 0.1	η < 0.1	x: 5 m η = 0.6	η = 0.1	**CUMPLE h = 20.2**
N1710/N1638	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 7.6	η = 12.5	x: 0 m η = 2.0	x: 0 m η = 2.0	x: 0 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 14.0	η < 0.1	η = 0.1	x: 0 m η = 0.6	η < 0.1	**CUMPLE h = 14.0**
N1638/N1566	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 5.4	η = 9.4	x: 5 m η = 1.9	x: 0 m η = 2.3	x: 5 m η = 0.6	η = 0.1	η < 0.1	η < 0.1	x: 0 m η = 11.1	η < 0.1	η = 0.1	x: 5 m η = 0.6	η = 0.1	**CUMPLE h = 11.1**
N1566/N1494	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 4.3	η = 7.7	x: 5 m η = 1.7	x: 0 m η = 1.2	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 8.8	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 8.8**
N1494/N1422	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 3.2	η = 6.0	x: 5 m η = 1.7	x: 0 m η = 0.9	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 6.9	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 6.9**
N1422/N1350	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.5	x: 5 m η = 2.0	x: 5 m η = 0.6	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 4.8	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 4.8**
N1350/N1278	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.8	η = 1.4	x: 5 m η = 1.9	x: 0 m η = 1.1	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 5.4	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 5.4**
N1278/N1206	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.3	x: 5 m η = 1.9	x: 5 m η = 0.7	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 4.7	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 4.7**
N1206/N1134	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.4	η = 1.2	x: 5 m η = 1.9	x: 5 m η = 0.7	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 4.6	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 4.6**
N1134/N1062	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.2	η = 1.1	x: 5 m η = 1.8	x: 0 m η = 0.8	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 3.9	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 3.9**
N1062/N990	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.0	η = 1.2	x: 5 m η = 1.9	x: 5 m η = 0.4	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 4.0	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 4.0**
N990/N80	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 2.5	η = 1.2	x: 5 m η = 1.9	x: 0 m η = 1.0	x: 5 m η = 0.6	η < 0.1	η < 0.1	η < 0.1	x: 5 m η = 4.6	η < 0.1	η < 0.1	x: 5 m η = 0.6	η < 0.1	**CUMPLE h = 4.6**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_tM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1934/N6	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N6/N1935	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1935/N7	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N7/N1936	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1936/N8	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N8/N1937	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1937/N9	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N9/N1938	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1938/N10	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N10/N1939	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1939/N11	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N11/N1940	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1940/N12	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N12/N1941	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1941/N13	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N13/N1942	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1942/N14	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N15/N1943	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1943/N20	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N20/N1944	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1944/N21	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N21/N1945	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1945/N22	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N22/N1946	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1946/N23	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N23/N1947	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1947/N24	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N24/N1948	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1948/N25	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N25/N1949	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1949/N26	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N26/N1950	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1950/N27	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N27/N1951	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1951/N28	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N28/N1952	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1952/N29	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N29/N1953	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1953/N30	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N30/N1954	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1954/N31	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N31/N1955	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1955/N32	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N32/N2114	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2114/N2115	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2115/N2116	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2116/N2117	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2117/N2118	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2118/N2119	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2119/N2120	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2120/N2121	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2121/N2122	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2122/N2123	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N2123/N2124	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2124/N2125	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2125/N2126	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2126/N2127	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2127/N2128	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2128/N2129	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2129/N2130	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2130/N2131	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2131/N2132	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2132/N2133	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2133/N2134	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2134/N2135	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2135/N2136	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2136/N2137	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2137/N2138	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2138/N2139	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2139/N2140	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2140/N2141	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2141/N33	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2/N1762	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 10.2	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.3	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 10.2**
N1762/N1957	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1957/N1690	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1690/N1959	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1959/N1618	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1618/N1961	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1961/N1546	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1546/N1963	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1963/N1474	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1474/N1965	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1965/N1402	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1402/N1967	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1967/N1330	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1330/N1969	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1969/N1258	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1258/N1971	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1971/N1186	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1186/N1973	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1973/N1114	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1114/N1975	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1975/N1042	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1042/N1977	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1977/N970	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N970/N2029	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N2029/N17	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N17/N1979	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1979/N106	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N106/N1981	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1981/N178	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N178/N1983	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1983/N250	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N250/N1985	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N1985/N322	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**
N322/N1987	N.P.(5)	N_{ed} = 0.00 N.P.(4)	N_{ed} = 0.00 N.P.(3)	M_{ed} = 0.00 N.P.(6)	x: 0 m η = 8.7	V_{ed} = 0.00 N.P.(7)	x: 0 m η = 1.2	N.P.(1)	x: 0 m η < 0.1	N.P.(8)	N.P.(9)	M_{ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.7**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	λ_w	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_tM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1987/N394	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N394/N1989	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1989/N466	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N466/N1991	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1991/N538	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N538/N1993	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1993/N610	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N610/N1995	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1995/N682	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N682/N1997	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1997/N754	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N754/N1999	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1999/N826	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N826/N2001	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2001/N898	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N898/N2003	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2003/N33	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1/N1899	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1899/N2055	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2055/N2056	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2056/N2057	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2057/N2058	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2058/N2059	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2059/N2060	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2060/N2061	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2061/N2062	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2062/N2063	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2063/N2064	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2064/N2065	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2065/N2066	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2066/N2067	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2067/N2068	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2068/N2069	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2069/N2070	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2070/N2071	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2071/N2072	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2072/N2073	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2073/N2074	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2074/N2075	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2075/N2076	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2076/N2077	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2077/N2078	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2078/N2079	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2079/N2080	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2080/N1896	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N1896/N2	N.P.[5]	N_{Ed} = 0.00 N.P.[4]	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	x: 0 m η = 8.7	V_{Ed} = 0.00 N.P.[7]	x: 0 m η = 1.2	N.P.[1]	x: 0 m η < 0.1	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 8.7**
N2470/N2654	$\lambda_w \leq \lambda_{w,máx}$ Cumple	x: 5.016 m η = 0.3	x: 0 m η = 4.9	x: 0 m η = 50.6	x: 5.016 m η = 4.8	x: 5.016 m η = 3.1	η < 0.1	η < 0.1	η < 0.1	x: 0 m η = 51.5	η < 0.1	η = 0.5	x: 5.016 m η = 3.1	η < 0.1	**CUMPLE h = 51.5**
N1855/N1784	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 1.0	x: 2.72 m η = 60.2	x: 2.72 m η = 25.4	x: 0 m η = 14.2	η = 1.0	η < 0.1	η < 0.1	x: 2.72 m η = 79.0	η < 0.1	η = 2.0	x: 0 m η = 14.3	η = 1.0	**CUMPLE h = 79.0**
N1840/N1769	$\lambda_w \leq \lambda_{w,máx}$ Cumple	η = 0.4	η = 1.0	x: 2.72 m η = 60.1	x: 2.72 m η = 25.3	x: 0 m η = 14.2	η = 1.0	η < 0.1	η < 0.1	x: 2.72 m η = 78.9	η < 0.1	η = 2.0	x: 0 m η = 14.3	η = 1.0	**CUMPLE h = 78.9**

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	N_t	N_c	M_y	M_z	V_z	V_y	M_tV_z	M_zV_y	NM_tM_z	$NM_tM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1760/N2142	η = 14.2	N_{Ed} = 0.00 N.P.[3]	M_{Ed} = 0.00 N.P.[6]	M_{Ed} = 0.00 N.P.[6]	V_{Ed} = 0.00 N.P.[7]	V_{Ed} = 0.00 N.P.[7]	N.P.[1]	N.P.[1]	N.P.[8]	N.P.[9]	M_{Ed} = 0.00 N.P.[2]	N.P.[10]	N.P.[10]	**CUMPLE h = 14.2**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1688/N2142	η = 44.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 44.6**
N1688/N2143	η = 19.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 19.9**
N1616/N2143	η = 35.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 35.7**
N1616/N2144	η = 25.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 25.7**
N1544/N2144	η = 29.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 29.1**
N1544/N2145	η = 21.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 21.8**
N1472/N2145	η = 28.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 28.1**
N1472/N2146	η = 21.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 21.6**
N1400/N2146	η = 28.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 28.3**
N1400/N2147	η = 24.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 24.0**
N1328/N2147	η = 25.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 25.9**
N1328/N2148	η = 22.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 22.9**
N1256/N2148	η = 26.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.6**
N1256/N2149	η = 23.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.6**
N1184/N2149	η = 26.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.0**
N1184/N2150	η = 23.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.6**
N1112/N2150	η = 26.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.2**
N1112/N2151	η = 21.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 21.3**
N1040/N2151	η = 29.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 29.9**
N1040/N2152	η = 35.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 35.9**
N2292/N1017	η = 9.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 9.6**
N2292/N51	η = 13.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.0**
N104/N2153	η = 34.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 34.2**
N104/N2154	η = 24.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 24.9**
N176/N2154	η = 24.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 24.4**
N176/N2155	η = 21.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 21.8**
N248/N2155	η = 27.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 27.4**
N248/N2156	η = 23.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.3**
N320/N2156	η = 26.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.4**
N320/N2157	η = 23.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.7**
N392/N2157	η = 26.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.3**
N392/N2158	η = 22.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 22.7**
N464/N2158	η = 28.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 28.3**
N464/N2159	η = 27.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 27.5**
N536/N2159	η = 22.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 22.7**
N536/N2160	η = 22.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 22.7**
N608/N2160	η = 26.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.4**
N608/N2161	η = 25.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 25.4**
N680/N2161	η = 24.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 24.0**
N680/N2162	η = 26.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 26.8**
N752/N2162	η = 23.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.9**
N752/N2163	η = 29.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 29.2**
N824/N2163	η = 27.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 27.8**
N824/N2164	η = 43.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 43.6**
N896/N2164	η = 8.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.3**
N896/N2165	η = 25.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 25.1**
N1760/N1879	η = 14.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.9**
N1832/N1809	η = 12.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.5**
N2166/N1809	η = 11.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 11.2**
N2166/N1737	η = 23.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.9**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	$NM_yM_zV_yV_z$		M_t	M_tV_z	M_tV_y	
N2167/N1737	η = 14.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.5**
N2167/N1665	η = 21.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 21.1**
N2168/N1665	η = 17.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 17.1**
N2168/N1593	η = 16.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.1**
N2169/N1593	η = 14.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.6**
N2169/N1521	η = 15.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.4**
N2170/N1521	η = 13.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.2**
N2170/N1449	η = 15.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.6**
N2171/N1449	η = 13.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.8**
N2171/N1377	η = 14.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.0**
N2172/N1377	η = 12.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.2**
N2172/N1305	η = 14.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.9**
N2173/N1305	η = 12.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.6**
N2173/N1233	η = 14.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.5**
N2174/N1233	η = 12.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.6**
N2174/N1161	η = 14.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.7**
N2175/N1161	η = 11.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 11.7**
N2175/N1089	η = 16.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.1**
N2176/N1089	η = 19.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 19.2**
N968/N2439	η = 4.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 4.7**
N37/N2439	η = 10.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 10.3**
N2177/N153	η = 18.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 18.4**
N2178/N153	η = 13.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.8**
N2178/N225	η = 13.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.0**
N2179/N225	η = 12.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.4**
N2179/N297	η = 14.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.4**
N2180/N297	η = 13.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.0**
N2180/N369	η = 14.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.0**
N2181/N369	η = 13.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.2**
N2181/N441	η = 14.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.0**
N2182/N441	η = 12.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.9**
N2182/N513	η = 14.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.8**
N2183/N513	η = 14.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.4**
N2183/N585	η = 13.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.4**
N2184/N585	η = 13.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.1**
N2184/N657	η = 14.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.9**
N2185/N657	η = 14.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.1**
N2185/N729	η = 15.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.1**
N2186/N729	η = 14.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.6**
N2186/N801	η = 16.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.3**
N2187/N801	η = 14.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.4**
N2187/N873	η = 20.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 20.2**
N2188/N873	η = 24.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 24.6**
N2188/N945	η = 9.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 9.8**
N2189/N945	η = 17.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 17.5**
N2189/N2086	η = 12.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.7**
N1902/N2165	η = 11.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 11.6**
N2213/N1906	η = 9.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 9.6**
N2112/N2214	η = 12.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.9**
N1823/N2215	η = 11.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 11.4**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1751/N2215	η = 23.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 23.6**
N1751/N2216	η = 14.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.3**
N1679/N2216	η = 21.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 21.3**
N1679/N2217	η = 17.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 17.0**
N1607/N2217	η = 16.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.1**
N1607/N2218	η = 14.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.5**
N1535/N2218	η = 15.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.5**
N1535/N2219	η = 13.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.1**
N1463/N2219	η = 15.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.7**
N1463/N2220	η = 13.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.8**
N1391/N2220	η = 14.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.1**
N1391/N2221	η = 12.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.2**
N1319/N2221	η = 14.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.9**
N1319/N2222	η = 12.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.6**
N1247/N2222	η = 14.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.5**
N1247/N2223	η = 12.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.7**
N1175/N2223	η = 14.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.2**
N1175/N2224	η = 12.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.9**
N1103/N2224	η = 13.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.9**
N1103/N2225	η = 13.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.3**
N1031/N2225	η = 12.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.7**
N65/N2226	η = 9.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 9.8**
N167/N2226	η = 16.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.5**
N167/N2227	η = 13.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.9**
N239/N2228	η = 12.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.6**
N311/N2228	η = 14.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.4**
N311/N2229	η = 13.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.0**
N383/N2229	η = 14.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.1**
N383/N2230	η = 13.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.1**
N455/N2231	η = 12.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.8**
N527/N2231	η = 14.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.9**
N527/N2232	η = 14.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.4**
N599/N2232	η = 13.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.4**
N599/N2233	η = 13.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.0**
N671/N2234	η = 14.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.0**
N743/N2234	η = 15.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.1**
N743/N2235	η = 14.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.5**
N815/N2235	η = 16.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.5**
N815/N2236	η = 14.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.1**
N887/N2236	η = 20.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 20.8**
N887/N2237	η = 25.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 25.4**
N959/N2237	η = 9.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 9.1**
N959/N2214	η = 17.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 17.4**
N1823/N1836	η = 13.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.5**
N1893/N1765	η = 14.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.6**
N2190/N1765	η = 12.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 12.1**
N2190/N1693	η = 44.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 44.5**
N2191/N1693	η = 19.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 19.6**
N2191/N1621	η = 35.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 35.9**
N2192/N1621	η = 25.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 25.6**

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

Barras	COMPROBACIONES (CÓDIGO ESTRUCTURAL)													Estado
	N_t	N_c	M_y	M_z	V_z	V_y	M_yV_z	M_zV_y	NM_yM_z	$NM_yM_zV_yV_z$	M_t	M_tV_z	M_tV_y	
N1375/N1409	η = 4.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 4.7**
N1375/N1265	η = 7.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 7.4**
N1231/N1265	η = 4.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 4.9**
N1231/N1121	η = 6.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.8**
N1087/N1121	η = 5.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.4**
N1087/N977	η = 7.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 7.7**
N49/N977	η = 6.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.3**
N1735/N1769	η = 3.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 3.5**
N1735/N1625	η = 8.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.5**
N1591/N1625	η = 15.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 15.1**
N1591/N1481	η = 4.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 4.8**
N1447/N1481	η = 5.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.4**
N1447/N1337	η = 7.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 7.5**
N1303/N1337	η = 5.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.0**
N1303/N1193	η = 7.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 7.4**
N1159/N1193	η = 5.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.5**
N1159/N1049	η = 7.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 7.1**
N1015/N1049	η = 4.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 4.1**
N1015/N68	η = 5.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.8**
N49/N113	η = 5.5	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.5**
N223/N113	η = 5.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.9**
N223/N257	η = 6.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.1**
N367/N257	η = 6.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.1**
N367/N401	η = 5.8	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.8**
N511/N401	η = 6.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.4**
N511/N545	η = 6.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.2**
N655/N545	η = 5.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 5.9**
N655/N689	η = 9.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 9.6**
N799/N689	η = 16.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 16.9**
N799/N833	η = 28.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 28.0**
N943/N833	η = 30.4	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 30.4**
N151/N68	η = 6.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.6**
N151/N185	η = 6.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.0**
N295/N185	η = 6.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.2**
N295/N329	η = 6.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.3**
N439/N329	η = 6.6	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.6**
N439/N473	η = 6.3	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.3**
N583/N473	η = 6.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.1**
N583/N617	η = 7.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 7.1**
N727/N617	η = 8.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 8.2**
N727/N761	η = 13.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.9**
N871/N761	η = 39.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 39.1**
N871/N905	η = 28.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 28.9**
N1799/N1705	η = 29.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 29.1**
N1655/N1705	η = 64.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 64.1**
N1655/N1561	η = 74.0	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 74.0**
N1511/N1561	η = 14.2	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 14.2**
N1511/N1417	η = 6.9	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 6.9**
N1367/N1417	η = 13.1	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 13.1**
N1367/N1273	η = 18.7	N_{Ed} = 0.00 N.P.(3)	M_{Ed} = 0.00 N.P.(6)	M_{Ed} = 0.00 N.P.(6)	V_{Ed} = 0.00 N.P.(7)	V_{Ed} = 0.00 N.P.(7)	N.P.(1)	N.P.(1)	N.P.(8)	N.P.(9)	M_{Ed} = 0.00 N.P.(2)	N.P.(10)	N.P.(10)	**CUMPLE h = 18.7**

Notación: *l_w: Abolladura del alma inducida por el ala comprimida* *N_t: Resistencia a tracción* *N_c: Resistencia a compresión* *M_Y: Resistencia a flexión eje Y* *M_Z: Resistencia a flexión eje Z* *V_Z: Resistencia a corte Z* *V_Y: Resistencia a corte Y* *M_YV_Z: Resistencia a momento flector Y y fuerza cortante Z combinados* *M_ZV_Y: Resistencia a momento flector Z y fuerza cortante Y combinados* *NM_YM_Z: Resistencia a flexión y axil combinados* *$NM_YM_ZV_YV_Z$: Resistencia a flexión, axil y cortante combinados* *M_t: Resistencia a torsión* *M_tV_Z: Resistencia a cortante Z y momento torsor combinados* *M_tV_Y: Resistencia a cortante Y y momento torsor combinados* *x: Distancia al origen de la barra* *h: Coeficiente de aprovechamiento (%)* *N.P.: No procede*
Comprobaciones que no proceden (N.P.): *(1) No hay interacción entre momento flector y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.* *(2) La comprobación no procede, ya que no hay momento torsor.* *(3) La comprobación no procede, ya que no hay axil de compresión.* *(4) La comprobación no procede, ya que no hay axil de tracción.* *(5) La comprobación no procede, ya que no hay momento flector que comprima un ala, de forma que se pueda desarrollar el fenómeno de abolladura del alma inducida por el ala comprimida.* *(6) La comprobación no procede, ya que no hay momento flector.* *(7) La comprobación no procede, ya que no hay esfuerzo cortante.* *(8) No hay interacción entre axil y momento flector ni entre momentos flectores en ambas direcciones para ninguna combinación. Por lo tanto, la comprobación no procede.* *(9) No hay interacción entre momento flector, axil y cortante para ninguna combinación. Por lo tanto, la comprobación no procede.* *(10) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.*
Errores: *(1) El axil de compresión es excesivo y supera los axiles críticos de pandeo.* *(2) El axil de compresión es excesivo y supera el axil resistente plástico.* *(3) El axil de tracción es excesivo y supera el axil resistente plástico.*

1.3.2. Pilares

1.3.2.1. Comprobaciones E.L.U. y E.L.S.

En las tablas de comprobación de pilares de acero no se muestran las comprobaciones con coeficiente de aprovechamiento inferior al 10%.

λ_w: Abolladura del alma inducida por el ala comprimida

N_t: Resistencia a tracción

N_c: Resistencia a compresión

M_Y: Resistencia a flexión eje Y

M_Z: Resistencia a flexión eje Z
V_Y: Resistencia a corte Y
NM_YM_Z: Resistencia a flexión y axil combinados
M_tV_Y: Resistencia a cortante Y y momento torsor combinados
V_Z: Resistencia a corte Z
M_tV_Z: Resistencia a cortante Z y momento torsor combinados
M_t: Resistencia a torsión

2.2.2.1.1. P27

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.8	3.6	14.6	1.3	16.7	N.P. [1]	16.7	G, G, V, V, N [2]	N_t	-0.69	0.14	0.22	-0.59	-0.09	Cumple
												G, V, N [NL] [3]	N_c	0.87	0.21	-0.23	0.19	-0.14	
												G, V, N [NL] [4]	M_y	0.23	0.24	-0.43	0.43	-0.15	
												G, Q [NL] [5]	M_z,NM_yM_z	0.27	0.23	-0.47	0.37	-0.15	
												G, G, V, V [6]	V_y	-0.67	0.10	0.36	-0.70	-0.06	
		Pie	Cumple	0.5	0.9	2.9	19.9	1.7	22.5	N.P. [1]	22.5	G, G, V, V, N [7]	N_t	-0.62	-0.06	0.16	0.53	-0.07	Cumple
												G, V, N [NL] [8]	N_c	0.98	-0.16	0.35	0.26	-0.15	
												G, V, N [NL] [9]	M_y	0.30	-0.19	0.25	0.06	-0.16	
												G, V, N [NL] [10]	M_z,V_y,NM_yM_z	-0.27	-0.15	0.64	0.89	-0.14	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	43.9	20.6	2.8	17.2	1.4	58.2	1.4	58.2	G, Q [NL] [11]	N_t	-50.38	0.02	0.44	-0.28	-0.06	Cumple
												G, G, V, V [12]	N_c	19.04	0.12	0.07	-0.45	-0.10	
												G, V, N [NL] [13]	M_y	-25.97	-0.18	0.15	0.05	0.08	
												G, V, N [NL] [14]	M_z,V_y,M_tV_y	-37.99	0.05	0.55	-0.75	-0.08	
												G, Q [NL] [5]	NM_yM_z	-49.96	0.06	0.44	-0.28	-0.09	
		Pie	Cumple	43.8	20.6	3.6	10.2	1.2	54.3	1.2	54.3	G, Q [NL] [11]	N_t	-50.26	-0.13	-0.26	-0.28	-0.06	Cumple
												G, G, V, V [12]	N_c	19.11	-0.12	0.32	0.65	-0.10	
												G, V, N [NL] [14]	M_y	-34.77	-0.23	-0.27	-0.40	-0.16	
												G, G, V, V [6]	M_z,V_y,M_tV_y	18.68	-0.07	0.33	0.65	-0.07	
												G, Q [NL] [5]	NM_yM_z	-49.84	-0.18	-0.26	-0.28	-0.09	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	18.1	8.5	2.3	16.4	1.7	32.6	1.7	32.6	G, Q [NL] [11]	N_t	-20.78	0.04	0.31	-0.22	0.02	Cumple
												G, V [NL] [15]	N_c	9.77	0.07	-0.09	0.06	-0.01	
												G, V, N [NL] [16]	M_y	-12.07	0.15	0.10	0.14	-0.04	
												G, V, N [NL] [17]	M_z,V_y,NM_yM_z,M_tV_y	-18.00	0.04	0.52	-0.94	0.02	
		Pie	Cumple	18.0	8.6	3.7	13.1	1.6	26.8	1.6	26.8	G, Q [NL] [11]	N_t,NM_yM_z	-20.67	0.10	-0.23	-0.22	0.02	Cumple
												G, V [NL] [15]	N_c	9.84	0.04	0.07	0.06	-0.01	
												G, V, N [NL] [9]	M_y	-13.26	0.24	-0.29	-0.45	0.14	
												G, G, V, V [12]	M_z,V_y,M_tV_y	7.64	0.04	0.42	0.87	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.7	7.3	2.7	14.2	1.6	17.7	1.6	17.7	G, G, V, V, N [18]	N_t	-5.39	-0.09	0.23	-0.66	0.05	Cumple
												G, V, N [NL] [19]	N_c	8.41	-0.13	0.06	-0.06	0.08	
												G, V [NL] [20]	M_y	4.56	-0.17	0.02	0.16	0.20	
												G, V, N [NL] [17]	M_z,V_y,M_tV_y	-2.32	-0.07	0.46	-0.88	0.05	
												G, V, N [NL] [21]	NM_yM_z	-2.08	-0.13	0.45	-0.87	0.08	
		Pie	Cumple	4.6	7.4	4.7	13.8	1.5	18.7	1.5	18.7	G, G, V, V, N [18]	N_t	-5.32	0.02	0.41	0.80	0.05	Cumple
												G, V, N [NL] [19]	N_c	8.52	0.06	-0.09	-0.06	0.08	
												G, V, N [NL] [9]	M_y	5.12	0.31	-0.33	-0.44	0.20	
												G, G, V, V [12]	M_z,V_y,M_tV_y	-4.51	0.05	0.44	0.83	0.08	
												G, G, V, V [6]	NM_yM_z	-5.24	0.02	0.44	0.83	0.05	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[3] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·Q [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[11] 1.35·PP+0.8·CM1+1.5·Q [NL]
[12] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[13] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[14] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[16] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(R)1 [NL]
[17] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[18] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[19] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[20] 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[21] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]

2.2.2.1.1145.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.6	0.4	14.6	0.9	14.8	14.8	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.64	0.01	0.23	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.48	0.02	0.39	-0.31	-0.02	
											G, Q [NL](4)	M_z,NM_yM_z	0.05	0.02	0.47	-0.37	-0.02	
											G, V, N [NL](5)	V_y	-0.06	0.01	0.41	-0.46	-0.01	
		Pie	Cumple	0.6	0.6	0.9	17.2	1.3	18.1	18.1	G, V, N [NL](6)	N_t	-0.64	0.00	-0.02	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.74	-0.03	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.06	-0.06	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.54	-0.02	-0.55	-0.70	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.7	20.7	4.5	14.2	1.0	60.5	60.5	G, Q [NL](10)	N_t,NM_yM_z	-53.58	-0.08	-0.40	0.26	0.05	Cumple
											G, G, V, V(11)	N_c	19.18	0.04	0.16	-0.19	-0.02	
											G, V, N [NL](12)	M_y	-37.41	-0.29	-0.20	-0.02	0.18	
											G, V, N [NL](13)	M_z,V_y	-41.49	-0.06	-0.45	0.56	0.04	
		Pie	Cumple	46.6	20.8	2.5	7.9	0.7	54.8	54.8	G, Q [NL](10)	N_t,NM_yM_z	-53.47	0.04	0.24	0.26	0.05	Cumple
											G, G, V, V(11)	N_c	19.25	-0.02	0.00	0.06	-0.02	
											G, V, N [NL](12)	M_y	-37.30	0.16	0.25	0.37	0.18	
											G, V, N [NL](14)	M_z	-41.15	0.03	0.25	0.33	0.04	
											G, V, N [NL](15)	V_y	-37.55	-0.03	0.25	0.38	-0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.8	11.6	3.2	11.0	0.9	33.3	33.3	G, Q [NL](10)	N_t,NM_yM_z	-27.37	-0.04	-0.28	0.20	0.03	Cumple
											G, G, V, V(11)	N_c	13.31	0.02	0.12	-0.17	-0.02	
											G, V, N [NL](8)	M_y	-18.82	-0.21	-0.12	-0.05	0.18	
											G, V, N [NL](13)	M_z,V_y	-22.65	-0.03	-0.35	0.49	0.03	
		Pie	Cumple	23.7	11.7	3.5	7.2	0.6	30.9	30.9	G, Q [NL](10)	N_t,NM_yM_z	-27.26	0.05	0.21	0.20	0.03	Cumple
											G, G, V, V(11)	N_c	13.38	-0.03	0.01	0.07	-0.02	
											G, V, N [NL](8)	M_y	-18.71	0.23	0.23	0.33	0.18	
											G, V, N [NL](15)	M_z,V_y	-18.76	-0.06	0.23	0.34	-0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.5	7.7	1.8	8.4	0.8	15.1	15.1	G, V, N [NL](16)	N_t	-7.51	-0.02	-0.26	0.43	0.02	Cumple
											G, G, V, V(11)	N_c	8.81	0.01	0.09	-0.15	-0.02	
											G, V, N [NL](8)	M_y	-2.58	-0.12	-0.07	-0.05	0.17	
											G, V, N [NL](13)	M_z,NM_yM_z	-7.35	-0.02	-0.27	0.44	0.02	
											G, V, N [NL](9)	V_y	-6.48	-0.02	-0.27	0.44	0.02	
		Pie	Cumple	6.4	7.7	4.4	8.0	0.6	14.5	14.5	G, V, N [NL](16)	N_t	-7.40	0.04	0.03	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	8.87	-0.03	-0.01	0.07	-0.02	
											G, V, N [NL](8)	M_y,NM_yM_z	-2.47	0.29	0.25	0.32	0.17	
											G, V, N [NL](5)	M_z,V_y	-1.55	-0.08	0.26	0.33	-0.04	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.1146.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	22.7	79.9	3.5	16.5	2.3	88.2	1.7	88.2	G, V [NL](2)	N_t	-32.67	0.06	1.72	-0.85	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	98.32	-0.10	-5.10	2.51	0.06	
												G, V, N [NL](4)	M_y	68.32	-0.45	-3.52	1.72	0.24	
												G, Q [NL](5)	M_z,V_y	98.11	-0.10	-5.11	2.51	0.06	
												G, V, N [NL](6)	M_tV_y	69.97	-0.30	-3.67	1.80	0.16	
		Pie	Cumple	16.1	57.2	1.1	3.8	2.3	59.4	1.7	59.4	G, V [NL](2)	N_t	-32.54	-0.02	-0.40	-0.85	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	98.55	0.04	1.16	2.51	0.06	
												G, V, N [NL](4)	M_y	68.55	0.14	0.78	1.72	0.24	
												G, Q [NL](5)	M_z,V_y	98.34	0.04	1.16	2.51	0.06	
												G, V, N [NL](6)	M_tV_y	70.20	0.10	0.83	1.80	0.16	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	41.1	2.2	1.5	0.4	42.4	N.P.(1)	42.4	G, G, V, V(7)	N_t	-24.67	0.03	-0.12	0.12	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	74.96	-0.05	0.47	-0.45	0.05	
												G, V, N [NL](4)	M_y	52.37	-0.29	0.32	-0.32	0.23	
												G, Q [NL](5)	M_z,V_y	74.59	-0.05	0.47	-0.45	0.05	
		Pie	Cumple	11.6	42.3	2.3	2.1	0.4	43.9	N.P.(1)	43.9	G, G, V, V(7)	N_t	-24.54	-0.03	0.19	0.12	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	75.19	0.06	-0.65	-0.45	0.05	
												G, V, N [NL](4)	M_y	52.60	0.30	-0.48	-0.32	0.23	
												G, Q [NL](5)	M_z,V_y	74.82	0.06	-0.65	-0.45	0.05	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	32.5	0.9	3.8	1.4	34.8	N.P.(1)	34.8	G, G, V, V(7)	N_t	-17.39	0.01	0.36	-0.39	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	50.72	-0.02	-1.18	1.46	0.05	
												G, V, N [NL](4)	M_y	35.37	-0.11	-0.85	1.06	0.27	
												G, Q [NL](5)	M_z,V_y	50.20	-0.02	-1.19	1.46	0.05	
		Pie	Cumple	10.5	39.3	4.2	7.6	1.4	44.4	N.P.(1)	44.4	G, V [NL](2)	N_t	-15.18	-0.06	-0.79	-0.50	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	50.94	0.10	2.35	1.46	0.05	
												G, V, N [NL](4)	M_y	35.59	0.55	1.70	1.06	0.27	
												G, Q [NL](5)	M_z,V_y	50.43	0.10	2.36	1.46	0.05	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(R)2 [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.4. P60

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	27.3	88.3	2.9	17.4	2.4	98.4	2.4	98.4	G, G, V, V(1)	N_t	-40.69	-0.07	-1.94	0.92	0.07	Cumple
												G, Q [NL](2)	N_c,M_z,V_y,NM_yM_z,M_tV_y	111.64	0.27	5.37	-2.62	-0.21	
												G, V, N [NL](3)	M_y	78.31	0.38	3.71	-1.81	-0.25	
		Pie	Cumple	19.5	64.2	2.0	3.9	2.4	68.2	2.4	68.2	G, G, V, V(4)	N_t	-40.56	0.10	0.38	0.92	0.07	Cumple
												G, Q [NL](2)	N_c,M_z,V_y,NM_yM_z,M_tV_y	111.87	-0.26	-1.20	-2.62	-0.21	
												G, Q [NL](4)	M_y	111.39	-0.26	-1.18	-2.61	-0.21	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	13.7	46.7	1.6	1.4	0.4	48.0	0.4	48.0	G, G, V, V(1)	N_t	-30.88	-0.03	0.05	-0.14	0.01	Cumple
												G, Q [NL](2)	N_c,M_z,V_y,NM_yM_z,M_tV_y	86.42	0.07	-0.43	0.45	-0.02	
												G, V [NL](5)	M_y	31.93	-0.21	-0.16	0.18	0.16	
		Pie	Cumple	14.9	48.4	1.4	2.3	0.4	49.8	0.4	49.8	G, G, V, V(4)	N_t	-30.75	0.01	-0.31	-0.14	0.01	Cumple
												G, Q [NL](2)	N_c,V_y,NM_yM_z,M_tV_y	86.65	0.02	0.70	0.45	-0.02	
												G, V [NL](5)	M_y	48.09	0.19	0.42	0.27	0.15	
												G, Q [NL](4)	M_z	86.19	0.02	0.70	0.45	-0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	11.1	37.6	0.3	4.4	1.6	40.3	1.6	40.3	G, G, V, V(1)	N_t	-17.87	-0.04	-0.67	0.89	0.00	Cumple
												G, Q [NL](2)	N_c,NM_yM_z	58.99	0.03	1.34	-1.74	0.02	
												G, G, V, V(7)	M_y	-17.16	-0.04	-0.68	0.90	0.00	
												G, Q [NL](4)	M_z,V_y,M_tV_y	58.32	0.03	1.35	-1.74	0.02	
		Pie	Cumple	15.0	46.4	4.0	9.3	1.6	51.9	1.6	51.9	G, G, V, V(1)	N_t	-17.74	-0.04	1.48	0.89	0.00	Cumple
												G, Q [NL](2)	N_c,NM_yM_z	59.22	0.07	-2.86	-1.74	0.02	
												G, V, N [NL](8)	M_y	41.59	0.52	-2.08	-1.26	0.22	
												G, Q [NL](4)	M_z,V_y,M_tV_y	58.54	0.07	-2.87	-1.74	0.02	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(7) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1147.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.3	14.7	1.3	14.8	14.8	G, G, V, V, N[1]	N_t	-0.87	0.00	0.23	-0.59	0.00	Cumple
											G, V, N [NL][2]	N_c	0.62	0.01	-0.24	0.19	-0.01	
											G, V, N [NL][3]	M_y	0.44	0.02	-0.39	0.31	-0.02	
											G, Q [NL][4]	M_z,NM_yM_z	0.01	0.01	-0.47	0.37	-0.02	
											G, G, V, V[5]	V_y	-0.82	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.9	19.9	1.7	20.8	20.8	G, G, V, V, N[6]	N_t	-0.77	0.02	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.71	-0.03	0.34	0.26	-0.02	
											G, V, N [NL][8]	M_y	0.03	-0.06	0.25	0.05	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.51	-0.03	0.64	0.89	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.8	20.0	4.2	17.0	1.4	60.1	60.1	G, Q [NL][10]	N_t,NM_yM_z	-52.62	-0.07	0.42	-0.27	0.04	Cumple
											G, G, V, V[11]	N_c	18.48	0.04	0.08	-0.46	-0.03	
											G, V, N [NL][8]	M_y	-36.47	-0.27	0.21	0.01	0.17	
											G, V, N [NL][12]	M_z,V_y	-40.41	-0.06	0.54	-0.76	0.03	
		Pie	Cumple	45.7	20.0	2.2	9.8	1.2	54.3	54.3	G, Q [NL][10]	N_t,NM_yM_z	-52.51	0.03	-0.26	-0.27	0.04	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.55	-0.02	0.31	0.64	-0.03	
											G, V, N [NL][8]	M_y	-36.36	0.14	-0.26	-0.38	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.1	9.1	3.6	13.5	1.3	32.9	32.9	G, Q [NL][10]	N_t	-25.42	-0.07	0.29	-0.21	0.06	Cumple
											G, V [NL][13]	N_c	10.41	0.03	-0.09	0.06	-0.03	
											G, V, N [NL][8]	M_y	-16.50	-0.23	0.13	0.05	0.19	
											G, V, N [NL][14]	M_z,V_y,NM_yM_z	-21.43	-0.05	0.43	-0.68	0.04	
		Pie	Cumple	22.0	9.1	3.8	9.2	1.1	30.1	30.1	G, Q [NL][10]	N_t,NM_yM_z	-25.30	0.08	-0.22	-0.21	0.06	Cumple
											G, V [NL][13]	N_c	10.48	-0.04	0.06	0.06	-0.03	
											G, V, N [NL][8]	M_y	-16.38	0.25	-0.24	-0.34	0.19	
											G, G, V, V[11]	M_z,V_y	8.44	-0.04	0.29	0.59	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	6.3	1.6	10.6	1.1	16.3	16.3	G, V, N [NL][15]	N_t	-6.67	0.01	0.33	-0.61	0.00	Cumple
											G, V [NL][16]	N_c	7.18	0.00	0.00	0.00	-0.01	
											G, V [NL][17]	M_y	1.20	-0.11	0.01	0.11	0.16	
											G, V, N [NL][14]	M_z,NM_yM_z	-6.43	0.01	0.34	-0.62	0.00	
											G, V, N [NL][9]	V_y	-5.58	0.01	0.34	-0.62	0.00	
		Pie	Cumple	5.7	6.3	4.2	9.9	1.1	12.4	12.4	G, V, N [NL][15]	N_t	-6.56	0.01	0.05	0.37	0.00	Cumple
											G, V [NL][16]	N_c	7.24	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][18]	M_y	0.11	0.28	-0.27	-0.33	0.16	
											G, G, V, V[5]	M_z,V_y	-1.77	-0.02	0.32	0.57	-0.01	
											G, V, N [NL][19]	NM_yM_z	-0.13	0.28	-0.26	-0.32	0.16	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[16] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[17] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[18] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.1148.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.4	14.7	0.9	14.9	14.9	G, V, N [NL](1)	N_t	-0.74	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.62	0.01	0.24	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.44	0.02	0.39	-0.31	-0.02	
											G, Q [NL](4)	M_z,NM_yM_z	0.01	0.02	0.47	-0.37	-0.02	
											G, V, N [NL](5)	V_y	-0.08	0.01	0.41	-0.46	0.00	
		Pie	Cumple	0.6	0.6	0.9	17.3	1.3	18.2	18.2	G, V, N [NL](6)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.71	-0.03	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.03	-0.06	-0.25	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.57	-0.02	-0.55	-0.70	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.2	4.4	14.7	1.1	60.2	60.2	G, Q [NL](10)	N_t,NM_yM_z	-52.72	-0.07	-0.42	0.27	0.04	Cumple
											G, G, V, V(11)	N_c	18.66	0.03	0.17	-0.20	-0.02	
											G, V, N [NL](8)	M_y	-36.63	-0.29	-0.21	0.00	0.18	
											G, V, N [NL](12)	M_z,V_y	-40.69	-0.05	-0.47	0.58	0.03	
		Pie	Cumple	45.8	20.2	2.4	8.2	0.7	54.4	54.4	G, Q [NL](10)	N_t,NM_yM_z	-52.60	0.04	0.26	0.27	0.04	Cumple
											G, G, V, V(11)	N_c	18.73	-0.02	-0.01	0.05	-0.02	
											G, V, N [NL](8)	M_y	-36.51	0.16	0.26	0.38	0.18	
											G, V, N [NL](13)	M_z	-40.62	0.03	0.26	0.34	0.03	
											G, V, N [NL](14)	V_y	-36.95	-0.04	0.26	0.39	-0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.1	10.7	3.2	11.3	0.9	31.8	31.8	G, Q [NL](10)	N_t,NM_yM_z	-25.37	-0.04	-0.29	0.21	0.03	Cumple
											G, G, V, V(11)	N_c	12.23	0.02	0.13	-0.17	-0.02	
											G, V, N [NL](8)	M_y	-17.00	-0.21	-0.13	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y	-20.90	-0.03	-0.36	0.50	0.02	
		Pie	Cumple	22.0	10.7	3.4	7.5	0.6	29.5	29.5	G, Q [NL](10)	N_t,NM_yM_z	-25.26	0.04	0.22	0.21	0.03	Cumple
											G, G, V, V(11)	N_c	12.29	-0.02	0.00	0.07	-0.02	
											G, V, N [NL](8)	M_y,M_z	-16.89	0.22	0.24	0.34	0.17	
											G, V, N [NL](14)	V_y	-17.48	-0.06	0.24	0.35	-0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.4	6.3	1.8	8.6	0.8	13.0	13.0	G, V, N [NL](15)	N_t	-5.06	-0.02	-0.27	0.44	0.02	Cumple
											G, G, V, V(11)	N_c	7.24	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](8)	M_y	0.00	-0.12	-0.08	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-4.80	-0.02	-0.28	0.45	0.02	
		Pie	Cumple	4.3	6.4	4.4	8.3	0.6	12.5	12.5	G, V, N [NL](15)	N_t	-4.95	0.04	0.04	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	7.31	-0.03	-0.01	0.06	-0.02	
											G, V, N [NL](8)	M_y	0.11	0.29	0.27	0.33	0.17	
											G, V, N [NL](16)	M_z	0.94	0.29	0.27	0.33	0.17	
											G, V, N [NL](14)	V_y	-0.60	-0.08	0.27	0.33	-0.05	
											G, V, N [NL](17)	NM_yM_z	-0.15	0.29	0.26	0.32	0.17	

Notas:

(1) *1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(2) *0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(3) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(5) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(6) *0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(7) *1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(8) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(9) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(10) *1.35·PP+0.8·CM1+1.5·Q [NL]*
(11) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(12) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]*
(14) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(15) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]*
(16) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(17) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]*

2.2.2.1.7. P63

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.1	81.2	3.4	17.0	2.4	89.4	1.7	89.4	G, V [NL][2]	N_t	-33.01	0.05	1.77	-0.88	-0.03	
												G, Q [NL][3]	N_t,NM_yM_z	99.21	-0.09	-5.25	2.59	0.05	Cumple
												G, V, N [NL][4]	M_t,M_yV_y	69.02	-0.45	-3.63	1.79	0.24	
												G, Q [NL][5]	M_z,V_y	99.01	-0.09	-5.25	2.59	0.05	
		Pie	Cumple	16.4	58.0	1.1	4.0	2.4	60.3	1.7	60.3	G, V [NL][2]	N_t	-32.87	-0.02	-0.42	-0.88	-0.03	
												G, Q [NL][3]	N_t,NM_yM_z	99.44	0.03	1.22	2.59	0.05	Cumple
												G, V, N [NL][6]	M_y	69.45	0.14	0.83	1.78	0.24	
												G, Q [NL][5]	M_z,V_y	99.23	0.03	1.23	2.59	0.05	
												G, V, N [NL][4]	M_t,V_y	69.25	0.14	0.83	1.79	0.24	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	41.1	2.2	1.6	0.4	42.4	N.P.[1]	42.4	G, G, V, V[7]	N_t	-24.44	0.03	-0.13	0.12	-0.02	
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.59	-0.05	0.50	-0.46	0.04	Cumple
												G, V, N [NL][4]	M_y	52.06	-0.29	0.34	-0.33	0.23	
												G, Q [NL][5]	V_y	74.23	-0.05	0.50	-0.46	0.04	
		Pie	Cumple	11.5	42.1	2.2	2.1	0.4	43.6	N.P.[1]	43.6	G, G, V, V[7]	N_t	-24.30	-0.03	0.18	0.12	-0.02	
												G, Q [NL][3]	N_t,NM_yM_z	74.82	0.05	-0.65	-0.46	0.04	Cumple
												G, V, N [NL][4]	M_y	52.29	0.29	-0.48	-0.33	0.23	
												G, Q [NL][5]	M_z,V_y	74.46	0.05	-0.65	-0.46	0.04	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.1	31.9	0.9	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[7]	N_t	-16.59	0.01	0.38	-0.42	-0.03	
												G, Q [NL][3]	N_t,NM_yM_z	49.20	-0.02	-1.21	1.53	0.05	Cumple
												G, V, N [NL][4]	M_y	34.14	-0.12	-0.87	1.11	0.28	
												G, Q [NL][5]	M_z,V_y	48.70	-0.02	-1.21	1.53	0.05	
		Pie	Cumple	10.5	39.4	4.2	8.1	1.4	44.6	N.P.[1]	44.6	G, V [NL][2]	N_t	-14.57	-0.06	-0.84	-0.53	-0.03	
												G, Q [NL][3]	N_t,NM_yM_z	49.42	0.10	2.50	1.53	0.05	Cumple
												G, V, N [NL][4]	M_y	34.36	0.55	1.82	1.11	0.28	
												G, Q [NL][5]	M_z,V_y	48.92	0.10	2.50	1.53	0.05	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.8. P64

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.6	81.3	3.3	17.0	2.4	89.5	2.0	89.5	G, G, V, V[2]	N_t	-36.87	0.04	-1.94	0.95	-0.02	
												G, Q [NL][3]	N_t,NM_yM_z	99.41	-0.07	5.25	-2.59	0.03	
												G, V, N [NL][4]	M_y	69.21	-0.43	3.64	-1.79	0.23	Cumple
												G, Q [NL][5]	M_z,V_y	99.18	-0.07	5.25	-2.59	0.03	
												G, V, N [NL][6]	M_t,V_y	80.92	-0.29	4.27	-2.10	0.15	
		Pie	Cumple	18.2	58.1	1.0	4.0	2.4	60.3	2.0	60.3	G, G, V, V[2]	N_t	-36.73	-0.01	0.44	0.95	-0.02	
												G, Q [NL][3]	N_t,NM_yM_z	99.64	0.02	-1.23	-2.59	0.03	
												G, V, N [NL][4]	M_y	69.44	0.13	-0.83	-1.79	0.23	Cumple
												G, Q [NL][5]	M_z,V_y	99.41	0.01	-1.23	-2.59	0.03	
												G, V, N [NL][6]	M_t,V_y	81.14	0.08	-0.99	-2.10	0.15	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	41.3	2.4	1.6	0.4	42.7	N.P.[1]	42.7	G, G, V, V[2]	N_t	-26.79	0.04	0.11	-0.15	-0.03	
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.83	-0.07	-0.51	0.46	0.06	Cumple
												G, V, N [NL][4]	M_y	52.59	-0.31	-0.34	0.33	0.25	
												G, Q [NL][5]	V_y	74.47	-0.07	-0.51	0.46	0.06	
		Pie	Cumple	12.9	42.2	2.4	2.1	0.4	44.0	N.P.[1]	44.0	G, G, V, V[4]	N_t	-26.65	-0.05	-0.26	-0.15	-0.03	
												G, Q [NL][3]	N_t,NM_yM_z	75.06	0.08	0.65	0.46	0.06	Cumple
												G, V, N [NL][4]	M_y	52.82	0.31	0.48	0.33	0.25	
												G, Q [NL][5]	M_z,V_y	74.69	0.08	0.65	0.46	0.06	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	32.1	0.9	3.9	1.4	34.4	N.P.[1]	34.4	G, G, V, V[2]	N_t	-15.22	0.00	-0.57	0.74	-0.02	
												G, Q [NL][3]	N_t,V_y,NM_yM_z	49.56	0.01	1.21	-1.52	0.03	Cumple
												G, V [NL][8]	M_y	17.85	-0.12	0.46	-0.60	0.27	
												G, Q [NL][5]	M_z	49.07	0.01	1.21	-1.52	0.03	
		Pie	Cumple	12.6	39.5	4.3	8.0	1.4	44.4	N.P.[1]	44.4	G, G, V, V[2]	N_t	-15.09	-0.05	1.22	0.74	-0.02	
												G, Q [NL][3]	N_t,M_z,V_y,NM_yM_z	49.78	0.08	-2.48	-1.52	0.03	Cumple
												G, V, N [NL][4]	M_y	34.56	0.57	-1.82	-1.11	0.28	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.1150.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.4	14.8	1.3	15.0	15.0	G, G, V, V, N[1]	N_t	-0.87	-0.01	0.23	-0.59	0.01	Cumple
											G, V, N [NL][2]	N_c	0.63	0.02	-0.24	0.19	-0.02	
											G, V, N [NL][3]	M_y	0.46	0.03	-0.39	0.31	-0.03	
											G, Q [NL][4]	M_z,NM_yM_z	0.03	0.02	-0.47	0.37	-0.03	
											G, G, V, V[5]	V_y	-0.83	-0.01	0.36	-0.70	0.02	
		Pie	Cumple	0.7	0.6	1.1	19.9	1.7	20.9	20.9	G, G, V, V, N[6]	N_t	-0.78	0.02	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.72	-0.04	0.34	0.26	-0.02	
											G, V, N [NL][8]	M_y	0.05	-0.07	0.25	0.06	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	-0.03	0.64	0.89	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.6	20.3	4.1	16.8	1.4	60.2	60.2	G, Q [NL][10]	N_t,NM_yM_z	-53.49	-0.04	0.42	-0.27	0.02	Cumple
											G, G, V, V[11]	N_c	18.81	0.02	0.08	-0.46	-0.01	
											G, V, N [NL][8]	M_y	-37.59	-0.27	0.20	0.01	0.16	
											G, V, N [NL][12]	M_z,V_y	-41.10	-0.04	0.54	-0.75	0.02	
		Pie	Cumple	46.5	20.4	2.2	9.7	1.2	54.6	54.6	G, Q [NL][10]	N_t,NM_yM_z	-53.38	0.02	-0.25	-0.27	0.02	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.88	-0.01	0.31	0.64	-0.01	
											G, V, N [NL][8]	M_y	-37.47	0.14	-0.25	-0.38	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.0	9.4	3.5	13.4	1.3	33.4	33.4	G, Q [NL][10]	N_t	-26.44	-0.05	0.29	-0.20	0.05	Cumple
											G, V [NL][13]	N_c	10.80	0.03	-0.09	0.06	-0.02	
											G, V, N [NL][8]	M_y	-18.05	-0.23	0.12	0.05	0.19	
											G, V, N [NL][14]	M_z,V_y,NM_yM_z	-22.23	-0.04	0.43	-0.68	0.04	
		Pie	Cumple	22.9	9.5	3.7	9.2	1.1	30.7	30.7	G, Q [NL][10]	N_t,NM_yM_z	-26.33	0.06	-0.22	-0.20	0.05	Cumple
											G, V [NL][13]	N_c	10.86	-0.03	0.06	0.06	-0.02	
											G, V, N [NL][8]	M_y	-17.93	0.24	-0.23	-0.34	0.19	
											G, G, V, V[11]	M_z,V_y	8.82	-0.03	0.29	0.59	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.5	6.3	1.6	10.6	1.1	17.0	17.0	G, V, N [NL][14]	N_t	-7.48	0.00	0.33	-0.61	0.01	Cumple
											G, V [NL][15]	N_c	7.27	0.00	0.00	0.00	-0.01	
											G, V [NL][16]	M_y	-0.31	-0.11	0.00	0.11	0.16	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-7.28	0.00	0.34	-0.62	0.01	
		Pie	Cumple	6.4	6.4	4.3	9.8	1.1	13.9	13.9	G, V, N [NL][14]	N_t	-7.37	0.02	0.05	0.37	0.01	Cumple
											G, V [NL][15]	N_c	7.34	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][17]	M_y,NM_yM_z	-1.77	0.28	-0.26	-0.33	0.16	
											G, G, V, V[5]	M_z	-1.37	-0.02	0.31	0.57	-0.01	
											G, G, V, V[11]	V_y	-0.53	-0.02	0.31	0.57	-0.01	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[16] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[17] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.10. P66

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.4	14.8	0.9	15.0	15.0	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.24	-0.19	-0.02	
											G, V, N [NL](3)	M_y	0.46	0.03	0.39	-0.31	-0.03	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.03	0.47	-0.37	-0.03	
											G, V, N [NL](5)	V_y	-0.08	0.01	0.41	-0.46	-0.01	
		Pie	Cumple	0.6	0.6	1.1	17.4	1.3	18.3	18.3	G, V, N [NL](6)	N_t	-0.64	0.01	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.72	-0.04	-0.34	-0.26	-0.03	
											G, V, N [NL](8)	M_y	0.05	-0.07	-0.25	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.56	-0.03	-0.56	-0.70	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.5	20.5	4.1	14.6	1.1	60.1	60.1	G, Q [NL](10)	N_t,NM_yM_z	-53.44	-0.04	-0.42	0.27	0.02	Cumple
											G, G, V, V(11)	N_c	18.96	0.02	0.17	-0.20	-0.01	
											G, V, N [NL](8)	M_y	-37.69	-0.27	-0.20	-0.01	0.16	
											G, V, N [NL](12)	M_z,V_y	-41.26	-0.03	-0.47	0.57	0.02	
		Pie	Cumple	46.4	20.5	2.2	8.1	0.7	54.6	54.6	G, Q [NL](10)	N_t,NM_yM_z	-53.32	0.02	0.25	0.27	0.02	Cumple
											G, G, V, V(11)	N_c	19.02	-0.01	-0.01	0.05	-0.01	
											G, V, N [NL](8)	M_y	-37.58	0.15	0.25	0.38	0.16	
											G, V, N [NL](13)	M_z	-41.16	0.01	0.26	0.34	0.02	
											G, V, N [NL](14)	V_y	-37.00	-0.05	0.26	0.38	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.9	11.0	3.2	11.2	0.9	32.6	32.6	G, Q [NL](10)	N_t,NM_yM_z	-26.34	-0.03	-0.29	0.20	0.03	Cumple
											G, G, V, V(11)	N_c	12.61	0.02	0.13	-0.17	-0.02	
											G, V, N [NL](8)	M_y	-18.53	-0.21	-0.13	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y	-21.67	-0.03	-0.36	0.50	0.02	
		Pie	Cumple	22.8	11.0	3.4	7.4	0.6	30.1	30.1	G, Q [NL](10)	N_t,NM_yM_z	-26.23	0.03	0.22	0.20	0.03	Cumple
											G, G, V, V(11)	N_c	12.68	-0.02	0.00	0.07	-0.02	
											G, V, N [NL](8)	M_y	-18.42	0.22	0.23	0.34	0.17	
											G, V, N [NL](14)	M_z,V_y	-17.63	-0.07	0.24	0.34	-0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.2	6.7	1.8	8.6	0.8	13.8	13.8	G, V, N [NL](15)	N_t	-5.92	-0.01	-0.27	0.44	0.02	Cumple
											G, G, V, V(11)	N_c	7.69	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](8)	M_y	-1.90	-0.12	-0.08	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.72	-0.01	-0.27	0.44	0.02	
		Pie	Cumple	5.1	6.8	4.4	8.3	0.6	14.0	14.0	G, V, N [NL](15)	N_t	-5.81	0.03	0.04	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	7.76	-0.03	-0.01	0.07	-0.02	
											G, V, N [NL](8)	M_y,NM_yM_z	-1.79	0.29	0.26	0.33	0.17	
											G, V, N [NL](5)	M_z	0.01	-0.08	0.26	0.33	-0.05	
											G, V, N [NL](14)	V_y	-0.83	-0.08	0.26	0.33	-0.05	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.11. P67

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.0	80.9	3.3	16.9	2.4	89.0	2.4	89.0	G, V [NL](2)	N_t	-32.91	0.04	1.76	-0.87	-0.02	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.00	-0.07	-5.21	2.57	0.04	
												G, V, N [NL](4)	M_y	68.61	-0.44	-3.57	1.75	0.23	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.79	-0.07	-5.22	2.57	0.04	
		Pie	Cumple	16.3	57.8	1.1	3.9	2.4	60.0	2.4	60.0	G, V [NL](7)	N_t	-32.78	-0.02	-0.41	-0.87	-0.02	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.23	0.03	1.20	2.57	0.04	
												G, V, N [NL](4)	M_y	68.84	0.14	0.80	1.75	0.23	
												G, Q [NL](5)	M_z,V_y,M_yV_y	99.02	0.03	1.21	2.57	0.04	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	41.1	2.2	1.6	0.4	42.3	N.P.(1)	42.3	G, G, V, V(6)	N_t	-24.45	0.02	-0.12	0.12	-0.02	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	74.70	-0.04	0.49	-0.46	0.03	
												G, V, N [NL](4)	M_y	52.20	-0.28	0.32	-0.32	0.23	
												G, Q [NL](5)	V_y	74.34	-0.04	0.49	-0.46	0.03	
		Pie	Cumple	11.5	42.1	2.2	2.1	0.4	43.6	N.P.(1)	43.6	G, G, V, V(6)	N_t	-24.32	-0.03	0.18	0.12	-0.02	Cumple
												G, Q [NL](5)	N_t,NM_yM_z	74.93	0.04	-0.65	-0.46	0.03	
												G, V, N [NL](4)	M_y	52.43	0.29	-0.48	-0.32	0.23	
												G, Q [NL](5)	M_z,V_y	74.57	0.04	-0.65	-0.46	0.03	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.1	32.1	0.9	3.9	1.4	34.5	N.P.(1)	34.5	G, G, V, V(6)	N_t	-16.69	0.01	0.38	-0.42	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	49.56	-0.02	-1.21	1.52	0.05	
												G, V, N [NL](4)	M_y	34.76	-0.12	-0.87	1.08	0.28	
												G, Q [NL](5)	M_z,V_y	49.06	-0.02	-1.21	1.52	0.05	
		Pie	Cumple	10.5	39.4	4.2	8.0	1.4	44.4	N.P.(1)	44.4	G, V [NL](2)	N_t	-14.70	-0.05	-0.83	-0.52	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	49.78	0.09	2.46	1.52	0.05	
												G, V, N [NL](4)	M_y	34.98	0.55	1.75	1.08	0.28	
												G, Q [NL](5)	M_z,V_y	49.28	0.09	2.46	1.52	0.05	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.12. P68

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.4	80.8	3.4	16.9	2.4	89.1	2.4	89.1	G, G, V, V[2]	N_t	-36.61	0.05	-1.92	0.94	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.84	-0.08	5.21	-2.56	0.05	
												G, V, N [NL][4]	M_y	68.74	-0.45	3.57	-1.75	0.24	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.63	-0.08	5.21	-2.57	0.05	
		Pie	Cumple	18.0	57.7	1.1	3.9	2.4	60.0	2.4	60.0	G, G, V, V[2]	N_t	-36.47	-0.02	0.43	0.94	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.07	0.04	-1.20	-2.56	0.05	
												G, V, N [NL][4]	M_y	68.97	0.14	-0.80	-1.75	0.24	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.86	0.04	-1.20	-2.57	0.05	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.1	41.0	2.3	1.6	0.4	42.3	N.P.[1]	42.3	G, G, V, V[2]	N_t	-26.64	0.03	0.11	-0.15	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.57	-0.05	-0.49	0.46	0.05	
												G, V, N [NL][6]	M_y	52.11	-0.30	-0.32	0.32	0.24	
												G, Q [NL][5]	V_v	74.22	-0.05	-0.49	0.46	0.05	
		Pie	Cumple	12.8	42.1	2.3	2.1	0.4	43.8	N.P.[1]	43.8	G, G, V, V[2]	N_t	-26.51	-0.04	-0.26	-0.15	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.80	0.07	0.65	0.46	0.05	
												G, V, N [NL][4]	M_y	52.69	0.30	0.48	0.32	0.24	
												G, Q [NL][5]	M_z,V_y	74.45	0.07	0.65	0.46	0.05	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	32.0	0.9	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[2]	N_t	-15.13	0.01	-0.57	0.74	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.47	0.00	1.21	-1.51	0.03	
												G, V, N [NL][7]	M_y	31.69	-0.12	0.81	-1.02	0.28	
												G, Q [NL][5]	M_z,V_y	48.98	0.00	1.21	-1.51	0.03	
		Pie	Cumple	12.5	39.3	4.3	7.9	1.4	44.3	N.P.[1]	44.3	G, G, V, V[2]	N_t	-15.00	-0.05	1.21	0.74	-0.02	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.69	0.08	-2.45	-1.51	0.03	
												G, V, N [NL][6]	M_y	34.87	0.57	-1.76	-1.08	0.28	
												G, Q [NL][5]	V_v	49.21	0.08	-2.45	-1.51	0.03	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.13. P69

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.3	14.7	1.3	14.8	14.8	G, G, V, V, N[1]	N_t	-0.87	0.00	0.23	-0.59	0.00	Cumple
											G, V, N [NL][2]	N_c	0.63	0.02	-0.23	0.19	-0.01	
											G, V, N [NL][3]	M_y	0.46	0.02	-0.39	0.31	-0.02	
											G, Q [NL][4]	M_z,NM_yM_z	0.03	0.02	-0.47	0.37	-0.02	
											G, G, V, V[5]	V_Y	-0.83	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.9	19.9	1.7	20.6	20.6	G, G, V, V, N[6]	N_t	-0.78	0.01	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.73	-0.03	0.34	0.26	-0.02	
											G, V, N [NL][8]	M_y	0.04	-0.06	0.25	0.05	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	-0.02	0.64	0.89	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.1	20.2	4.3	16.9	1.4	59.9	59.9	G, Q [NL][10]	N_t,NM_yM_z	-52.89	-0.05	0.42	-0.27	0.03	Cumple
											G, G, V, V[11]	N_c	18.70	0.03	0.08	-0.46	-0.02	
											G, V, N [NL][8]	M_y	-36.90	-0.28	0.21	0.01	0.17	
											G, V, N [NL][12]	M_z,V_y	-40.62	-0.04	0.54	-0.75	0.02	
		Pie	Cumple	46.0	20.3	2.3	9.8	1.2	54.2	54.2	G, Q [NL][10]	N_t,NM_yM_z	-52.78	0.02	-0.25	-0.27	0.03	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.77	-0.01	0.31	0.64	-0.02	
											G, V, N [NL][8]	M_y	-36.79	0.15	-0.25	-0.38	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.5	9.2	3.4	13.4	1.3	32.9	32.9	G, Q [NL][10]	N_t	-25.82	-0.04	0.29	-0.20	0.04	Cumple
											G, V [NL][13]	N_c	10.61	0.02	-0.09	0.06	-0.02	
											G, V, N [NL][8]	M_y	-17.23	-0.22	0.13	0.05	0.18	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.72	-0.03	0.43	-0.68	0.03	
		Pie	Cumple	22.4	9.3	3.6	9.2	1.1	30.0	30.0	G, Q [NL][10]	N_t,NM_yM_z	-25.70	0.05	-0.22	-0.20	0.04	Cumple
											G, V [NL][13]	N_c	10.68	-0.03	0.06	0.06	-0.02	
											G, V, N [NL][8]	M_y	-17.12	0.24	-0.23	-0.34	0.18	
											G, G, V, V[11]	M_z,V_y	8.65	-0.03	0.29	0.59	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.1	6.3	1.7	10.6	1.1	16.5	16.5	G, V, N [NL][14]	N_t	-6.96	0.00	0.33	-0.61	0.01	Cumple
											G, V [NL][15]	N_c	7.22	0.01	0.00	0.00	-0.01	
											G, V, N [NL][16]	M_y	-0.96	-0.11	0.08	0.05	0.16	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-6.74	0.00	0.34	-0.62	0.01	
		Pie	Cumple	6.0	6.3	4.3	9.9	1.1	13.2	13.2	G, V, N [NL][14]	N_t	-6.85	0.02	0.05	0.37	0.01	Cumple
											G, V [NL][15]	N_c	7.29	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][16]	M_y,NM_yM_z	-0.85	0.28	-0.26	-0.33	0.16	
											G, G, V, V[5]	M_z	-1.57	-0.02	0.32	0.57	-0.01	
											G, G, V, V[11]	V_Y	-0.74	-0.02	0.32	0.57	-0.01	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[16] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1153.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.4	14.7	0.9	14.8	14.8	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.23	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.46	0.02	0.39	-0.31	-0.02	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.02	0.47	-0.37	-0.02	
											G, V, N [NL](5)	V_y	-0.07	0.01	0.41	-0.46	0.00	
		Pie	Cumple	0.6	0.6	0.9	17.3	1.3	18.1	18.1	G, V, N [NL](6)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.73	-0.03	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.04	-0.06	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.56	-0.02	-0.55	-0.70	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.1	20.4	4.2	14.6	1.1	59.7	59.7	G, Q [NL](10)	N_t,NM_yM_z	-52.87	-0.04	-0.42	0.27	0.02	Cumple
											G, G, V, V(11)	N_c	18.87	0.02	0.17	-0.20	-0.01	
											G, V, N [NL](8)	M_y	-37.00	-0.28	-0.21	-0.01	0.17	
											G, V, N [NL](12)	M_z,V_y	-40.81	-0.03	-0.47	0.57	0.02	
		Pie	Cumple	46.0	20.5	2.3	8.1	0.7	54.1	54.1	G, Q [NL](10)	N_t,NM_yM_z	-52.76	0.02	0.25	0.27	0.02	Cumple
											G, G, V, V(11)	N_c	18.94	-0.01	-0.01	0.05	-0.01	
											G, V, N [NL](8)	M_y	-36.88	0.15	0.26	0.38	0.17	
											G, V, N [NL](13)	M_z	-40.73	0.01	0.26	0.34	0.02	
											G, V, N [NL](14)	V_y	-36.67	-0.05	0.26	0.38	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.5	10.9	3.1	11.2	0.9	32.0	32.0	G, Q [NL](10)	N_t,NM_yM_z	-25.79	-0.03	-0.29	0.20	0.02	Cumple
											G, G, V, V(11)	N_c	12.48	0.02	0.13	-0.17	-0.01	
											G, V, N [NL](8)	M_y	-17.69	-0.21	-0.13	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y	-21.21	-0.02	-0.36	0.50	0.02	
		Pie	Cumple	22.4	10.9	3.3	7.4	0.6	29.6	29.6	G, Q [NL](10)	N_t,NM_yM_z	-25.67	0.03	0.22	0.20	0.02	Cumple
											G, G, V, V(11)	N_c	12.55	-0.02	0.00	0.07	-0.01	
											G, V, N [NL](8)	M_y	-17.57	0.22	0.23	0.34	0.17	
											G, V, N [NL](14)	M_z,V_y	-17.41	-0.07	0.24	0.34	-0.06	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.6	1.8	8.6	0.8	13.4	13.4	G, V, N [NL](15)	N_t	-5.50	-0.01	-0.27	0.44	0.02	Cumple
											G, G, V, V(11)	N_c	7.52	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](8)	M_y	-0.94	-0.12	-0.08	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.28	-0.01	-0.27	0.44	0.02	
		Pie	Cumple	4.7	6.6	4.3	8.2	0.6	13.2	13.2	G, V, N [NL](15)	N_t	-5.39	0.03	0.04	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	7.59	-0.03	-0.01	0.07	-0.02	
											G, V, N [NL](8)	M_y,NM_yM_z	-0.83	0.28	0.26	0.33	0.17	
											G, V, N [NL](5)	M_z	0.14	-0.09	0.26	0.33	-0.05	
											G, V, N [NL](14)	V_y	-0.70	-0.09	0.26	0.33	-0.05	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.15. P71

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.1	80.7	3.3	16.8	2.4	88.8	2.2	88.8	G, V [NL][2]	N_t	-33.01	0.03	1.76	-0.87	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.67	-0.06	-5.20	2.56	0.03	
												G, V, N [NL][4]	M_y	68.49	-0.43	-3.59	1.76	0.23	
												G, Q [NL][5]	M_z,V_y	98.46	-0.06	-5.21	2.57	0.03	
												G, V, N [NL][6]	M_yV_y	90.32	-0.08	-4.74	2.34	0.04	
		Pie	Cumple	16.4	57.6	1.0	3.9	2.4	59.8	2.2	59.8	G, V [NL][2]	N_t	-32.87	-0.01	-0.42	-0.87	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.89	0.02	1.21	2.56	0.03	
												G, V, N [NL][4]	M_y	68.72	0.13	0.81	1.76	0.23	
												G, Q [NL][5]	M_z,V_y	98.69	0.02	1.21	2.57	0.03	
												G, V, N [NL][6]	M_yV_y	90.55	0.03	1.10	2.34	0.04	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	40.9	2.2	1.6	0.4	42.1	N.P.[1]	42.1	G, G, V, V[7]	N_t	-24.49	0.02	-0.12	0.12	-0.02	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.34	-0.04	0.49	-0.46	0.03	
												G, V, N [NL][4]	M_y	51.89	-0.28	0.33	-0.32	0.23	
												G, Q [NL][5]	V_y	73.99	-0.04	0.49	-0.46	0.03	
		Pie	Cumple	11.5	41.9	2.2	2.1	0.4	43.3	N.P.[1]	43.3	G, G, V, V[7]	N_t	-24.35	-0.02	0.18	0.12	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.57	0.03	-0.65	-0.46	0.03	
												G, V, N [NL][4]	M_y	52.12	0.28	-0.48	-0.32	0.23	
												G, Q [NL][5]	M_z,V_y	74.21	0.03	-0.65	-0.46	0.03	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.1	31.9	0.9	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[7]	N_t	-16.68	0.01	0.38	-0.42	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.20	-0.02	-1.20	1.52	0.04	
												G, V, N [NL][4]	M_y	34.28	-0.12	-0.87	1.09	0.28	
												G, Q [NL][5]	M_z,V_y	48.72	-0.02	-1.21	1.52	0.04	
		Pie	Cumple	10.5	39.2	4.2	8.0	1.4	44.2	N.P.[1]	44.2	G, V [NL][2]	N_t	-14.71	-0.05	-0.83	-0.52	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.43	0.08	2.46	1.52	0.04	
												G, V, N [NL][4]	M_y	34.51	0.55	1.78	1.09	0.28	
												G, Q [NL][5]	V_y	48.94	0.08	2.46	1.52	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.16. P72

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.5	80.7	3.4	16.8	2.4	88.9	2.1	88.9	G, G, V, V[2]	N_t	-36.71	0.04	-1.93	0.95	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.63	-0.08	5.20	-2.56	0.04	
												G, V, N [NL][4]	M_y	68.68	-0.45	3.58	-1.76	0.23	
												G, Q [NL][5]	M_z,V_y	98.42	-0.08	5.21	-2.57	0.04	
												G, V, N [NL][6]	M_yV_y	85.66	-0.10	4.48	-2.21	0.06	
		Pie	Cumple	18.1	57.6	1.0	3.9	2.4	59.9	2.1	59.9	G, G, V, V[2]	N_t	-36.57	-0.01	0.44	0.95	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.86	0.03	-1.21	-2.56	0.04	
												G, V, N [NL][4]	M_y	68.90	0.14	-0.81	-1.76	0.23	
												G, Q [NL][5]	M_z,V_y	98.65	0.03	-1.21	-2.57	0.04	
												G, V, N [NL][6]	M_yV_y	85.88	0.04	-1.04	-2.21	0.06	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	40.9	2.3	1.6	0.4	42.1	N.P.[1]	42.1	G, G, V, V[2]	N_t	-26.67	0.03	0.11	-0.15	-0.02	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.31	-0.04	-0.49	0.46	0.04	
												G, V, N [NL][7]	M_y	51.87	-0.30	-0.33	0.32	0.24	
												G, Q [NL][5]	V_y	73.95	-0.04	-0.49	0.46	0.04	
		Pie	Cumple	12.8	41.9	2.3	2.1	0.4	43.5	N.P.[1]	43.5	G, G, V, V[7]	N_t	-26.54	-0.03	-0.26	-0.15	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.54	0.05	0.65	0.46	0.04	
												G, V, N [NL][4]	M_y	52.45	0.30	0.48	0.32	0.24	
												G, Q [NL][5]	M_z,V_y	74.18	0.05	0.65	0.46	0.04	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	31.8	0.9	3.9	1.4	34.1	N.P.[1]	34.1	G, G, V, V[2]	N_t	-15.11	0.01	-0.57	0.74	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.18	-0.01	1.20	-1.52	0.03	
												G, V, N [NL][7]	M_y	34.27	-0.12	0.87	-1.09	0.29	
												G, Q [NL][5]	M_z,V_y	48.69	-0.01	1.21	-1.52	0.04	
		Pie	Cumple	12.5	39.2	4.3	8.0	1.4	44.1	N.P.[1]	44.1	G, G, V, V[2]	N_t	-14.98	-0.05	1.22	0.74	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.40	0.07	-2.46	-1.52	0.03	
												G, V, N [NL][7]	M_y	34.49	0.57	-1.78	-1.09	0.29	
												G, Q [NL][5]	M_z,V_y	48.91	0.08	-2.46	-1.52	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1155.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.3	14.7	1.3	14.8	14.8	G, G, V, V, N[1]	N_t	-0.87	-0.01	0.23	-0.59	0.01	Cumple
											G, V, N [NL][4]	N_c	0.63	0.02	-0.23	0.19	-0.01	
											G, V, N [NL][3]	M_y	0.46	0.02	-0.39	0.31	-0.02	
											G, Q [NL][4]	M_z,NM_yM_z	0.03	0.02	-0.47	0.37	-0.01	
											G, G, V, V[5]	V_y	-0.83	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.9	19.9	1.7	20.6	20.6	G, G, V, V, N[6]	N_t	-0.78	0.01	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.72	-0.02	0.34	0.26	-0.02	
											G, V, N [NL][8]	M_y	0.04	-0.06	0.25	0.05	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	-0.02	0.64	0.89	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.1	20.3	4.2	16.9	1.4	59.8	59.8	G, Q [NL][10]	N_t,NM_yM_z	-52.94	-0.04	0.42	-0.27	0.02	Cumple
											G, G, V, V[11]	N_c	18.78	0.02	0.08	-0.46	-0.01	
											G, V, N [NL][8]	M_y	-36.91	-0.28	0.21	0.01	0.17	
											G, V, N [NL][12]	M_z,V_y	-40.65	-0.03	0.54	-0.76	0.02	
		Pie	Cumple	46.0	20.3	2.3	9.8	1.2	54.2	54.2	G, Q [NL][10]	N_t,NM_yM_z	-52.83	0.01	-0.25	-0.27	0.02	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.84	-0.01	0.31	0.64	-0.01	
											G, V, N [NL][8]	M_y	-36.80	0.15	-0.25	-0.38	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.5	9.3	3.3	13.4	1.3	32.8	32.8	G, Q [NL][10]	N_t	-25.83	-0.04	0.29	-0.20	0.03	Cumple
											G, V [NL][13]	N_c	10.64	0.02	-0.09	0.06	-0.02	
											G, V, N [NL][8]	M_y	-17.22	-0.22	0.13	0.05	0.18	
											G, V, N [NL][14]	M_z,V_y,NM_yM_z	-21.72	-0.03	0.43	-0.68	0.02	
		Pie	Cumple	22.4	9.3	3.5	9.2	1.1	29.8	29.8	G, Q [NL][10]	N_t,NM_yM_z	-25.72	0.04	-0.22	-0.20	0.03	Cumple
											G, V [NL][13]	N_c	10.71	-0.02	0.06	0.06	-0.02	
											G, V, N [NL][8]	M_y	-17.11	0.23	-0.23	-0.34	0.18	
											G, G, V, V[11]	M_z,V_y	8.69	-0.02	0.29	0.59	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.3	1.7	10.6	1.1	16.5	16.5	G, V, N [NL][15]	N_t	-6.93	0.00	0.33	-0.61	0.01	Cumple
											G, V [NL][16]	N_c	7.22	0.00	0.00	0.00	-0.01	
											G, V, N [NL][17]	M_y	-0.93	-0.11	0.08	0.05	0.16	
											G, V, N [NL][14]	M_z,V_y,NM_yM_z	-6.71	0.00	0.34	-0.62	0.01	
		Pie	Cumple	5.9	6.3	4.3	9.9	1.1	13.2	13.2	G, V, N [NL][15]	N_t	-6.82	0.02	0.05	0.37	0.01	Cumple
											G, V [NL][16]	N_c	7.29	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][17]	M_y,NM_yM_z	-0.82	0.28	-0.26	-0.33	0.16	
											G, G, V, V[5]	M_z	-1.57	-0.02	0.32	0.57	-0.01	
											G, G, V, V[14]	V_y	-0.73	-0.02	0.32	0.57	-0.01	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[16] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1156.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.3	14.7	0.9	14.9	14.9	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.23	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.46	0.02	0.39	-0.31	-0.02	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.02	0.47	-0.37	-0.01	
											G, V, N [NL](5)	V_y	-0.07	0.01	0.41	-0.46	0.00	
		Pie	Cumple	0.6	0.6	0.9	17.3	1.3	18.0	18.0	G, V, N [NL](6)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.72	-0.02	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.04	-0.06	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.56	-0.01	-0.55	-0.70	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.1	20.5	4.1	14.6	1.1	59.6	59.6	G, Q [NL](10)	N_t,NM_yM_z	-52.94	-0.03	-0.42	0.27	0.01	Cumple
											G, G, V, V(11)	N_c	18.95	0.01	0.17	-0.20	-0.01	
											G, V, N [NL](8)	M_y	-37.01	-0.27	-0.21	-0.01	0.17	
											G, V, N [NL](12)	M_z,V_y	-40.84	-0.02	-0.47	0.57	0.01	
		Pie	Cumple	46.0	20.5	2.2	8.1	0.7	54.1	54.1	G, Q [NL](10)	N_t,NM_yM_z	-52.83	0.01	0.25	0.27	0.01	Cumple
											G, G, V, V(11)	N_c	19.02	-0.01	-0.01	0.05	-0.01	
											G, V, N [NL](8)	M_y	-36.90	0.15	0.26	0.38	0.17	
											G, V, N [NL](13)	M_z	-40.78	0.01	0.26	0.34	0.01	
											G, V, N [NL](14)	V_y	-36.76	-0.06	0.26	0.38	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.5	10.9	3.1	11.2	0.9	32.0	32.0	G, Q [NL](10)	N_t,NM_yM_z	-25.82	-0.03	-0.29	0.20	0.02	Cumple
											G, G, V, V(11)	N_c	12.52	0.02	0.13	-0.17	-0.01	
											G, V, N [NL](8)	M_y	-17.68	-0.20	-0.13	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y	-21.22	-0.02	-0.36	0.50	0.01	
		Pie	Cumple	22.4	11.0	3.3	7.4	0.6	29.5	29.5	G, Q [NL](10)	N_t,NM_yM_z	-25.71	0.02	0.22	0.20	0.02	Cumple
											G, G, V, V(11)	N_c	12.58	-0.01	0.00	0.07	-0.01	
											G, V, N [NL](8)	M_y	-17.56	0.22	0.24	0.34	0.17	
											G, V, N [NL](14)	M_z,V_y	-17.46	-0.08	0.24	0.34	-0.06	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.6	1.8	8.6	0.8	13.4	13.4	G, V, N [NL](15)	N_t	-5.49	-0.01	-0.27	0.44	0.02	Cumple
											G, G, V, V(11)	N_c	7.53	0.01	0.10	-0.16	-0.01	
											G, V, N [NL](8)	M_y	-0.91	-0.12	-0.08	-0.05	0.16	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.27	-0.01	-0.27	0.45	0.02	
		Pie	Cumple	4.7	6.6	4.3	8.3	0.6	13.2	13.2	G, V, N [NL](15)	N_t	-5.38	0.03	0.04	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	7.60	-0.02	-0.01	0.06	-0.01	
											G, V, N [NL](8)	M_y,NM_yM_z	-0.80	0.28	0.26	0.33	0.16	
											G, V, N [NL](5)	M_z	0.12	-0.09	0.26	0.33	-0.05	
											G, V, N [NL](14)	V_y	-0.71	-0.09	0.26	0.33	-0.05	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.19. P75

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.2	80.8	3.2	16.9	2.4	88.7	2.2	88.7	G, V [NL][2]	N_t	-33.13	0.02	1.77	-0.88	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.80	-0.04	-5.21	2.57	0.02	
												G, V, N [NL][4]	M_y	68.53	-0.42	-3.59	1.76	0.22	
												G, Q [NL][5]	M_z,V_y	98.59	-0.04	-5.21	2.57	0.02	
												G, V, N [NL][6]	M_yV_y	90.52	-0.06	-4.76	2.34	0.03	
		Pie	Cumple	16.4	57.7	1.0	3.9	2.4	59.8	2.2	59.8	G, V [NL][2]	N_t	-33.00	-0.01	-0.42	-0.88	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.03	0.01	1.21	2.57	0.02	
												G, V, N [NL][4]	M_y	68.75	0.13	0.81	1.76	0.22	
												G, Q [NL][5]	M_z,V_y	98.82	0.01	1.21	2.57	0.02	
												G, V, N [NL][6]	M_yV_y	90.75	0.02	1.10	2.34	0.03	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	41.0	2.2	1.6	0.4	42.1	N.P.[1]	42.1	G, G, V, V[7]	N_t	-24.57	0.02	-0.12	0.12	-0.02	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.44	-0.03	0.49	-0.46	0.02	
												G, V, N [NL][4]	M_y	51.91	-0.29	0.33	-0.32	0.23	
												G, Q [NL][5]	V_y	74.09	-0.03	0.49	-0.46	0.02	
		Pie	Cumple	11.6	42.0	2.1	2.1	0.4	43.3	N.P.[1]	43.3	G, G, V, V[7]	N_t	-24.44	-0.02	0.19	0.12	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.67	0.02	-0.65	-0.46	0.02	
												G, V, N [NL][4]	M_y	52.13	0.28	-0.48	-0.32	0.23	
												G, Q [NL][5]	M_z,V_y	74.31	0.02	-0.65	-0.46	0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.2	31.9	1.0	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[7]	N_t	-16.73	0.01	0.38	-0.42	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.27	-0.03	-1.21	1.52	0.04	
												G, V, N [NL][4]	M_y	34.28	-0.12	-0.87	1.09	0.28	
												G, Q [NL][5]	M_z,V_y	48.78	-0.03	-1.21	1.52	0.04	
		Pie	Cumple	10.6	39.3	4.2	8.0	1.4	44.2	N.P.[1]	44.2	G, V [NL][2]	N_t	-14.77	-0.05	-0.84	-0.52	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.49	0.08	2.47	1.52	0.04	
												G, V, N [NL][4]	M_y	34.50	0.55	1.78	1.09	0.28	
												G, Q [NL][5]	V_y	49.00	0.08	2.47	1.52	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.20. P76

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.6	80.8	3.3	16.9	2.4	88.9	2.2	88.9	G, G, V, V[2]	N_t	-36.84	0.03	-1.94	0.95	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.79	-0.06	5.21	-2.57	0.03	
												G, V, N [NL][4]	M_y	68.73	-0.44	3.58	-1.76	0.23	
												G, Q [NL][5]	M_z,V_y	98.59	-0.06	5.21	-2.57	0.03	
												G, V, N [NL][6]	M_yV_y	90.52	-0.07	4.76	-2.34	0.04	
		Pie	Cumple	18.1	57.7	1.0	3.9	2.4	59.9	2.2	59.9	G, G, V, V[2]	N_t	-36.71	-0.01	0.44	0.95	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.02	0.02	-1.21	-2.57	0.03	
												G, V, N [NL][4]	M_y	68.96	0.13	-0.81	-1.76	0.23	
												G, Q [NL][5]	M_z,V_y	98.81	0.02	-1.21	-2.57	0.03	
												G, V, N [NL][6]	M_yV_y	90.75	0.02	-1.10	-2.34	0.04	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	41.0	2.3	1.6	0.4	42.2	N.P.[1]	42.2	G, G, V, V[2]	N_t	-26.78	0.03	0.11	-0.15	-0.02	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.44	-0.04	-0.49	0.46	0.03	
												G, V, N [NL][7]	M_y	51.91	-0.30	-0.33	0.32	0.24	
												G, Q [NL][5]	V_y	74.09	-0.04	-0.49	0.46	0.03	
		Pie	Cumple	12.9	42.0	2.2	2.1	0.4	43.5	N.P.[1]	43.5	G, G, V, V[7]	N_t	-26.64	-0.02	-0.26	-0.15	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.67	0.04	0.65	0.46	0.03	
												G, V, N [NL][4]	M_y	52.49	0.29	0.48	0.32	0.24	
												G, Q [NL][5]	M_z,V_y	74.31	0.04	0.65	0.46	0.03	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	31.9	1.0	3.9	1.4	34.2	N.P.[1]	34.2	G, G, V, V[2]	N_t	-15.17	0.01	-0.57	0.74	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.28	-0.01	1.21	-1.52	0.04	
												G, V, N [NL][7]	M_y	34.29	-0.13	0.87	-1.09	0.29	
												G, Q [NL][5]	M_z,V_y	48.79	-0.02	1.21	-1.52	0.04	
		Pie	Cumple	12.6	39.3	4.3	8.0	1.4	44.2	N.P.[1]	44.2	G, G, V, V[2]	N_t	-15.04	-0.05	1.22	0.74	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.50	0.07	-2.47	-1.52	0.04	
												G, V, N [NL][7]	M_y	34.51	0.57	-1.78	-1.09	0.29	
												G, Q [NL][5]	M_z,V_y	49.01	0.07	-2.47	-1.52	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1158.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.3	14.7	1.3	14.8	14.8	G, G, V, V, N[1]	N_t	-0.87	-0.01	0.23	-0.59	0.01	Cumple
											G, V, N [NL][2]	N_c	0.63	0.01	-0.23	0.19	-0.01	
											G, V, N [NL][3]	M_y	0.47	0.02	-0.38	0.31	-0.02	
											G, Q [NL][4]	M_z,NM_yM_z	0.03	0.01	-0.47	0.37	-0.01	
											G, G, V, V[5]	V_y	-0.83	-0.01	0.37	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.9	19.9	1.7	20.5	20.5	G, G, V, V, N[6]	N_t	-0.78	0.01	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.72	-0.02	0.34	0.26	-0.01	
											G, V, N [NL][8]	M_y	0.04	-0.06	0.24	0.05	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	-0.01	0.64	0.89	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.1	20.4	4.3	16.9	1.4	59.6	59.6	G, Q [NL][10]	N_t,NM_yM_z	-52.97	-0.03	0.42	-0.27	0.01	Cumple
											G, G, V, V[11]	N_c	18.86	0.01	0.08	-0.46	-0.01	
											G, V, N [NL][12]	M_y	-36.91	-0.28	0.21	0.01	0.17	
											G, V, N [NL][13]	M_z,V_y	-40.68	-0.02	0.54	-0.76	0.01	
		Pie	Cumple	46.0	20.4	2.3	9.8	1.2	54.1	54.1	G, Q [NL][10]	N_t,NM_yM_z	-52.85	0.01	-0.25	-0.27	0.01	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.93	0.00	0.31	0.64	-0.01	
											G, V, N [NL][8]	M_y	-36.90	0.15	-0.26	-0.38	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.5	9.3	3.3	13.4	1.3	32.7	32.7	G, Q [NL][10]	N_t	-25.82	-0.03	0.29	-0.20	0.03	Cumple
											G, V [NL][14]	N_c	10.68	0.02	-0.09	0.06	-0.01	
											G, V, N [NL][12]	M_y	-17.18	-0.22	0.13	0.05	0.18	
											G, V, N [NL][13]	M_z,V_y,NM_yM_z	-21.72	-0.03	0.43	-0.68	0.02	
		Pie	Cumple	22.4	9.4	3.5	9.2	1.1	29.7	29.7	G, Q [NL][10]	N_t,NM_yM_z	-25.71	0.03	-0.22	-0.20	0.03	Cumple
											G, V [NL][14]	N_c	10.75	-0.02	0.06	0.06	-0.01	
											G, V, N [NL][12]	M_y	-17.07	0.23	-0.23	-0.34	0.18	
											G, G, V, V[11]	M_z,V_y	8.73	-0.02	0.29	0.59	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.3	1.7	10.6	1.1	16.5	16.5	G, V, N [NL][15]	N_t	-6.91	0.00	0.33	-0.61	0.01	Cumple
											G, V [NL][16]	N_c	7.21	0.00	0.00	0.00	-0.01	
											G, V, N [NL][8]	M_y	-0.84	-0.11	0.08	0.05	0.16	
											G, V, N [NL][13]	M_z,V_y,NM_yM_z	-6.68	-0.01	0.34	-0.62	0.01	
		Pie	Cumple	5.9	6.3	4.3	9.9	1.1	13.2	13.2	G, V, N [NL][15]	N_t	-6.80	0.02	0.05	0.37	0.01	Cumple
											G, V [NL][16]	N_c	7.28	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][8]	M_y,NM_yM_z	-0.72	0.28	-0.26	-0.33	0.16	
											G, G, V, V[5]	M_z	-1.57	-0.02	0.32	0.57	-0.01	
											G, G, V, V[11]	V_y	-0.74	-0.02	0.32	0.57	-0.01	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[13] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[14] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[15] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[16] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

2.2.2.1.22. P78

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.3	14.7	0.9	14.8	14.8	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.63	0.01	0.23	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.47	0.02	0.38	-0.31	-0.02	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.01	0.47	-0.37	-0.01	
											G, V, N [NL](5)	V_y	-0.07	0.01	0.41	-0.46	0.00	
		Pie	Cumple	0.6	0.6	0.9	17.3	1.3	17.9	17.9	G, V, N [NL](6)	N_t	-0.64	0.01	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.72	-0.02	-0.34	-0.26	-0.01	
											G, V, N [NL](8)	M_y	0.04	-0.06	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.56	-0.01	-0.55	-0.70	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.1	20.6	4.1	14.6	1.1	59.4	59.4	G, Q [NL](10)	N_t,NM_yM_z	-52.96	-0.02	-0.42	0.27	0.01	Cumple
											G, G, V, V(11)	N_c	19.03	0.01	0.17	-0.20	0.00	
											G, V, N [NL](8)	M_y	-37.01	-0.27	-0.21	-0.01	0.17	
											G, V, N [NL](12)	M_z,V_y	-40.87	-0.01	-0.47	0.57	0.01	
		Pie	Cumple	46.0	20.6	2.3	8.1	0.7	54.0	54.0	G, Q [NL](10)	N_t,NM_yM_z	-52.85	0.00	0.25	0.27	0.01	Cumple
											G, G, V, V(11)	N_c	19.10	0.00	-0.01	0.05	0.00	
											G, V, N [NL](13)	M_y	-34.31	0.15	0.25	0.37	0.17	
											G, V, N [NL](14)	M_z	-40.80	0.00	0.26	0.34	0.00	
											G, V, N [NL](15)	V_y	-36.80	-0.07	0.26	0.38	-0.07	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.5	10.9	3.1	11.2	0.9	31.9	31.9	G, Q [NL](10)	N_t,NM_yM_z	-25.81	-0.02	-0.29	0.20	0.02	Cumple
											G, G, V, V(11)	N_c	12.55	0.01	0.13	-0.17	-0.01	
											G, V, N [NL](8)	M_y	-17.64	-0.20	-0.13	-0.05	0.17	
											G, V, N [NL](12)	M_z,V_y	-21.23	-0.02	-0.36	0.50	0.01	
		Pie	Cumple	22.4	11.0	3.3	7.4	0.6	29.4	29.4	G, Q [NL](10)	N_t,NM_yM_z	-25.70	0.02	0.22	0.20	0.02	Cumple
											G, G, V, V(11)	N_c	12.62	-0.01	0.00	0.07	-0.01	
											G, V, N [NL](8)	M_y	-17.52	0.21	0.24	0.34	0.17	
											G, V, N [NL](15)	M_z,V_y	-17.47	-0.08	0.24	0.34	-0.06	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.6	1.8	8.6	0.8	13.3	13.3	G, V, N [NL](16)	N_t	-5.47	-0.01	-0.27	0.44	0.02	Cumple
											G, G, V, V(11)	N_c	7.53	0.01	0.10	-0.16	-0.01	
											G, V, N [NL](8)	M_y	-0.82	-0.12	-0.08	-0.05	0.16	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.24	-0.01	-0.27	0.45	0.02	
		Pie	Cumple	4.7	6.6	4.3	8.3	0.6	13.1	13.1	G, V, N [NL](16)	N_t	-5.36	0.03	0.04	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	7.59	-0.02	-0.01	0.06	-0.01	
											G, V, N [NL](8)	M_y,NM_yM_z	-0.71	0.28	0.26	0.33	0.16	
											G, V, N [NL](5)	M_z	0.14	-0.09	0.26	0.33	-0.05	
											G, V, N [NL](15)	V_y	-0.70	-0.09	0.26	0.33	-0.05	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.23. P79

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.3	80.8	3.1	16.9	2.4	88.4	2.4	88.4	G, V [NL](2)	N_t	-33.28	0.01	1.78	-0.88	-0.01	Cumple
												G, Q [NL](10)	N_t,NM_yM_z	98.85	-0.01	-5.21	2.57	0.01	
												G, V, N [NL](4)	M_y	68.50	-0.41	-3.58	1.76	0.21	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.64	-0.02	-5.21	2.57	0.01	
		Pie	Cumple	16.5	57.7	0.9	3.9	2.4	59.7	2.4	59.7	G, V [NL](2)	N_t	-33.15	0.00	-0.42	-0.88	-0.01	Cumple
												G, Q [NL](10)	N_t,NM_yM_z	99.08	0.00	1.21	2.57	0.01	
												G, V [NL](9)	M_y	35.54	0.12	0.40	0.88	0.21	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.87	0.00	1.21	2.57	0.01	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.4	41.0	2.2	1.6	0.4	42.1	N.P.(1)	42.1	G, G, V, V(7)	N_t	-24.68	0.02	-0.13	0.12	-0.01	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	74.47	-0.03	0.49	-0.46	0.02	
												G, V, N [NL](4)	M_y	51.87	-0.29	0.33	-0.32	0.23	
												G, Q [NL](5)	V_y	74.11	-0.03	0.49	-0.46	0.02	
		Pie	Cumple	11.6	42.0	2.1	2.1	0.4	43.3	N.P.(1)	43.3	G, G, V, V(7)	N_t	-24.54	-0.01	0.19	0.12	-0.01	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	74.70	0.01	-0.65	-0.46	0.02	
												G, V, N [NL](4)	M_y	52.10	0.28	-0.48	-0.32	0.23	
												G, Q [NL](5)	M_z,V_y	74.34	0.01	-0.65	-0.46	0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.2	31.9	1.0	3.9	1.4	34.4	N.P.(1)	34.4	G, G, V, V(7)	N_t	-16.78	0.02	0.38	-0.42	-0.02	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	49.26	-0.03	-1.21	1.52	0.04	
												G, V, N [NL](4)	M_y	34.20	-0.13	-0.87	1.10	0.28	
												G, Q [NL](5)	M_z,V_y	48.78	-0.03	-1.21	1.52	0.04	
		Pie	Cumple	10.6	39.3	4.2	8.0	1.4	44.2	N.P.(1)	44.2	G, V [NL](2)	N_t	-14.82	-0.04	-0.84	-0.53	-0.03	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	49.49	0.07	2.47	1.52	0.04	
												G, V, N [NL](4)	M_y	34.42	0.55	1.79	1.10	0.28	
												G, Q [NL](5)	V_y	49.00	0.07	2.47	1.52	0.04	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1160.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.7	80.8	3.2	16.9	2.4	88.7	2.4	88.7	G, G, V, V[2]	N_t	-36.99	0.02	-1.95	0.95	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.86	-0.03	5.21	-2.57	0.02	
												G, V, N [NL][4]	M_y	68.72	-0.42	3.58	-1.75	0.22	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.66	-0.03	5.21	-2.57	0.02	
		Pie	Cumple	18.2	57.7	0.9	3.9	2.4	59.8	2.4	59.8	G, G, V, V[c]	N_t	-36.85	0.00	0.44	0.95	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.09	0.01	-1.21	-2.57	0.02	
												G, V, N [NL][6]	M_y	63.90	0.12	-0.75	-1.64	0.22	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.88	0.01	-1.21	-2.57	0.02	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.3	41.0	2.3	1.6	0.4	42.2	N.P.[1]	42.2	G, G, V, V[2]	N_t	-26.88	0.03	0.11	-0.15	-0.02	Cumple
												G, Q [NL][c]	N_t,M_z,NM_yM_z	74.49	-0.04	-0.49	0.46	0.03	
												G, V, N [NL][c]	M_y	51.89	-0.30	-0.33	0.32	0.24	
												G, Q [NL][5]	V_y	74.13	-0.04	-0.49	0.46	0.03	
		Pie	Cumple	12.9	42.0	2.2	2.1	0.4	43.4	N.P.[1]	43.4	G, G, V, V[2]	N_t	-26.74	-0.02	-0.26	-0.15	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.72	0.03	0.65	0.46	0.03	
												G, V, N [NL][4]	M_y	52.47	0.29	0.48	0.32	0.24	
												G, Q [NL][5]	M_z,V_y	74.36	0.03	0.65	0.46	0.03	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.5	31.9	1.0	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[2]	N_t	-15.23	0.01	-0.58	0.75	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.29	-0.02	1.21	-1.52	0.04	
												G, V, N [NL][7]	M_y	34.23	-0.13	0.87	-1.10	0.29	
												G, Q [NL][5]	M_z,V_y	48.80	-0.02	1.21	-1.52	0.04	
		Pie	Cumple	12.6	39.3	4.4	8.0	1.4	44.2	N.P.[1]	44.2	G, G, V, V[2]	N_t	-15.10	-0.05	1.23	0.75	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.51	0.07	-2.47	-1.52	0.04	
												G, V, N [NL][7]	M_y	34.45	0.57	-1.79	-1.10	0.29	
												G, Q [NL][5]	M_z,V_y	49.02	0.07	-2.47	-1.52	0.04	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[3] 1.35·PP+1.35·CM1+1.5·Q [NL]

[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[5] 1.35·PP+0.8·CM1+1.5·Q [NL]

[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

Listados

2.2.2.1.1161.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.2	14.8	1.3	15.1	15.1	G, G, V, V, N[1]	N_t	-0.86	0.00	0.23	-0.59	0.00	Cumple
											G, V, N [NL][2]	N_c	0.62	0.01	-0.24	0.19	-0.01	
											G, V, N [NL][3]	M_y	0.44	0.01	-0.39	0.31	-0.01	
											G, V, N [NL][4]	M_z,NM_yM_z	-0.13	0.01	-0.47	0.62	-0.02	
											G, G, V, V[5]	V_y	-0.82	0.00	0.37	-0.70	0.00	
		Pie	Cumple	0.7	0.6	0.8	19.9	1.7	20.4	20.4	G, G, V, V, N[6]	N_t	-0.77	0.00	0.15	0.53	0.00	Cumple
											G, V, N [NL][7]	N_c	0.71	-0.01	0.34	0.26	-0.01	
											G, V [NL][8]	M_y	-0.04	-0.05	0.10	-0.17	-0.02	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.51	0.00	0.64	0.89	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.4	4.2	17.0	1.4	59.4	59.4	G, Q [NL][10]	N_t,NM_yM_z	-52.66	-0.02	0.42	-0.27	0.01	Cumple
											G, G, V, V[11]	N_c	18.93	0.02	0.08	-0.46	-0.01	
											G, V, N [NL][12]	M_y	-36.59	-0.28	0.15	0.15	0.17	
											G, V, N [NL][13]	M_z,V_y	-40.43	-0.02	0.54	-0.76	0.01	
		Pie	Cumple	45.8	20.5	2.3	9.9	1.2	53.9	53.9	G, Q [NL][10]	N_t,NM_yM_z	-52.54	0.00	-0.26	-0.27	0.01	Cumple
											G, G, V, V[11]	N_c,V_y	19.00	0.00	0.32	0.64	-0.01	
											G, V, N [NL][14]	M_y	-25.39	0.15	-0.26	-0.46	0.17	
											G, V, N [NL][12]	M_z	-36.48	0.15	-0.32	-0.52	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.0	9.2	3.2	13.5	1.3	32.3	32.3	G, Q [NL][10]	N_t	-25.21	-0.03	0.29	-0.21	0.02	Cumple
											G, V [NL][15]	N_c	10.57	0.02	-0.09	0.06	-0.01	
											G, V, N [NL][4]	M_y	-16.28	-0.21	0.07	0.18	0.17	
											G, V, N [NL][13]	M_z,V_y,NM_yM_z	-21.23	-0.02	0.43	-0.68	0.02	
		Pie	Cumple	21.9	9.3	3.4	9.3	1.1	29.1	29.1	G, Q [NL][10]	N_t,NM_yM_z	-25.09	0.02	-0.22	-0.21	0.02	Cumple
											G, V [NL][15]	N_c	10.64	-0.01	0.06	0.06	-0.01	
											G, V, N [NL][4]	M_y	-16.17	0.22	-0.29	-0.47	0.17	
											G, G, V, V[11]	M_z,V_y	8.63	-0.01	0.30	0.60	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	6.2	1.8	10.7	1.1	16.0	16.0	G, V, N [NL][16]	N_t,NM_yM_z	-6.27	-0.01	0.33	-0.61	0.01	Cumple
											G, V, N [NL][17]	N_c	7.17	0.00	0.02	-0.02	0.00	
											G, V, N [NL][12]	M_y	0.69	-0.11	0.03	0.16	0.16	
											G, V, N [NL][13]	M_z,V_y	-6.01	-0.01	0.34	-0.62	0.01	
		Pie	Cumple	5.4	6.3	4.3	10.0	1.1	13.8	13.8	G, V, N [NL][16]	N_t	-6.16	0.02	0.04	0.36	0.01	Cumple
											G, V, N [NL][17]	N_c	7.23	-0.01	-0.03	-0.02	0.00	
											G, V, N [NL][12]	M_y	0.80	0.28	-0.32	-0.45	0.16	
											G, G, V, V[5]	M_z	-1.82	-0.02	0.32	0.57	-0.01	
											G, G, V, V[11]	V_y	-0.98	-0.02	0.32	0.57	-0.01	
											G, V, N [NL][18]	NM_yM_z	2.21	0.28	-0.31	-0.44	0.16	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[13] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[14] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[16] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[17] 0.8·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[18] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.26. P82

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.2	14.8	1.1	15.1	15.1	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.62	0.01	0.24	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.44	0.02	0.39	-0.31	-0.01	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.13	0.01	0.47	-0.62	-0.02	
		Pie	Cumple	0.6	0.6	0.8	17.3	1.3	17.9	17.9	G, V, N [NL](5)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](6)	N_c	0.71	-0.01	-0.34	-0.26	-0.01	
											G, V [NL](7)	M_y	-0.04	-0.05	-0.10	0.17	-0.02	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.57	0.00	-0.55	-0.70	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.6	4.1	14.7	1.1	59.2	59.2	G, Q [NL](9)	N_t,NM_yM_z	-52.64	-0.01	-0.42	0.27	0.00	Cumple
											G, G, V, V(10)	N_c	19.09	0.01	0.18	-0.20	0.00	
											G, V, N [NL](11)	M_y	-36.58	-0.27	-0.15	-0.15	0.16	
											G, V, N [NL](12)	M_z,V_y	-40.61	-0.01	-0.47	0.58	0.00	
		Pie	Cumple	45.8	20.7	2.2	9.9	1.0	54.0	54.0	G, Q [NL](9)	N_t,NM_yM_z	-52.52	-0.01	0.26	0.27	0.00	Cumple
											G, G, V, V(10)	N_c	19.15	0.00	-0.01	0.05	0.00	
											G, V [NL](13)	M_y	-18.68	0.15	0.23	0.43	0.16	
											G, V, N [NL](11)	M_z,V_y	-36.47	0.14	0.32	0.52	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	21.9	10.8	3.1	11.3	0.9	31.4	31.4	G, Q [NL](9)	N_t,NM_yM_z	-25.18	-0.02	-0.29	0.21	0.01	Cumple
											G, G, V, V(10)	N_c	12.43	0.01	0.13	-0.17	-0.01	
											G, V, N [NL](14)	M_y	-16.72	-0.20	-0.08	-0.18	0.16	
											G, V, N [NL](12)	M_z,V_y	-20.73	-0.01	-0.36	0.50	0.01	
		Pie	Cumple	21.8	10.9	3.2	9.2	0.9	28.9	28.9	G, Q [NL](9)	N_t,NM_yM_z	-25.07	0.01	0.22	0.21	0.01	Cumple
											G, G, V, V(10)	N_c	12.50	-0.01	0.00	0.07	-0.01	
											G, V, N [NL](11)	M_y,M_z,V_y	-16.60	0.21	0.29	0.47	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.2	6.3	1.8	8.6	0.8	12.8	12.8	G, V, N [NL](14)	N_t,NM_yM_z	-4.82	-0.01	-0.27	0.44	0.01	Cumple
											G, G, V, V(10)	N_c	7.26	0.01	0.10	-0.16	-0.01	
											G, V, N [NL](11)	M_y	0.73	-0.12	-0.03	-0.16	0.16	
											G, V, N [NL](12)	M_z,V_y	-4.55	-0.01	-0.28	0.45	0.02	
		Pie	Cumple	4.1	6.4	4.3	10.0	0.8	13.8	13.8	G, V, N [NL](14)	N_t	-4.71	0.02	0.04	-0.18	0.01	Cumple
											G, G, V, V(10)	N_c	7.33	-0.02	-0.02	0.06	-0.01	
											G, V, N [NL](11)	M_y,V_y	0.84	0.28	0.32	0.45	0.16	
											G, V, N [NL](4)	M_z	1.68	0.28	0.32	0.45	0.16	
											G, V, N [NL](15)	NM_yM_z	2.25	0.28	0.31	0.44	0.16	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·Q [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]
(15) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.27. P83

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.6	81.4	3.1	17.0	2.4	88.9	2.4	88.9	G, V [NL](2)	N_t	-33.70	0.01	1.81	-0.89	0.00	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	99.41	0.00	-5.26	2.59	-0.01	
												G, V [NL](4)	M_y	35.57	-0.41	-1.83	0.89	0.21	
												G, Q [NL](5)	M_z,V_y,M_yV_y	99.20	0.00	-5.26	2.60	-0.01	
		Pie	Cumple	16.7	58.1	0.9	4.0	2.4	60.3	2.4	60.3	G, V [NL](2)	N_t	-33.56	0.01	-0.43	-0.89	0.00	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	99.64	-0.02	1.23	2.59	-0.01	
												G, V [NL](4)	M_y	35.70	0.12	0.40	0.89	0.21	
												G, Q [NL](5)	M_z,V_y,M_yV_y	99.43	-0.01	1.23	2.60	-0.01	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.5	41.2	2.2	1.6	0.4	42.3	N.P.(1)	42.3	G, G, V, V(6)	N_t	-24.91	0.02	-0.13	0.13	-0.01	Cumple
												G, Q [NL](3)	N_c,M_z,NM_yM_z	74.68	-0.03	0.50	-0.46	0.01	
												G, V, N [NL](7)	M_y	51.94	-0.29	0.33	-0.33	0.22	
												G, Q [NL](5)	V_y	74.33	-0.03	0.50	-0.46	0.01	
		Pie	Cumple	11.7	42.1	2.1	2.1	0.4	43.3	N.P.(1)	43.3	G, G, V, V(6)	N_t	-24.77	-0.01	0.19	0.13	-0.01	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	74.91	0.00	-0.65	-0.46	0.01	
												G, V, N [NL](7)	M_y	48.13	0.27	-0.46	-0.31	0.22	
												G, Q [NL](5)	M_z,V_y	74.55	0.00	-0.65	-0.46	0.01	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.2	31.9	1.0	3.9	1.4	34.4	N.P.(1)	34.4	G, G, V, V(6)	N_t	-16.84	0.02	0.39	-0.43	-0.02	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	49.17	-0.03	-1.22	1.54	0.04	
												G, V, N [NL](9)	M_y	34.27	-0.13	-0.89	1.14	0.29	
												G, Q [NL](5)	M_z,V_y	48.68	-0.03	-1.22	1.54	0.04	
		Pie	Cumple	10.7	39.5	4.3	8.1	1.4	44.4	N.P.(1)	44.4	G, V [NL](2)	N_t	-14.88	-0.04	-0.86	-0.54	-0.02	Cumple
												G, Q [NL](3)	N_c,M_z,NM_yM_z	49.39	0.07	2.51	1.54	0.04	
												G, V, N [NL](7)	M_y	34.00	0.56	1.88	1.15	0.29	
												G, Q [NL](5)	V_y	48.90	0.07	2.51	1.54	0.04	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.28. P84

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	26.0	81.4	3.2	17.0	2.4	89.0	2.4	89.0	G, G, V, V[2]	N_t	-37.42	0.01	-1.97	0.97	0.00	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.42	-0.01	5.26	-2.59	0.00	
												G, V, N [NL][4]	M_y	69.05	-0.42	3.61	-1.77	0.21	
												G, Q [NL][5]	M_z,V_y,M_yV_y	99.21	-0.01	5.26	-2.60	0.00	
		Pie	Cumple	18.4	58.1	0.9	4.0	2.4	60.2	2.4	60.2	G, G, V, V[2]	N_t	-37.28	0.01	0.45	0.97	0.00	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.64	-0.01	-1.23	-2.59	0.00	
												G, V [NL][6]	M_y	35.70	0.12	-0.40	-0.89	0.21	
												G, Q [NL][5]	M_z,V_y,M_yV_y	99.44	-0.01	-1.23	-2.60	0.00	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.4	41.2	2.3	1.6	0.4	42.3	N.P.[1]	42.3	G, G, V, V[2]	N_t	-27.13	0.02	0.12	-0.15	-0.01	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.70	-0.03	-0.50	0.46	0.02	
												G, V, N [NL][7]	M_y	51.96	-0.30	-0.33	0.33	0.23	
												G, Q [NL][5]	V_v	74.34	-0.03	-0.50	0.46	0.02	
		Pie	Cumple	13.1	42.1	2.2	2.1	0.4	43.4	N.P.[1]	43.4	G, G, V, V[2]	N_t	-26.99	-0.01	-0.26	-0.15	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.93	0.02	0.65	0.46	0.02	
												G, V, N [NL][8]	M_y	52.54	0.28	0.49	0.33	0.23	
												G, Q [NL][5]	M_z,V_y	74.57	0.02	0.65	0.46	0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.5	31.9	1.0	3.9	1.4	34.4	N.P.[1]	34.4	G, G, V, V[2]	N_t	-15.31	0.02	-0.58	0.76	-0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.19	-0.03	1.22	-1.54	0.04	
												G, V, N [NL][7]	M_y	33.81	-0.14	0.90	-1.14	0.29	
												G, Q [NL][5]	M_z,V_y	48.70	-0.03	1.22	-1.54	0.04	
		Pie	Cumple	12.8	39.5	4.4	8.1	1.4	44.4	N.P.[1]	44.4	G, G, V, V[2]	N_t	-15.18	-0.04	1.25	0.76	-0.02	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.42	0.07	-2.51	-1.54	0.04	
												G, V, N [NL][7]	M_y	34.03	0.57	-1.87	-1.14	0.29	
												G, Q [NL][5]	V_v	48.93	0.07	-2.51	-1.54	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.29. P85

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.3	14.8	1.3	15.0	15.0	G, G, V, V, N[1]	N_t	-0.86	-0.01	0.23	-0.59	0.01	Cumple
											G, V, N [NL][2]	N_c	0.62	0.01	-0.24	0.19	-0.01	
											G, V, N [NL][3]	M_y	0.48	0.02	-0.38	0.30	-0.02	
											G, V, N [NL][4]	M_z,NM_yM_z	-0.10	0.01	-0.47	0.61	-0.03	
											G, G, V, V[5]	V_Y	-0.82	-0.01	0.37	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.9	19.9	1.7	20.4	20.4	G, G, V, V, N[6]	N_t	-0.77	0.01	0.15	0.52	0.01	Cumple
											G, V, N [NL][7]	N_c	0.72	-0.02	0.35	0.26	-0.01	
											G, V, N [NL][8]	M_y	0.05	-0.06	0.16	-0.12	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	0.00	0.64	0.89	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.7	21.1	3.9	16.8	1.4	60.0	60.0	G, Q [NL][10]	N_t,NM_yM_z	-53.58	0.02	0.42	-0.27	-0.02	Cumple
											G, G, V, V[11]	N_c	19.51	-0.01	0.08	-0.46	0.01	
											G, V, N [NL][14]	M_y	-25.26	-0.26	0.04	0.23	0.16	
											G, V, N [NL][13]	M_z,V_y	-41.15	0.01	0.54	-0.75	-0.01	
		Pie	Cumple	46.6	21.1	2.1	9.8	1.2	54.8	54.8	G, Q [NL][10]	N_t,NM_yM_z	-53.47	-0.02	-0.25	-0.27	-0.02	Cumple
											G, G, V, V[11]	N_c,M_z,V_Y	19.58	0.01	0.31	0.64	0.01	
											G, V [NL][14]	M_y	-19.41	0.14	-0.22	-0.42	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.1	9.7	3.2	13.4	1.3	33.1	33.1	G, Q [NL][10]	N_t	-26.57	-0.03	0.29	-0.20	0.02	Cumple
											G, V [NL][15]	N_c	11.13	0.02	-0.09	0.06	-0.01	
											G, V, N [NL][4]	M_y	-18.06	-0.21	0.07	0.19	0.17	
											G, V, N [NL][13]	M_z,V_y,NM_yM_z	-22.29	-0.02	0.43	-0.68	0.01	
		Pie	Cumple	23.0	9.8	3.4	9.2	1.1	30.1	30.1	G, Q [NL][10]	N_t,NM_yM_z	-26.45	0.02	-0.22	-0.20	0.02	Cumple
											G, V [NL][15]	N_c	11.20	-0.01	0.06	0.06	-0.01	
											G, V, N [NL][4]	M_y	-17.95	0.22	-0.28	-0.46	0.17	
											G, G, V, V[11]	M_z,V_y	9.18	-0.01	0.30	0.60	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.6	6.3	1.7	10.6	1.1	17.1	17.1	G, V, N [NL][16]	N_t	-7.54	-0.01	0.33	-0.61	0.01	Cumple
											G, V [NL][17]	N_c	7.27	0.00	-0.01	0.00	-0.01	
											G, V, N [NL][18]	M_y	-1.68	-0.11	0.03	0.17	0.16	
											G, V, N [NL][13]	M_z,V_y,NM_yM_z	-7.34	-0.01	0.34	-0.62	0.01	
		Pie	Cumple	6.5	6.4	4.3	9.9	1.1	15.3	15.3	G, V, N [NL][16]	N_t	-7.43	0.02	0.05	0.37	0.01	Cumple
											G, V [NL][17]	N_c	7.33	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][18]	M_y,NM_yM_z	-1.57	0.28	-0.31	-0.44	0.16	
											G, G, V, V[5]	M_z	-1.29	-0.02	0.32	0.57	-0.01	
											G, G, V, V[11]	V_Y	-0.46	-0.02	0.32	0.57	-0.01	

Notas:
[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[13] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[14] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[16] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[17] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[18] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.30. P86

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.3	14.8	1.1	15.0	15.0	G, V, N [NL](1)	N_t	-0.72	-0.01	0.12	-0.08	0.01	Cumple
											G, V, N [NL](2)	N_c	0.62	0.01	0.24	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.48	0.02	0.38	-0.30	-0.02	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.10	0.01	0.47	-0.61	-0.03	
		Pie	Cumple	0.6	0.6	0.9	17.4	1.3	17.9	17.9	G, V, N [NL](5)	N_t	-0.63	0.01	-0.01	-0.02	0.01	Cumple
											G, V, N [NL](6)	N_c	0.72	-0.02	-0.35	-0.26	-0.01	
											G, V, N [NL](7)	M_y	0.05	-0.06	-0.16	0.12	-0.03	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.55	0.00	-0.56	-0.70	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.7	21.3	3.8	14.5	1.1	60.2	60.2	G, Q [NL](9)	N_t,NM_yM_z	-53.60	0.03	-0.42	0.27	-0.03	Cumple
											G, G, V, V(10)	N_c	19.69	-0.01	0.18	-0.20	0.01	
											G, V, N [NL](11)	M_y	-25.27	-0.25	-0.04	-0.23	0.16	
											G, V, N [NL](12)	M_z,V_y	-41.36	0.02	-0.46	0.57	-0.02	
		Pie	Cumple	46.6	21.3	2.1	9.5	1.0	54.9	54.9	G, Q [NL](9)	N_t,NM_yM_z	-53.49	-0.03	0.25	0.27	-0.03	Cumple
											G, G, V, V(10)	N_c	19.76	0.01	-0.01	0.05	0.01	
											G, V [NL](13)	M_y	-19.42	0.14	0.22	0.42	0.16	
											G, V, N [NL](14)	M_z,V_y	-37.54	0.13	0.30	0.51	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.2	11.3	3.1	11.2	0.9	32.5	32.5	G, Q [NL](9)	N_t,NM_yM_z	-26.59	-0.02	-0.29	0.20	0.01	Cumple
											G, G, V, V(10)	N_c	13.01	0.01	0.13	-0.17	-0.01	
											G, V, N [NL](14)	M_y	-18.55	-0.20	-0.07	-0.19	0.16	
											G, V, N [NL](12)	M_z,V_y	-21.83	-0.02	-0.36	0.50	0.01	
		Pie	Cumple	23.1	11.4	3.2	8.9	0.9	29.9	29.9	G, Q [NL](9)	N_t,NM_yM_z	-26.47	0.01	0.22	0.20	0.01	Cumple
											G, G, V, V(10)	N_c	13.08	-0.01	0.00	0.07	-0.01	
											G, V, N [NL](14)	M_y,M_z,V_y	-18.43	0.21	0.28	0.46	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.3	6.8	1.7	8.5	0.8	13.9	13.9	G, V, N [NL](15)	N_t	-6.12	-0.01	-0.27	0.44	0.01	Cumple
											G, G, V, V(10)	N_c	7.82	0.01	0.10	-0.16	-0.01	
											G, V, N [NL](14)	M_y	-1.71	-0.11	-0.03	-0.17	0.16	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.93	-0.01	-0.27	0.44	0.01	
		Pie	Cumple	5.2	6.9	4.2	9.6	0.8	15.2	15.2	G, V, N [NL](15)	N_t	-6.01	0.02	0.04	-0.18	0.01	Cumple
											G, G, V, V(10)	N_c	7.88	-0.02	-0.02	0.06	-0.01	
											G, V, N [NL](14)	M_y,V_y,NM_yM_z	-1.60	0.28	0.31	0.44	0.16	
											G, V, N [NL](4)	M_z	-0.76	0.28	0.31	0.44	0.16	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)1 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·Q [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.31. P87

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B(LI)	Cabeza	Cumple	23.9	80.9	3.1	16.8	2.4	88.7	2.4	88.7	G, V [NL](2)	N_t	-34.12	-0.01	1.82	-0.90	0.01	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.10	0.04	-5.20	2.56	-0.03	
												G, V [NL](4)	M_y	34.65	-0.40	-1.74	0.84	0.21	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.89	0.04	-5.21	2.56	-0.03	
		Pie	Cumple	16.9	57.8	0.9	3.9	2.4	60.0	2.4	60.0	G, V [NL](2)	N_t	-33.99	0.01	-0.43	-0.90	0.01	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.32	-0.03	1.20	2.56	-0.03	
												G, V [NL](4)	M_y	34.78	0.12	0.36	0.84	0.21	
												G, Q [NL](5)	M_z,V_y,M_yV_y	99.11	-0.03	1.20	2.56	-0.03	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B(LI)	Cabeza	Cumple	11.7	41.2	2.2	1.6	0.4	42.3	N.P.(1)	42.3	G, G, V, V(6)	N_t	-25.33	0.02	-0.13	0.13	-0.01	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	74.88	-0.03	0.49	-0.46	0.01	
												G, V, N [NL](7)	M_y	51.83	-0.29	0.30	-0.32	0.22	
												G, Q [NL](5)	V_y	74.52	-0.03	0.49	-0.46	0.01	
		Pie	Cumple	11.9	42.2	2.1	2.1	0.4	43.5	N.P.(1)	43.5	G, G, V, V(6)	N_t	-25.20	0.00	0.19	0.13	-0.01	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	75.11	-0.01	-0.65	-0.46	0.01	
												G, V [NL](8)	M_y	26.86	0.27	-0.27	-0.16	0.22	
												G, Q [NL](5)	M_z,V_y	74.75	-0.01	-0.65	-0.46	0.01	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B(LI)	Cabeza	Cumple	9.4	32.2	1.0	3.9	1.4	34.7	N.P.(1)	34.7	G, G, V, V(6)	N_t	-17.24	0.02	0.39	-0.43	-0.02	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	49.82	-0.04	-1.21	1.51	0.04	
												G, V, N [NL](9)	M_y	34.93	-0.14	-0.88	1.10	0.29	
												G, Q [NL](5)	M_z,V_y	49.33	-0.04	-1.21	1.51	0.04	
		Pie	Cumple	10.9	39.4	4.3	7.9	1.4	44.2	N.P.(1)	44.2	G, V [NL](2)	N_t	-15.29	-0.04	-0.86	-0.54	-0.02	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	50.04	0.07	2.45	1.51	0.04	
												G, V, N [NL](7)	M_y	34.66	0.56	1.78	1.10	0.29	
												G, Q [NL](5)	V_y	49.55	0.07	2.45	1.51	0.04	

Notas:
(1) *No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.*
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.32. P88

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	26.3	80.9	3.1	16.8	2.4	88.6	2.4	88.6	G, G, V, V[2]	N_t	-37.84	0.00	-1.99	0.97	0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.10	0.03	5.21	-2.56	-0.02	
												G, V [NL][4]	M_y	34.65	-0.41	1.74	-0.84	0.21	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.89	0.03	5.21	-2.56	-0.02	
		Pie	Cumple	18.6	57.8	0.9	3.9	2.4	60.0	2.4	60.0	G, G, V, V[2]	N_t	-37.70	0.01	0.45	0.97	0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.32	-0.02	-1.20	-2.56	-0.02	
												G, V [NL][4]	M_y	34.79	0.12	-0.36	-0.84	0.21	
												G, Q [NL][5]	M_z,V_y,M_yV_y	99.12	-0.02	-1.20	-2.56	-0.02	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.6	41.2	2.3	1.6	0.4	42.3	N.P.[1]	42.3	G, G, V, V[2]	N_t	-27.55	0.02	0.12	-0.15	-0.01	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.88	-0.04	-0.49	0.46	0.02	
												G, V, N [NL][6]	M_y	51.83	-0.30	-0.30	0.32	0.23	
												G, Q [NL][5]	V_y	74.52	-0.04	-0.49	0.46	0.02	
		Pie	Cumple	13.3	42.2	2.1	2.1	0.4	43.5	N.P.[1]	43.5	G, G, V, V[2]	N_t	-27.41	-0.01	-0.27	-0.15	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	75.11	0.01	0.65	0.46	0.02	
												G, V, N [NL][7]	M_y	48.37	0.28	0.46	0.30	0.23	
												G, Q [NL][5]	M_z,V_y	74.75	0.00	0.65	0.46	0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.7	32.2	1.1	3.9	1.4	34.7	N.P.[1]	34.7	G, G, V, V[2]	N_t	-15.71	0.02	-0.59	0.76	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.81	-0.03	1.21	-1.51	0.04	
												G, V, N [NL][6]	M_y	34.43	-0.14	0.88	-1.10	0.30	
												G, Q [NL][5]	M_z,V_y	49.32	-0.03	1.21	-1.51	0.04	
		Pie	Cumple	12.9	39.4	4.4	7.9	1.4	44.2	N.P.[1]	44.2	G, G, V, V[2]	N_t	-15.57	-0.04	1.24	0.76	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	50.03	0.07	-2.45	-1.51	0.04	
												G, V, N [NL][6]	M_y	34.65	0.58	-1.78	-1.10	0.30	
												G, Q [NL][5]	V_y	49.54	0.07	-2.45	-1.51	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.33. P89

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.1	14.6	1.3	14.7	14.7	G, G, V, V, N[1]	N_t	-0.85	-0.01	0.24	-0.60	0.01	Cumple
											G, V, N [NL][2]	N_c	0.61	0.01	-0.24	0.20	0.00	
											G, V, N [NL][3]	M_y	-0.12	-0.01	-0.39	0.44	0.02	
											G, Q [NL][4]	M_z,NM_yM_z	0.03	0.00	-0.47	0.37	0.01	
											G, G, V, V[5]	V_Y	-0.81	0.00	0.38	-0.71	0.00	
		Pie	Cumple	0.7	0.6	0.7	19.9	1.7	20.5	20.5	G, G, V, V, N[6]	N_t	-0.76	0.00	0.15	0.52	0.00	Cumple
											G, V, N [NL][7]	N_c	0.71	0.00	0.35	0.26	0.00	
											G, V, N [NL][8]	M_y	-0.05	-0.05	0.05	-0.20	-0.02	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	0.02	0.64	0.89	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	21.5	4.0	16.9	1.4	59.3	59.3	G, Q [NL][10]	N_t,NM_yM_z	-52.75	0.02	0.42	-0.27	-0.02	Cumple
											G, G, V, V[11]	N_c	19.94	-0.01	0.07	-0.45	0.01	
											G, V, N [NL][8]	M_y	-23.87	-0.26	0.04	0.23	0.16	
											G, V, N [NL][12]	M_z,V_y	-40.50	0.01	0.54	-0.75	-0.01	
		Pie	Cumple	45.9	21.6	2.2	9.9	1.2	54.2	54.2	G, Q [NL][10]	N_t,NM_yM_z	-52.64	-0.03	-0.25	-0.27	-0.02	Cumple
											G, G, V, V[11]	N_c,M_z,V_Y	20.00	0.01	0.32	0.65	0.01	
											G, V [NL][13]	M_y	-18.13	0.14	-0.22	-0.42	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	9.8	3.2	13.4	1.3	32.6	32.6	G, Q [NL][10]	N_t	-25.72	-0.02	0.29	-0.20	0.01	Cumple
											G, V [NL][14]	N_c	11.25	0.01	-0.09	0.06	-0.01	
											G, V, N [NL][15]	M_y	-16.64	-0.21	0.06	0.19	0.17	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.64	-0.02	0.43	-0.68	0.01	
		Pie	Cumple	22.3	9.9	3.3	9.3	1.1	29.3	29.3	G, Q [NL][10]	N_t,NM_yM_z	-25.61	0.01	-0.22	-0.20	0.01	Cumple
											G, V [NL][14]	N_c	11.32	-0.01	0.07	0.06	-0.01	
											G, V, N [NL][15]	M_y	-16.53	0.22	-0.28	-0.46	0.17	
											G, G, V, V[11]	M_z,V_Y	9.30	-0.01	0.30	0.60	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.3	1.8	10.6	1.1	16.5	16.5	G, V, N [NL][16]	N_t	-6.91	-0.01	0.33	-0.61	0.01	Cumple
											G, V [NL][17]	N_c	7.28	0.00	-0.01	0.00	-0.01	
											G, V, N [NL][18]	M_y	-0.40	-0.12	0.03	0.17	0.16	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-6.69	-0.01	0.34	-0.62	0.01	
		Pie	Cumple	5.9	6.4	4.3	10.0	1.1	14.2	14.2	G, V, N [NL][16]	N_t	-6.80	0.02	0.05	0.37	0.01	Cumple
											G, V [NL][17]	N_c	7.35	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][18]	M_y,NM_yM_z	-0.29	0.28	-0.31	-0.44	0.16	
											G, G, V, V[5]	M_z	-1.43	-0.02	0.32	0.57	-0.01	
											G, G, V, V[11]	V_Y	-0.60	-0.02	0.32	0.57	-0.01	

Notas:
[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(R)1 [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[14] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[15] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[16] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[17] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[18] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1166.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.2	14.6	1.1	14.7	14.7	G, V, N [NL](1)	N_t	-0.72	-0.01	0.11	-0.08	0.01	Cumple
											G, V, N [NL](4)	N_c	0.61	0.01	0.24	-0.20	0.00	
											G, V [NL](3)	M_y	0.42	0.01	0.24	-0.20	-0.01	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.00	0.47	-0.37	0.01	
											G, V, N [NL](5)	V_y	-0.09	0.00	0.46	-0.61	-0.02	
		Pie	Cumple	0.5	0.6	0.7	17.3	1.3	18.0	18.0	G, V, N [NL](6)	N_t	-0.63	0.01	-0.01	-0.01	0.00	Cumple
											G, V, N [NL](7)	N_c	0.71	0.00	-0.35	-0.26	0.00	
											G, V, N [NL](8)	M_y	-0.05	-0.05	-0.05	0.20	-0.02	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.55	0.02	-0.55	-0.70	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	21.7	3.9	14.5	1.1	59.5	59.5	G, Q [NL](10)	N_t,NM_yM_z	-52.75	0.03	-0.42	0.27	-0.03	Cumple
											G, G, V, V(11)	N_c	20.11	-0.01	0.18	-0.21	0.01	
											G, V [NL](12)	M_y	-18.20	-0.26	0.01	-0.26	0.16	
											G, V, N [NL](13)	M_z,V_y	-40.70	0.02	-0.47	0.57	-0.02	
		Pie	Cumple	45.8	21.8	2.2	9.6	1.0	54.3	54.3	G, Q [NL](10)	N_t,NM_yM_z	-52.63	-0.04	0.25	0.27	-0.03	Cumple
											G, G, V, V(11)	N_c	20.18	0.01	-0.02	0.05	0.01	
											G, V [NL](12)	M_y	-18.14	0.14	0.22	0.42	0.16	
											G, V, N [NL](14)	M_z,V_y	-35.95	0.13	0.31	0.51	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	11.4	3.1	11.2	0.9	31.8	31.8	G, Q [NL](10)	N_t,NM_yM_z	-25.72	-0.02	-0.29	0.20	0.01	Cumple
											G, G, V, V(11)	N_c	13.12	0.01	0.13	-0.18	-0.01	
											G, V, N [NL](14)	M_y	-17.11	-0.20	-0.07	-0.19	0.16	
											G, V, N [NL](13)	M_z,V_y	-21.15	-0.01	-0.36	0.50	0.01	
		Pie	Cumple	22.3	11.5	3.2	8.9	0.9	29.1	29.1	G, Q [NL](10)	N_t,NM_yM_z	-25.61	0.00	0.22	0.20	0.01	Cumple
											G, G, V, V(11)	N_c	13.19	0.00	0.00	0.07	-0.01	
											G, V, N [NL](15)	M_y	-15.49	0.21	0.28	0.46	0.16	
											G, V, N [NL](14)	M_z,V_y	-16.99	0.21	0.28	0.46	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.7	1.7	8.5	0.8	13.3	13.3	G, V, N [NL](16)	N_t	-5.48	-0.01	-0.27	0.44	0.01	Cumple
											G, G, V, V(11)	N_c	7.66	0.01	0.10	-0.16	-0.01	
											G, V, N [NL](14)	M_y	-0.40	-0.11	-0.03	-0.17	0.16	
											G, V, N [NL](13)	M_z,V_y,NM_yM_z	-5.26	-0.01	-0.27	0.44	0.01	
		Pie	Cumple	4.7	6.7	4.2	9.6	0.8	14.1	14.1	G, V, N [NL](16)	N_t	-5.37	0.02	0.04	-0.18	0.01	Cumple
											G, G, V, V(11)	N_c	7.73	-0.02	-0.02	0.06	-0.01	
											G, V, N [NL](14)	M_y,V_y,NM_yM_z	-0.29	0.28	0.31	0.44	0.16	
											G, V, N [NL](5)	M_z	0.54	0.28	0.31	0.44	0.16	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 0.8·PP+0.8·CM1+1.5·VH3 [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.35. P91

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	24.6	80.7	3.0	16.8	2.4	88.8	2.2	88.8	G, V [NL][2]	N_t	-35.12	-0.02	1.88	-0.93	0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.66	0.07	-5.20	2.56	-0.05	
												G, V [NL][4]	M_y	33.61	-0.40	-1.70	0.82	0.20	
												G, Q [NL][5]	M_z,V_y	98.46	0.07	-5.20	2.56	-0.05	
												G, V, N [NL][6]	M_yV_y	92.52	0.04	-4.86	2.40	-0.03	
		Pie	Cumple	17.4	57.6	0.9	3.9	2.4	60.1	2.2	60.1	G, V [NL][4]	N_t	-34.98	0.02	-0.44	-0.93	0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.89	-0.06	1.21	2.56	-0.05	
												G, V [NL][4]	M_y	33.75	0.11	0.36	0.82	0.20	
												G, Q [NL][5]	M_z,V_y	98.68	-0.06	1.21	2.56	-0.05	
												G, V, N [NL][6]	M_yV_y	92.75	-0.04	1.13	2.40	-0.03	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.0	40.9	2.2	1.6	0.4	42.1	N.P.[1]	42.1	G, G, V, V[7]	N_t	-26.01	0.02	-0.13	0.13	-0.01	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.39	-0.03	0.49	-0.46	0.01	
												G, V, N [NL][8]	M_y	51.01	-0.29	0.31	-0.32	0.22	
												G, Q [NL][5]	V_y	74.03	-0.03	0.49	-0.46	0.01	
		Pie	Cumple	12.2	42.0	2.1	2.1	0.4	43.3	N.P.[1]	43.3	G, G, V, V[7]	N_t	-25.88	0.00	0.20	0.13	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.61	-0.02	-0.65	-0.46	0.01	
												G, V [NL][9]	M_y	25.87	0.27	-0.26	-0.16	0.22	
												G, Q [NL][5]	M_z,V_y	74.26	-0.02	-0.65	-0.46	0.01	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.7	31.9	1.1	3.9	1.4	34.5	N.P.[1]	34.5	G, G, V, V[7]	N_t	-17.62	0.02	0.40	-0.45	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.30	-0.04	-1.20	1.51	0.05	
												G, V, N [NL][8]	M_y	33.88	-0.14	-0.86	1.09	0.29	
												G, Q [NL][5]	M_z,V_y	48.81	-0.04	-1.20	1.51	0.05	
		Pie	Cumple	11.2	39.2	4.3	8.0	1.4	44.1	N.P.[1]	44.1	G, V [NL][2]	N_t	-15.66	-0.04	-0.89	-0.56	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.52	0.07	2.46	1.51	0.05	
												G, V, N [NL][10]	M_y	33.61	0.57	1.78	1.09	0.29	
												G, Q [NL][5]	V_y	49.03	0.07	2.46	1.51	0.05	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.36. P92

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	27.0	80.7	3.1	16.8	2.4	88.6	2.1	88.6	G, G, V, V[2]	N_t	-38.81	-0.02	-2.04	1.00	0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.67	0.06	5.20	-2.56	-0.04	
												G, V [NL][4]	M_y	33.61	-0.40	1.70	-0.82	0.21	
												G, Q [NL][5]	M_z,V_y	98.46	0.06	5.20	-2.56	-0.04	
												G, V, N [NL][6]	M_yV_y	88.95	0.01	4.66	-2.30	-0.01	
		Pie	Cumple	19.1	57.6	0.9	3.9	2.4	60.0	2.1	60.0	G, G, V, V[2]	N_t	-38.68	0.02	0.46	1.00	0.02	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.90	-0.05	-1.21	-2.56	-0.04	
												G, V [NL][4]	M_y	33.75	0.11	-0.36	-0.82	0.21	
												G, Q [NL][5]	M_z,V_y	98.69	-0.05	-1.21	-2.56	-0.04	
												G, V, N [NL][6]	M_yV_y	89.18	-0.03	-1.08	-2.30	-0.01	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.9	40.9	2.3	1.6	0.4	42.1	N.P.[1]	42.1	G, G, V, V[2]	N_t	-28.22	0.03	0.12	-0.16	-0.01	Cumple
												G, Q [NL][1,5]	N_t,M_z,NM_yM_z	74.39	-0.04	-0.49	0.46	0.01	
												G, V, N [NL][7]	M_y	51.01	-0.31	-0.31	0.32	0.23	
												G, Q [NL][5]	V_y	74.04	-0.04	-0.49	0.46	0.01	
		Pie	Cumple	13.6	42.0	2.1	2.1	0.4	43.2	N.P.[1]	43.2	G, G, V, V[2]	N_t	-28.08	0.00	-0.28	-0.16	-0.01	Cumple
												G, Q [NL][1,5]	N_t,NM_yM_z	74.62	-0.01	0.65	0.46	0.01	
												G, V [NL][4]	M_y	26.23	0.28	0.26	0.16	0.23	
												G, Q [NL][5]	M_z,V_y	74.27	-0.01	0.65	0.46	0.01	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.0	31.9	1.1	3.9	1.4	34.4	N.P.[1]	34.4	G, G, V, V[2]	N_t	-16.07	0.02	-0.60	0.77	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.31	-0.04	1.20	-1.51	0.04	
												G, V, N [NL][8]	M_y	33.39	-0.15	0.86	-1.09	0.30	
												G, Q [NL][5]	M_z,V_y	48.82	-0.04	1.20	-1.51	0.04	
		Pie	Cumple	13.2	39.2	4.5	8.0	1.4	44.1	N.P.[1]	44.1	G, G, V, V[2]	N_t	-15.94	-0.04	1.27	0.77	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.53	0.07	-2.46	-1.51	0.04	
												G, V, N [NL][8]	M_y	33.61	0.59	-1.78	-1.09	0.30	
												G, Q [NL][5]	V_y	49.04	0.07	-2.46	-1.51	0.04	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1168.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.2	14.5	1.3	14.6	14.6	G, G, V, V, N[1]	N_t	-0.82	-0.01	0.25	-0.61	0.01	Cumple
											G, V, N [NL][2]	N_c	0.59	0.00	-0.25	0.20	0.00	
											G, V, N [NL][3]	M_y	-0.06	-0.01	-0.40	0.45	0.03	
											G, Q [NL][4]	M_z,NM_yM_z	0.04	-0.01	-0.46	0.36	0.02	
											G, G, V, V[5]	V_y	-0.79	0.00	0.38	-0.71	0.00	
		Pie	Cumple	0.6	0.6	0.8	19.8	1.7	20.6	20.6	G, G, V, V, N[6]	N_t	-0.74	0.00	0.14	0.51	0.00	Cumple
											G, V, N [NL][7]	N_c	0.69	0.01	0.36	0.27	0.00	
											G, V, N [NL][8]	M_y	0.05	0.05	0.24	0.05	0.03	
											G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.49	0.02	0.63	0.89	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.6	22.6	3.9	16.8	1.4	59.2	59.2	G, Q [NL][9]	N_t,NM_yM_z	-52.33	0.04	0.41	-0.27	-0.04	Cumple
											G, G, V, V[10]	N_c	20.97	-0.01	0.06	-0.45	0.01	
											G, V [NL][11]	M_y	-16.75	-0.26	-0.02	0.26	0.16	
											G, V, N [NL][12]	M_z	-40.16	0.03	0.54	-0.75	-0.02	
											G, G, V, V, N[13]	V_y	-37.86	0.01	0.53	-0.75	-0.01	
		Pie	Cumple	45.5	22.7	2.1	10.1	1.2	54.0	54.0	G, Q [NL][9]	N_t,NM_yM_z	-52.21	-0.05	-0.25	-0.27	-0.04	Cumple
											G, G, V, V[10]	N_c,M_z,V_y	21.04	0.01	0.32	0.65	0.01	
											G, V [NL][11]	M_y	-16.69	0.14	-0.21	-0.41	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.2	10.3	3.2	13.4	1.3	32.3	32.3	G, Q [NL][9]	N_t	-25.50	-0.02	0.29	-0.20	0.01	Cumple
											G, V [NL][14]	N_c	11.79	0.01	-0.10	0.07	-0.01	
											G, V, N [NL][15]	M_y	-15.87	-0.21	0.06	0.19	0.17	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.46	-0.02	0.43	-0.68	0.01	
		Pie	Cumple	22.1	10.3	3.3	9.4	1.1	28.9	28.9	G, Q [NL][9]	N_t,NM_yM_z	-25.39	0.01	-0.22	-0.20	0.01	Cumple
											G, V [NL][14]	N_c	11.86	-0.01	0.07	0.07	-0.01	
											G, V, N [NL][16]	M_y	-14.25	0.21	-0.27	-0.45	0.17	
											G, G, V, V[10]	M_z,V_y	9.84	-0.01	0.30	0.60	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.5	1.7	10.5	1.1	16.5	16.5	G, V, N [NL][17]	N_t	-6.87	-0.01	0.33	-0.61	0.01	Cumple
											G, V [NL][18]	N_c	7.45	0.01	-0.01	0.00	-0.01	
											G, V, N [NL][19]	M_y	-0.20	-0.11	0.02	0.17	0.16	
											G, V, N [NL][12]	M_z,NM_yM_z	-6.65	-0.01	0.34	-0.61	0.01	
											G, G, V, V, N[13]	V_y	-4.55	-0.01	0.34	-0.61	0.02	
		Pie	Cumple	5.9	6.5	4.3	10.2	1.1	13.8	13.8	G, V, N [NL][17]	N_t	-6.76	0.01	0.05	0.37	0.01	Cumple
											G, V [NL][18]	N_c	7.51	-0.01	0.00	0.00	-0.01	
											G, V, N [NL][19]	M_y,NM_yM_z	-0.09	0.28	-0.30	-0.44	0.16	
											G, G, V, V[5]	M_z	-1.31	-0.02	0.33	0.57	-0.01	
											G, G, V, V[10]	V_y	-0.47	-0.02	0.33	0.57	-0.01	

Notas:

(1) 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·Q [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(14) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(15) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(17) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
(18) 0.8·PP+1.35·CM1+1.5·VH5 [NL]
(19) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1169.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.2	14.5	1.1	14.6	14.6	G, V, N [NL](1)	N_t	-0.71	-0.01	0.20	0.12	0.01	Cumple
											G, V, N [NL](2)	N_c	0.59	0.00	0.25	-0.20	0.00	
											G, V, N [NL](3)	M_y	-0.07	-0.01	0.41	-0.46	0.03	
											G, Q [NL](4)	M_z,NM_yM_z	0.04	-0.01	0.46	-0.36	0.02	
											G, V, N [NL](5)	V_y	-0.07	0.00	0.45	-0.60	-0.02	
		Pie	Cumple	0.5	0.6	0.8	17.2	1.3	18.0	18.0	G, V, N [NL](6)	N_t	-0.62	0.02	-0.44	-0.61	0.01	Cumple
											G, V, N [NL](7)	N_c	0.69	0.01	-0.36	-0.27	0.00	
											G, V, N [NL](8)	M_y	0.05	0.05	-0.24	-0.04	0.03	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.55	0.02	-0.55	-0.70	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.6	22.8	3.8	14.5	1.1	59.3	59.3	G, Q [NL](9)	N_t,NM_yM_z	-52.32	0.05	-0.41	0.27	-0.04	Cumple
											G, G, V, V(10)	N_c	21.13	-0.01	0.19	-0.21	0.01	
											G, V [NL](11)	M_y	-16.75	-0.25	0.02	-0.26	0.16	
											G, V, N [NL](12)	M_z,V_y	-40.35	0.04	-0.46	0.57	-0.03	
		Pie	Cumple	45.5	22.9	2.1	9.4	0.9	54.1	54.1	G, Q [NL](9)	N_t,NM_yM_z	-52.21	-0.05	0.25	0.27	-0.04	Cumple
											G, G, V, V(10)	N_c	21.20	0.02	-0.02	0.04	0.01	
											G, V [NL](11)	M_y	-16.69	0.14	0.21	0.41	0.16	
											G, V, N [NL](13)	M_z,V_y	-34.50	0.12	0.30	0.51	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.2	11.9	3.1	11.1	0.9	31.5	31.5	G, Q [NL](9)	N_t,NM_yM_z	-25.49	-0.02	-0.29	0.20	0.01	Cumple
											G, G, V, V(10)	N_c	13.65	0.01	0.14	-0.18	-0.01	
											G, V, N [NL](13)	M_y	-16.34	-0.20	-0.06	-0.19	0.16	
											G, V, N [NL](12)	M_z,V_y	-20.96	-0.01	-0.36	0.50	0.00	
		Pie	Cumple	22.1	12.0	3.2	8.7	0.9	28.9	28.9	G, Q [NL](9)	N_t,NM_yM_z	-25.38	0.00	0.21	0.20	0.01	Cumple
											G, G, V, V(10)	N_c	13.72	0.00	-0.01	0.06	-0.01	
											G, V, N [NL](14)	M_y	-10.09	0.21	0.23	0.41	0.16	
											G, V, N [NL](13)	M_z,V_y	-16.22	0.21	0.28	0.46	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.7	6.8	1.7	8.5	0.8	13.2	13.2	G, V, N [NL](15)	N_t	-5.43	-0.01	-0.27	0.44	0.01	Cumple
											G, G, V, V(10)	N_c	7.78	0.01	0.10	-0.17	-0.01	
											G, V, N [NL](13)	M_y	-0.20	-0.11	-0.02	-0.17	0.16	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.20	-0.01	-0.27	0.44	0.01	
		Pie	Cumple	4.6	6.8	4.2	9.4	0.8	13.7	13.7	G, V, N [NL](15)	N_t	-5.32	0.02	0.04	-0.18	0.01	Cumple
											G, G, V, V(10)	N_c	7.85	-0.02	-0.02	0.06	-0.01	
											G, V, N [NL](13)	M_y,V_y,NM_yM_z	-0.09	0.27	0.30	0.44	0.16	
											G, V, N [NL](5)	M_z	0.74	0.27	0.30	0.44	0.16	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·Q [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(14) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.39. P95

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.8	80.1	2.9	16.7	2.4	88.3	2.3	88.3	G, V [NL][2]	N_t	-36.82	-0.03	1.97	-0.97	0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	97.96	0.12	-5.16	2.54	-0.08	
												G, V [NL][4]	M_y	31.24	-0.39	-1.56	0.76	0.20	
												G, Q [NL][5]	M_z,V_y	97.75	0.12	-5.16	2.54	-0.08	
												G, V, N [NL][6]	M_yV_y	93.96	0.08	-4.95	2.44	-0.06	
		Pie	Cumple	18.3	57.2	1.0	3.9	2.4	59.9	2.3	59.9	G, V [NL][4]	N_t	-36.68	0.03	-0.46	-0.97	0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.18	-0.09	1.20	2.54	-0.08	
												G, V, N [NL][7]	M_y	68.38	-0.13	0.80	1.73	-0.16	
												G, Q [NL][5]	M_z,V_y	97.97	-0.09	1.20	2.54	-0.08	
												G, V, N [NL][6]	M_yV_y	94.19	-0.07	1.15	2.44	-0.06	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.6	40.7	2.3	1.6	0.4	41.9	N.P.[1]	41.9	G, G, V, V[8]	N_t	-27.24	0.02	-0.14	0.14	-0.01	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	73.87	-0.04	0.49	-0.45	0.01	
												G, V, N [NL][9]	M_y	49.28	-0.30	0.30	-0.30	0.23	
												G, Q [NL][5]	V_y	73.51	-0.04	0.49	-0.45	0.01	
		Pie	Cumple	12.8	41.7	2.1	2.1	0.4	43.0	N.P.[1]	43.0	G, G, V, V[8]	N_t	-27.11	0.01	0.21	0.14	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.10	-0.03	-0.64	-0.45	0.01	
												G, V [NL][10]	M_y	24.18	0.27	-0.24	-0.15	0.22	
												G, Q [NL][5]	M_z,V_y	73.74	-0.03	-0.64	-0.45	0.01	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.1	31.7	1.1	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[8]	N_t	-18.36	0.02	0.43	-0.48	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	48.98	-0.05	-1.19	1.50	0.05	
												G, V, N [NL][9]	M_y	32.83	-0.15	-0.83	1.05	0.30	
												G, Q [NL][5]	M_z,V_y	48.49	-0.05	-1.20	1.50	0.05	
		Pie	Cumple	11.8	39.0	4.4	7.9	1.4	43.7	N.P.[1]	43.7	G, V [NL][2]	N_t	-16.41	-0.04	-0.94	-0.58	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.20	0.07	2.44	1.50	0.05	
												G, V, N [NL][11]	M_y	32.56	0.58	1.72	1.05	0.30	
												G, Q [NL][5]	V_y	48.71	0.07	2.44	1.50	0.05	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[8] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.40. P96

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	28.2	80.1	3.0	16.7	2.4	88.5	2.2	88.5	G, G, V, V[2]	N_t	-40.52	-0.03	-2.14	1.05	0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	97.97	0.10	5.16	-2.54	-0.08	
												G, V [NL][4]	M_y	31.24	-0.39	1.56	-0.76	0.20	
												G, Q [NL][5]	M_z,V_y	97.76	0.10	5.16	-2.54	-0.08	
												G, V, N [NL][6]	M_yV_y	91.79	0.04	4.82	-2.38	-0.04	
		Pie	Cumple	20.0	57.2	0.9	3.9	2.4	59.9	2.2	59.9	G, G, V, V[2]	N_t	-40.39	0.03	0.48	1.05	0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.20	-0.09	-1.20	-2.54	-0.08	
												G, V, N [NL][7]	M_y	68.38	-0.12	-0.80	-1.73	-0.16	
												G, Q [NL][5]	M_z,V_y	97.99	-0.08	-1.20	-2.54	-0.08	
												G, V, N [NL][6]	M_yV_y	92.02	-0.05	-1.12	-2.38	-0.04	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	13.5	40.7	2.4	1.6	0.4	41.9	N.P.[1]	41.9	G, G, V, V[2]	N_t	-29.46	0.03	0.13	-0.17	-0.01	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	73.89	-0.05	-0.49	0.45	0.01	
												G, V, N [NL][8]	M_y	49.27	-0.31	-0.30	0.30	0.23	
												G, Q [NL][3]	V_y	73.53	-0.05	-0.49	0.45	0.01	
		Pie	Cumple	14.2	41.7	2.1	2.1	0.4	43.0	N.P.[1]	43.0	G, G, V, V[2]	N_t	-29.33	0.00	-0.29	-0.17	-0.01	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.12	-0.02	0.64	0.45	0.01	
												G, V [NL][4]	M_y	24.53	0.28	0.24	0.15	0.23	
												G, Q [NL][5]	M_z,V_y	73.76	-0.02	0.64	0.45	0.01	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.4	31.7	1.2	3.9	1.4	34.2	N.P.[1]	34.2	G, G, V, V[2]	N_t	-16.82	0.02	-0.62	0.80	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.00	-0.04	1.19	-1.50	0.05	
												G, V, N [NL][9]	M_y	32.33	-0.15	0.83	-1.05	0.31	
												G, Q [NL][5]	M_z,V_y	48.51	-0.04	1.20	-1.50	0.05	
		Pie	Cumple	13.8	39.0	4.5	7.9	1.4	43.8	N.P.[1]	43.8	G, G, V, V[2]	N_t	-16.69	-0.04	1.32	0.80	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.23	0.07	-2.44	-1.50	0.05	
												G, V, N [NL][9]	M_y	32.55	0.59	-1.72	-1.05	0.31	
												G, Q [NL][5]	V_y	48.73	0.07	-2.44	-1.50	0.05	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

Listados

2.2.2.1.1171.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.3	14.2	1.3	14.4	14.4	G, G, V, V, N[1]	N_t	-0.78	-0.01	0.27	-0.62	0.01	Cumple
											G, V, N [NL][2]	N_c	0.56	0.00	-0.27	0.22	0.01	
											G, V, N [NL][3]	M_y	-0.05	-0.02	-0.40	0.45	0.03	
											G, Q [NL][4]	M_z,NM_yM_z	0.06	-0.02	-0.46	0.36	0.02	
											G, G, V, V[5]	V_y	-0.76	0.01	0.40	-0.73	-0.01	
		Pie	Cumple	0.6	0.6	0.9	19.5	1.6	20.5	20.5	G, G, V, V, N[6]	N_t	-0.70	-0.01	0.12	0.50	0.00	Cumple
											G, V, N [NL][7]	N_c	0.66	0.03	0.37	0.28	0.01	
											G, V, N [NL][8]	M_y	0.07	0.06	0.23	0.04	0.03	
											G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.48	0.03	0.63	0.88	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.0	24.6	3.8	17.0	1.4	58.4	58.4	G, V, N [NL][9]	N_t	-51.66	0.01	0.41	-0.26	-0.01	Cumple
											G, G, V, V[10]	N_c	22.78	-0.01	0.05	-0.44	0.01	
											G, V, N [NL][11]	M_y	-19.47	-0.25	0.01	0.25	0.16	
											G, G, V, V, N[12]	M_z,V_y	-38.68	0.02	0.54	-0.76	-0.02	
											G, Q [NL][13]	NM_yM_z	-51.34	0.06	0.41	-0.26	-0.05	
		Pie	Cumple	44.9	24.7	2.1	10.3	1.2	53.2	53.2	G, V, N [NL][9]	N_t	-51.55	-0.03	-0.25	-0.26	-0.01	Cumple
											G, G, V, V[10]	N_c,M_z,V_y	22.85	0.02	0.33	0.66	0.01	
											G, V [NL][14]	M_y	-13.80	0.14	-0.20	-0.40	0.16	
											G, Q [NL][13]	NM_yM_z	-51.23	-0.06	-0.25	-0.26	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	21.9	11.1	3.2	13.5	1.3	31.9	31.9	G, V, N [NL][9]	N_t	-25.13	-0.04	0.29	-0.20	0.03	Cumple
											G, V [NL][15]	N_c	12.74	0.01	-0.11	0.07	-0.01	
											G, V, N [NL][16]	M_y	-14.15	-0.21	0.04	0.21	0.17	
											G, G, V, V, N[12]	M_z,V_y	-19.47	-0.03	0.43	-0.68	0.02	
											G, V, N [NL][17]	NM_yM_z	-21.10	-0.02	0.42	-0.67	0.01	
		Pie	Cumple	21.8	11.2	3.3	9.7	1.1	28.8	28.8	G, V, N [NL][9]	N_t,NM_yM_z	-25.02	0.02	-0.21	-0.20	0.03	Cumple
											G, V [NL][15]	N_c	12.81	0.00	0.08	0.07	-0.01	
											G, V, N [NL][18]	M_y	-8.01	0.22	-0.22	-0.40	0.17	
											G, G, V, V[10]	M_z,V_y	10.77	-0.01	0.31	0.61	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.8	1.7	10.6	1.2	16.4	16.4	G, V, N [NL][19]	N_t	-6.86	-0.01	0.33	-0.60	0.01	Cumple
											G, V [NL][20]	N_c	7.84	0.01	-0.01	0.01	-0.01	
											G, V, N [NL][21]	M_y	0.30	-0.11	0.01	0.18	0.16	
											G, G, V, V, N[12]	M_z,V_y	-4.19	-0.01	0.34	-0.62	0.02	
											G, V, N [NL][17]	NM_yM_z	-6.64	-0.01	0.33	-0.61	0.01	
		Pie	Cumple	5.9	6.9	4.3	10.4	1.1	12.5	12.5	G, V, N [NL][19]	N_t	-6.75	0.01	0.05	0.37	0.01	Cumple
											G, V [NL][20]	N_c	7.90	-0.01	0.01	0.01	-0.01	
											G, V, N [NL][21]	M_y	0.41	0.28	-0.29	-0.43	0.16	
											G, G, V, V[5]	M_z	-1.13	-0.02	0.33	0.58	-0.01	
											G, G, V, V[10]	V_y	-0.29	-0.02	0.33	0.58	-0.01	
											G, V, N [NL][22]	NM_yM_z	1.84	0.28	-0.28	-0.42	0.16	

Notas:

[1] *1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]*
[2] *0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
[3] *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
[4] *1.35·PP+1.35·CM1+1.5·Q [NL]*
[5] *0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
[6] *0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]*
[7] *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
[8] *1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]*
[9] *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
[10] *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
[11] *0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]*
[12] *1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]*
[13] *1.35·PP+0.8·CM1+1.5·Q [NL]*
[14] *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
[15] *0.8·PP+1.35·CM1+1.5·VH6 [NL]*
[16] *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
[17] *1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]*
[18] *0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]*
[19] *1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]*
[20] *0.8·PP+1.35·CM1+1.5·VH5 [NL]*
[21] *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
[22] *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]*

2.2.2.1.1172.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.2	14.2	1.1	14.4	14.4	G, V, N [NL](1)	N_t	-0.70	-0.01	0.19	0.13	0.02	Cumple
											G, V, N [NL](2)	N_c	0.56	0.00	0.27	-0.22	0.01	
											G, V, N [NL](3)	M_y	-0.05	-0.02	0.40	-0.45	0.03	
											G, Q [NL](4)	M_z,NM_yM_z	0.06	-0.01	0.46	-0.36	0.02	
											G, V, N [NL](5)	V_y	0.00	0.00	0.42	-0.57	-0.01	
		Pie	Cumple	0.5	0.6	0.9	17.0	1.3	17.9	17.9	G, V, N [NL](6)	N_t	-0.61	0.02	-0.43	-0.61	0.01	Cumple
											G, V, N [NL](7)	N_c	0.66	0.03	-0.37	-0.28	0.01	
											G, V, N [NL](2)	M_y	0.06	0.06	-0.23	-0.04	0.03	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.53	0.03	-0.54	-0.69	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.0	24.8	3.7	14.3	1.1	58.5	58.5	G, V, N [NL](9)	N_t	-51.62	0.02	-0.41	0.26	-0.02	Cumple
											G, G, V, V(10)	N_c	22.93	-0.02	0.20	-0.22	0.02	
											G, V, N [NL](11)	M_y	-19.47	-0.25	-0.01	-0.25	0.15	
											G, V, N [NL](12)	M_z,V_y	-39.56	0.05	-0.46	0.57	-0.04	
											G, Q [NL](1,3)	NM_yM_z	-51.31	0.07	-0.41	0.26	-0.06	
		Pie	Cumple	44.9	24.8	2.1	8.9	0.9	53.3	53.3	G, V, N [NL](9)	N_t	-51.51	-0.03	0.25	0.26	-0.02	Cumple
											G, G, V, V(10)	N_c	23.00	0.02	-0.03	0.03	0.02	
											G, V [NL](14)	M_y	-13.80	0.14	0.20	0.40	0.15	
											G, V, N [NL](15)	M_z,V_y	-31.29	0.12	0.28	0.49	0.14	
											G, Q [NL](13)	NM_yM_z	-51.20	-0.07	0.25	0.26	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	21.8	12.7	3.1	11.0	0.9	31.3	31.3	G, V, N [NL](9)	N_t,NM_yM_z	-25.06	-0.04	-0.29	0.20	0.02	Cumple
											G, G, V, V(10)	N_c	14.60	0.01	0.15	-0.19	0.00	
											G, V, N [NL](15)	M_y	-14.63	-0.20	-0.04	-0.20	0.16	
											G, V, N [NL](12)	M_z,V_y	-20.57	-0.01	-0.35	0.49	0.00	
		Pie	Cumple	21.7	12.8	3.2	8.3	0.8	28.6	28.6	G, V, N [NL](9)	N_t,NM_yM_z	-24.94	0.02	0.21	0.20	0.02	Cumple
											G, G, V, V(10)	N_c	14.67	0.00	-0.01	0.06	0.00	
											G, V [NL](1,6)	M_y	-5.89	0.21	0.19	0.38	0.16	
											G, V, N [NL](15)	M_z,V_y	-14.52	0.21	0.27	0.45	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.7	7.0	1.7	8.4	0.8	13.0	13.0	G, V, N [NL](16)	N_t	-5.36	-0.01	-0.26	0.43	0.01	Cumple
											G, G, V, V(10)	N_c	8.01	0.01	0.11	-0.17	-0.01	
											G, V, N [NL](15)	M_y	0.25	-0.11	-0.01	-0.18	0.16	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.14	-0.01	-0.27	0.44	0.01	
		Pie	Cumple	4.6	7.0	4.2	9.0	0.8	12.4	12.4	G, V, N [NL](16)	N_t	-5.25	0.01	0.03	-0.18	0.01	Cumple
											G, G, V, V(10)	N_c	8.07	-0.02	-0.03	0.05	-0.01	
											G, V, N [NL](15)	M_y,V_y	0.36	0.27	0.29	0.43	0.16	
											G, V, N [NL](5)	M_z	1.20	0.27	0.29	0.43	0.16	
											G, V, N [NL](17)	NM_yM_z	1.79	0.27	0.28	0.42	0.16	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·Q [NL]
(14) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]
(17) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.43. P99

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	27.9	79.4	2.9	16.5	2.3	87.5	2.3	87.5	G, V [NL](2)	N_t	-39.79	-0.04	2.14	-1.06	0.03	Cumple
												G, V, N [NL](3)	N_c	97.23	0.07	-5.11	2.52	-0.06	
												G, V [NL](4)	M_y	25.77	-0.38	-1.29	0.62	0.19	
												G, V, N [NL](5)	M_z,V_y,M_yV_y	97.02	0.07	-5.11	2.52	-0.06	
												G, Q [NL](6)	NM_yM_z	96.34	0.17	-5.07	2.50	-0.12	
		Pie	Cumple	19.7	56.8	1.2	3.8	2.3	59.4	2.3	59.4	G, V [NL](4)	N_t	-39.66	0.04	-0.50	-1.06	0.03	Cumple
												G, V, N [NL](3)	N_c,NM_yM_z	97.46	-0.08	1.18	2.52	-0.06	
												G, V, N [NL](7)	M_y	67.18	-0.16	0.78	1.70	-0.20	
												G, V, N [NL](5)	M_z,V_y,M_yV_y	97.24	-0.08	1.19	2.52	-0.06	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	13.6	40.4	2.4	1.6	0.4	41.8	N.P.(1)	41.8	G, G, V, V(8)	N_t	-29.41	0.03	-0.15	0.15	-0.01	Cumple
												G, V, N [NL](9)	N_c,M_z,NM_yM_z	73.41	-0.07	0.48	-0.45	0.02	
												G, V, N [NL](9)	M_y	45.29	-0.31	0.27	-0.28	0.23	
												G, V, N [NL](5)	V_y	73.05	-0.07	0.48	-0.45	0.02	
		Pie	Cumple	13.9	41.4	2.1	2.1	0.4	42.6	N.P.(1)	42.6	G, G, V, V(8)	N_t	-29.27	0.01	0.23	0.15	-0.01	Cumple
												G, V, N [NL](9)	N_c,NM_yM_z	73.63	-0.01	-0.64	-0.45	0.02	
												G, V [NL](10)	M_y	20.66	0.27	-0.21	-0.12	0.22	
												G, V, N [NL](5)	M_z,V_y	73.28	-0.01	-0.64	-0.45	0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.9	31.5	1.2	3.8	1.4	34.2	N.P.(1)	34.2	G, G, V, V(8)	N_t	-19.69	0.03	0.47	-0.53	-0.03	Cumple
												G, V, N [NL](3)	N_c,NM_yM_z	48.78	-0.06	-1.18	1.49	0.07	
												G, V, N [NL](9)	M_y	30.32	-0.16	-0.76	0.97	0.31	
												G, V, N [NL](5)	M_z,V_y	48.29	-0.06	-1.18	1.49	0.07	
		Pie	Cumple	12.7	38.7	4.5	7.8	1.4	43.9	N.P.(1)	43.9	G, V [NL](2)	N_t	-17.70	-0.04	-1.02	-0.63	-0.03	Cumple
												G, V, N [NL](3)	N_c,M_z,NM_yM_z	49.00	0.10	2.42	1.49	0.07	
												G, V, N [NL](11)	M_y	30.05	0.59	1.58	0.97	0.31	
												G, V, N [NL](5)	V_y	48.51	0.10	2.42	1.49	0.07	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·Q [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.44. P100

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	30.3	79.4	2.9	16.5	2.3	87.2	2.3	87.2	G, G, V, V(2)	N_t	-43.51	-0.04	-2.30	1.13	0.03	Cumple
												G, V, N [NL](3)	N_c	97.29	0.06	5.11	-2.52	-0.05	
												G, V [NL](4)	M_y	25.99	-0.38	1.29	-0.62	0.19	
												G, V, N [NL](5)	M_z,V_y,M_yV_y	97.08	0.06	5.11	-2.52	-0.05	
												G, Q [NL](6)	NM_yM_z	96.39	0.15	5.07	-2.50	-0.11	
		Pie	Cumple	21.5	56.8	1.2	3.8	2.3	59.4	2.3	59.4	G, G, V, V(2)	N_t	-43.37	0.04	0.52	1.13	0.03	Cumple
												G, V, N [NL](3)	N_c,NM_yM_z	97.52	-0.08	-1.18	-2.52	-0.05	
												G, V, N [NL](7)	M_y	67.21	-0.16	-0.78	-1.70	-0.19	
												G, V, N [NL](5)	M_z,V_y,M_yV_y	97.31	-0.08	-1.18	-2.52	-0.05	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	14.5	40.4	2.5	1.6	0.4	41.9	N.P.(1)	41.9	G, G, V, V(2)	N_t	-31.61	0.03	0.14	-0.18	-0.01	Cumple
												G, V, N [NL](7)	N_c,M_z,NM_yM_z	73.51	-0.07	-0.48	0.45	0.03	
												G, V, N [NL](9)	M_y	45.30	-0.32	-0.26	0.28	0.24	
												G, V, N [NL](5)	V_y	73.15	-0.07	-0.48	0.45	0.03	
		Pie	Cumple	15.2	41.5	2.1	2.1	0.4	42.6	N.P.(1)	42.6	G, G, V, V(2)	N_t	-31.48	0.00	-0.31	-0.18	-0.01	Cumple
												G, V, N [NL](3)	N_c,NM_yM_z	73.73	0.00	0.64	0.45	0.03	
												G, V [NL](4)	M_y	20.64	0.28	0.21	0.12	0.23	
												G, V, N [NL](5)	M_z,V_y	73.38	0.00	0.64	0.45	0.03	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	11.2	31.6	1.2	3.8	1.4	34.2	N.P.(1)	34.2	G, G, V, V(2)	N_t	-18.11	0.03	-0.66	0.85	-0.03	Cumple
												G, V, N [NL](3)	N_c,NM_yM_z	48.92	-0.05	1.18	-1.49	0.07	
												G, V, N [NL](9)	M_y	29.81	-0.16	0.77	-0.97	0.32	
												G, V, N [NL](5)	M_z,V_y	48.42	-0.05	1.18	-1.49	0.07	
		Pie	Cumple	14.8	38.8	4.6	7.8	1.4	43.9	N.P.(1)	43.9	G, G, V, V(2)	N_t	-17.98	-0.04	1.40	0.85	-0.03	Cumple
												G, V, N [NL](3)	N_c,M_z,NM_yM_z	49.14	0.11	-2.42	-1.49	0.07	
												G, V, N [NL](9)	M_y	30.03	0.60	-1.58	-0.97	0.32	
												G, V, N [NL](5)	V_y	48.65	0.11	-2.41	-1.49	0.07	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·Q [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1174.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.3	15.6	1.4	15.9	15.9	G, G, V, V, N[1]	N_t	-0.74	0.00	0.31	-0.65	0.00	Cumple
											G, V, N [NL][2]	N_c	0.61	-0.01	-0.31	0.25	0.01	
											G, V, N [NL][3]	M_y	0.01	-0.02	-0.40	0.39	0.03	
											G, V, N [NL][4]	M_z,NM_yM_z	0.34	-0.01	-0.50	0.39	0.02	
											G, G, V, V[5]	V_y	-0.72	0.01	0.43	-0.75	-0.02	
		Pie	Cumple	0.6	0.6	0.9	19.7	1.6	20.5	20.5	G, G, V, V, N[6]	N_t	-0.67	-0.02	0.08	0.47	-0.01	Cumple
											G, V, N [NL][7]	N_c	0.71	0.04	0.41	0.31	0.02	
											G, V, N [NL][8]	M_y	0.09	0.06	0.22	0.03	0.03	
											G, G, V, V, N[9]	M_z,V_y,NM_yM_z	-0.51	0.03	0.63	0.89	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	49.3	27.9	3.7	17.5	1.4	64.0	64.0	G, V, N [NL][10]	N_t,NM_yM_z	-56.61	0.03	0.46	-0.29	-0.03	Cumple
											G, G, V, V[11]	N_c	25.82	-0.02	0.02	-0.42	0.02	
											G, V [NL][12]	M_y	-8.30	-0.24	-0.14	0.46	0.15	
											G, G, V, V, N[13]	M_z,V_y	-38.06	0.04	0.56	-0.77	-0.03	
		Pie	Cumple	49.2	28.0	2.0	10.9	1.3	58.6	58.6	G, V, N [NL][10]	N_t,NM_yM_z	-56.50	-0.04	-0.28	-0.29	-0.03	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	25.89	0.03	0.35	0.68	0.02	
											G, V [NL][12]	M_y	-8.23	0.13	-0.25	-0.54	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.7	12.3	3.2	13.7	1.3	34.2	34.2	G, V, N [NL][10]	N_t,NM_yM_z	-27.18	-0.04	0.32	-0.22	0.02	Cumple
											G, V [NL][14]	N_c	14.09	0.01	-0.13	0.09	0.00	
											G, V, N [NL][15]	M_y	-9.76	-0.21	-0.05	0.39	0.17	
											G, G, V, V, N[13]	M_z,V_y	-18.04	-0.03	0.44	-0.69	0.01	
		Pie	Cumple	23.6	12.3	3.2	10.1	1.2	31.3	31.3	G, V, N [NL][10]	N_t,NM_yM_z	-27.07	0.02	-0.24	-0.22	0.02	Cumple
											G, V [NL][14]	N_c	14.16	0.00	0.09	0.09	0.00	
											G, V [NL][16]	M_y	-1.61	0.21	-0.25	-0.53	0.17	
											G, G, V, V[11]	M_z,V_y	11.94	0.00	0.32	0.62	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	7.7	1.7	10.8	1.2	16.1	16.1	G, V, N [NL][17]	N_t	-6.79	-0.01	0.32	-0.60	0.01	Cumple
											G, V [NL][18]	N_c	8.79	0.01	-0.02	0.02	-0.01	
											G, V, N [NL][19]	M_y	2.97	-0.11	-0.07	0.35	0.16	
											G, G, V, V, N[13]	M_z,V_y	-2.11	-0.01	0.35	-0.63	0.01	
											G, V, N [NL][20]	NM_yM_z	-6.61	-0.01	0.33	-0.60	0.01	
		Pie	Cumple	5.8	7.7	4.2	11.0	1.1	16.1	16.1	G, V, N [NL][17]	N_t	-6.68	0.01	0.06	0.38	0.01	Cumple
											G, V [NL][18]	N_c	8.85	-0.01	0.02	0.02	-0.01	
											G, V, N [NL][19]	M_y	3.08	0.28	-0.33	-0.56	0.16	
											G, G, V, V[5]	M_z	-1.50	-0.02	0.35	0.59	-0.01	
											G, G, V, V[11]	V_y	-0.67	-0.02	0.35	0.59	-0.01	
											G, V, N [NL][21]	NM_yM_z	4.42	0.28	-0.32	-0.56	0.16	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[13] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[14] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[15] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[16] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[17] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[18] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[19] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[20] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[21] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.1175.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.3	15.5	1.3	15.9	15.9	G, V, N [NL](1)	N_t	-0.68	-0.01	0.17	0.14	0.02	Cumple
											G, V, N [NL](2)	N_c	0.61	-0.01	0.31	-0.25	0.01	
											G, V, N [NL](3)	M_y	-0.03	-0.02	0.38	-0.44	0.03	
											G, V, N [NL](4)	M_z,NM_yM_z	0.34	-0.01	0.50	-0.39	0.01	
											G, V, N [NL](5)	V_y	-0.19	-0.01	0.44	-0.71	-0.01	
		Pie	Cumple	0.5	0.6	0.9	16.4	1.3	17.4	17.4	G, V, N [NL](6)	N_t	-0.60	0.02	-0.42	-0.60	0.01	Cumple
											G, V, N [NL](7)	N_c	0.71	0.04	-0.41	-0.31	0.02	
											G, V, N [NL](3)	M_y	0.09	0.06	-0.21	-0.02	0.03	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.52	0.04	-0.53	-0.68	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	49.1	28.1	3.6	14.4	1.0	64.1	64.1	G, V, N [NL](9)	N_t,M_z,NM_yM_z	-56.34	0.04	-0.46	0.30	-0.04	Cumple
											G, G, V, V(10)	N_c	26.00	-0.03	0.23	-0.24	0.02	
											G, V [NL](11)	M_y	-8.28	-0.24	0.14	-0.46	0.15	
											G, V, N [NL](12)	V_y	-37.19	0.07	-0.44	0.56	-0.05	
		Pie	Cumple	49.0	28.1	2.0	10.4	1.2	58.6	58.6	G, V, N [NL](9)	N_t,NM_yM_z	-56.23	-0.05	0.28	0.30	-0.04	Cumple
											G, G, V, V(10)	N_c	26.06	0.03	-0.05	0.02	0.02	
											G, V, N [NL](13)	M_y	-33.19	-0.13	0.24	0.36	-0.13	
											G, V, N [NL](14)	M_z,V_y	-24.44	0.11	0.33	0.63	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.3	17.2	3.1	10.7	0.9	33.8	33.8	G, V, N [NL](9)	N_t,NM_yM_z	-26.78	-0.03	-0.32	0.22	0.02	Cumple
											G, G, V, V(10)	N_c	15.97	0.01	0.16	-0.20	0.00	
											G, V, N [NL](14)	M_y	-10.13	-0.20	0.05	-0.38	0.16	
											G, V, N [NL](12)	M_z,V_y	-19.31	-0.01	-0.34	0.49	0.00	
		Pie	Cumple	23.2	17.3	3.2	9.9	1.1	30.8	30.8	G, V, N [NL](9)	N_t,NM_yM_z	-26.67	0.01	0.24	0.22	0.02	Cumple
											G, G, V, V(10)	N_c	16.04	0.00	-0.03	0.04	0.00	
											G, V [NL](11)	M_y	-2.08	0.21	0.25	0.53	0.16	
											G, V, N [NL](14)	M_z,V_y	-10.02	0.20	0.32	0.59	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.3	7.6	1.7	8.2	0.8	12.5	12.5	G, V, N [NL](15)	N_t	-6.08	-0.01	-0.17	0.15	0.01	Cumple
											G, V [NL](16)	N_c	8.72	0.00	0.02	-0.02	0.00	
											G, V, N [NL](14)	M_y	3.06	-0.11	0.07	-0.35	0.16	
											G, V, N [NL](12)	M_z,V_y,NM_yM_z	-4.85	-0.01	-0.26	0.43	0.01	
		Pie	Cumple	5.2	7.7	4.1	10.4	1.0	16.1	16.1	G, V, N [NL](15)	N_t	-5.97	0.02	0.20	0.15	0.01	Cumple
											G, V [NL](16)	N_c	8.78	-0.01	-0.02	-0.02	0.00	
											G, V, N [NL](14)	M_y	3.17	0.27	0.33	0.56	0.16	
											G, V, N [NL](5)	M_z,V_y	4.01	0.27	0.33	0.56	0.16	
											G, V, N [NL](17)	NM_yM_z	4.51	0.27	0.32	0.56	0.16	

Notas:

(1) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]*
(2) *0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(5) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(6) *0.8·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]*
(7) *1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(8) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(9) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(10) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(11) *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
(12) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(14) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(15) *1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(16) *0.8·PP+1.35·CM1+1.5·VH4 [NL]*
(17) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]*

2.2.2.1.47. P103

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	32.8	89.7	3.0	18.6	2.6	98.5	1.9	98.5	G, V [NL][2]	N_t	-47.08	-0.05	2.49	-1.23	0.04	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	110.06	0.07	-5.75	2.84	-0.07	
												G, V [NL][4]	M_y	15.67	-0.40	-0.81	0.39	0.21	
												G, V, N [NL][5]	M_z,V_y	109.85	0.07	-5.75	2.84	-0.06	
												G, V [NL][6]	M_tV_y	78.14	0.01	-4.10	2.03	-0.02	
		Pie	Cumple	23.3	64.3	1.5	4.4	2.6	67.2	1.9	67.2	G, V [NL][4]	N_t	-46.95	0.05	-0.59	-1.23	0.04	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	110.29	-0.09	1.35	2.84	-0.07	
												G, V, N [NL][7]	M_y	65.46	-0.20	0.72	1.60	-0.23	
												G, V, N [NL][5]	M_z,V_y	110.07	-0.09	1.35	2.84	-0.06	
												G, V [NL][6]	M_tV_y	78.27	-0.04	0.97	2.03	-0.02	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	16.1	45.8	2.3	1.8	0.5	47.4	N.P.[1]	47.4	G, G, V, V[8]	N_t	-34.91	0.03	-0.18	0.18	-0.01	Cumple
												G, V, N [NL][3]	N_c,M_z,NM_yM_z	83.26	-0.07	0.55	-0.50	0.02	
												G, V, N [NL][9]	M_y	36.40	-0.31	0.21	-0.23	0.22	
												G, V, N [NL][5]	V_y	82.89	-0.07	0.55	-0.50	0.02	
		Pie	Cumple	16.5	46.8	2.0	2.3	0.5	48.2	N.P.[1]	48.2	G, G, V, V[8]	N_t	-34.77	0.01	0.27	0.18	-0.01	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	83.48	-0.01	-0.71	-0.50	0.02	
												G, V [NL][10]	M_y	12.47	0.26	-0.16	-0.09	0.22	
												G, V, N [NL][5]	M_z,V_y	83.12	-0.01	-0.71	-0.50	0.02	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	12.9	35.8	1.3	4.3	1.6	38.7	N.P.[1]	38.7	G, G, V, V[8]	N_t	-23.51	0.03	0.55	-0.63	-0.03	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	55.65	-0.07	-1.32	1.67	0.07	
												G, V, N [NL][11]	M_y	23.24	-0.17	-0.66	0.86	0.32	
												G, V, N [NL][5]	M_z,V_y	55.16	-0.07	-1.33	1.67	0.07	
		Pie	Cumple	15.2	43.9	4.6	8.8	1.6	49.5	N.P.[1]	49.5	G, V [NL][2]	N_t	-21.39	-0.04	-1.19	-0.74	-0.03	Cumple
												G, V, N [NL][3]	N_c,M_z,NM_yM_z	55.87	0.11	2.72	1.67	0.07	
												G, V, N [NL][11]	M_y	23.46	0.60	1.41	0.86	0.32	
												G, V, N [NL][5]	V_y	55.38	0.11	2.72	1.67	0.07	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH3 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[8] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.48. P104

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	35.5	89.9	3.2	18.7	2.6	98.0	1.8	98.0	G, G, V, V[2]	N_t	-51.05	-0.02	-2.68	1.32	0.02	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	110.33	0.02	5.77	-2.84	-0.04	
												G, V [NL][4]	M_y	15.68	-0.42	0.82	-0.39	0.22	
												G, V, N [NL][5]	M_z,V_y	110.11	0.01	5.77	-2.85	-0.04	
												G, V, N [NL][6]	M_tV_y	76.56	0.27	3.90	-1.91	-0.18	
		Pie	Cumple	25.2	64.4	1.5	4.4	2.6	67.2	1.8	67.2	G, G, V, V[2]	N_t	-50.91	0.04	0.61	1.32	0.02	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	110.56	-0.08	-1.35	-2.84	-0.04	
												G, V, N [NL][7]	M_y	65.56	-0.20	-0.72	-1.59	-0.22	
												G, V, N [NL][5]	M_z,V_y	110.34	-0.08	-1.35	-2.85	-0.04	
												G, V, N [NL][6]	M_tV_y	76.79	-0.18	-0.88	-1.91	-0.18	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	17.1	46.1	2.4	1.8	0.5	47.6	N.P.[1]	47.6	G, G, V, V[2]	N_t	-37.31	0.03	0.18	-0.21	-0.01	Cumple
												G, V, N [NL][3]	N_c,M_z,NM_yM_z	83.68	-0.07	-0.56	0.51	0.03	
												G, V, N [NL][8]	M_y	36.53	-0.31	-0.22	0.23	0.23	
												G, V, N [NL][5]	V_y	83.32	-0.07	-0.56	0.51	0.03	
		Pie	Cumple	17.9	47.1	2.1	2.3	0.5	48.4	N.P.[1]	48.4	G, G, V, V[2]	N_t	-37.17	0.01	-0.35	-0.21	-0.01	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	83.91	-0.01	0.71	0.51	0.03	
												G, V [NL][9]	M_y	12.48	0.27	0.16	0.09	0.22	
												G, V, N [NL][5]	M_z,V_y	83.55	-0.01	0.71	0.51	0.03	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	13.3	36.1	1.3	4.3	1.5	39.0	N.P.[1]	39.0	G, G, V, V[2]	N_t	-21.95	0.03	-0.75	0.96	-0.03	Cumple
												G, V, N [NL][3]	N_c,NM_yM_z	56.21	-0.06	1.32	-1.66	0.07	
												G, V, N [NL][10]	M_y	23.37	-0.17	0.66	-0.86	0.33	
												G, V, N [NL][5]	M_z,V_y	55.71	-0.06	1.33	-1.66	0.07	
		Pie	Cumple	17.3	44.1	4.7	8.7	1.5	49.7	N.P.[1]	49.7	G, G, V, V[2]	N_t	-21.82	-0.05	1.59	0.96	-0.03	Cumple
												G, V, N [NL][3]	N_c,M_z,NM_yM_z	56.43	0.11	-2.70	-1.66	0.07	
												G, V, N [NL][10]	M_y	23.59	0.62	-1.41	-0.86	0.33	
												G, V, N [NL][5]	V_y	55.93	0.11	-2.70	-1.66	0.07	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1177.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.6	1.2	0.8	14.3	1.4	15.7	1.4	15.7	G, G, V, V[2]	N_t,V_y,M_y,V_y	-1.84	-0.01	0.39	-0.73	0.00	Cumple
												G, V, N [NL][3]	N_c	1.42	0.03	-0.35	0.29	-0.01	
												G, V, N [NL][4]	M_y	1.18	0.05	-0.46	0.37	-0.02	
												G, V, N [NL][5]	M_z,NM_yM_z	1.18	0.05	-0.46	0.37	-0.02	
		Pie	Cumple	1.5	1.3	0.7	19.0	1.6	19.7	1.6	19.7	G, G, V, V[2]	N_t	-1.77	-0.02	0.05	0.45	0.00	Cumple
												G, V, N [NL][3]	N_c	1.54	0.01	0.40	0.29	-0.01	
												G, V, N [NL][6]	M_y	0.44	0.04	0.18	0.00	0.01	
												G, G, V, V, N[7]	M_z,V_y,NM_yM_z,M_yV_y	-0.79	0.00	0.61	0.87	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	47.9	27.3	3.4	16.5	1.4	62.6	1.4	62.6	G, V, N [NL][4]	N_t,NM_yM_z	-54.98	0.05	0.44	-0.28	-0.05	Cumple
												G, V [NL][8]	N_c	25.31	-0.04	-0.19	0.12	0.03	
												G, V [NL][9]	M_y	-3.86	-0.22	-0.20	0.50	0.14	
												G, G, V, V, N[10]	M_z,V_y,M_yV_y	-35.70	0.05	0.53	-0.75	-0.04	
		Pie	Cumple	47.8	27.4	1.9	10.8	1.3	56.8	0.8	56.8	G, V, N [NL][4]	N_t,NM_yM_z	-54.86	-0.06	-0.26	-0.28	-0.05	Cumple
												G, V [NL][8]	N_c	25.38	0.04	0.11	0.12	0.03	
												G, V, N [NL][11]	M_y	-29.48	-0.12	-0.22	-0.34	-0.12	
												G, G, V, V[12]	M_z,V_y	24.85	0.04	0.35	0.68	0.03	
												G, V, N [NL][13]	M_yV_y	-23.72	-0.04	0.13	0.44	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.7	12.4	3.1	13.1	1.2	33.7	N.P.[1]	33.7	G, V, N [NL][4]	N_t,NM_yM_z	-27.26	-0.02	0.31	-0.21	0.01	Cumple
												G, V [NL][8]	N_c	14.29	0.00	-0.13	0.09	0.00	
												G, V, N [NL][14]	M_y	-7.28	-0.20	-0.11	0.43	0.16	
												G, G, V, V, N[10]	M_z,V_y	-17.89	-0.01	0.42	-0.67	0.01	
		Pie	Cumple	23.6	12.5	3.2	10.0	1.2	30.5	N.P.[1]	30.5	G, V, N [NL][4]	N_t,NM_yM_z	-27.14	0.00	-0.22	-0.21	0.01	Cumple
												G, V [NL][8]	N_c	14.35	0.01	0.09	0.09	0.00	
												G, V [NL][9]	M_y	-1.23	0.21	-0.22	-0.50	0.17	
												G, G, V, V[12]	M_z,V_y	11.43	0.01	0.32	0.62	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.8	7.7	1.6	10.4	1.1	16.5	N.P.[1]	16.5	G, V, N [NL][15]	N_t	-7.81	0.00	0.31	-0.58	0.00	Cumple
												G, V [NL][16]	N_c	8.82	0.00	-0.03	0.02	0.00	
												G, V, N [NL][17]	M_y	0.70	-0.11	-0.10	0.38	0.16	
												G, G, V, V, N[10]	M_z	-3.79	-0.01	0.33	-0.61	0.01	
												G, G, V, V, N[7]	V_y	-2.95	0.00	0.33	-0.61	0.01	
												G, V, N [NL][18]	NM_yM_z	-7.66	0.00	0.31	-0.59	0.00	
		Pie	Cumple	6.7	7.7	4.2	11.0	1.1	12.7	N.P.[1]	12.7	G, V, N [NL][15]	N_t	-7.70	0.01	0.08	0.39	0.00	Cumple
												G, V [NL][16]	N_c	8.89	-0.01	0.02	0.02	0.00	
												G, V, N [NL][17]	M_y	0.81	0.27	-0.28	-0.53	0.16	
												G, G, V, V[2]	M_z	-1.51	-0.01	0.35	0.60	-0.01	
												G, G, V, V[12]	V_y	-0.67	-0.01	0.35	0.60	-0.01	
												G, V, N [NL][19]	NM_yM_z	2.14	0.27	-0.28	-0.52	0.16	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[3] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[6] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[7] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[8] 0.8·PP+1.35·CM1+1.5·VH6 [NL]

[9] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

[10] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[11] 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[12] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[13] 0.8·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(R)1 [NL]

[14] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

[15] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]

[16] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

[17] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[18] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

[19] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.50. P106

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.0	1.2	0.8	14.4	1.2	15.8	1.2	15.8	G, V [NL](2)	N_t	-1.11	0.01	0.05	0.25	0.00	Cumple
												G, V, N [NL](3)	N_c	1.42	0.04	0.35	-0.29	-0.01	
												G, V, N [NL](4)	M_y	1.18	0.05	0.46	-0.37	-0.02	
												G, V, N [NL](5)	M_z,NM_yM_z	1.18	0.05	0.46	-0.38	-0.02	
												G, V, N [NL](6)	V_y,M_tV_y	-0.26	0.00	0.38	-0.66	-0.01	
		Pie	Cumple	0.9	1.3	0.7	15.9	1.2	17.0	1.2	17.0	G, V [NL](2)	N_t	-1.05	0.01	-0.36	-0.56	0.00	Cumple
												G, V, N [NL](3)	N_c	1.54	0.01	-0.40	-0.29	-0.01	
												G, V, N [NL](7)	M_y	0.44	0.05	-0.18	0.00	0.01	
												G, V, N [NL](5)	M_z,NM_yM_z	1.30	0.00	-0.51	-0.38	-0.02	
												G, V, N [NL](8)	V_y,M_tV_y	-0.79	0.02	-0.50	-0.66	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	48.2	28.0	3.3	13.8	1.0	62.9	1.0	62.9	G, V, N [NL](4)	N_t,M_z,NM_yM_z	-55.36	0.06	-0.44	0.28	-0.05	Cumple
												G, G, V, V(9)	N_c	25.97	-0.04	0.23	-0.23	0.04	
												G, V [NL](10)	M_y	-3.90	-0.22	0.20	-0.50	0.13	
												G, V, N [NL](11)	V_y,M_tV_y	-34.17	0.08	-0.40	0.53	-0.06	
		Pie	Cumple	48.1	28.1	1.9	8.7	1.1	57.2	0.8	57.2	G, V, N [NL](4)	N_t,NM_yM_z	-55.24	-0.07	0.26	0.28	-0.05	Cumple
												G, G, V, V(9)	N_c	26.04	0.05	-0.04	0.02	0.04	
												G, V, N [NL](12)	M_y	-29.71	-0.13	0.22	0.35	-0.13	
												G, V, N [NL](13)	M_z,V_y	-18.28	0.09	0.28	0.58	0.11	
												G, V, N [NL](14)	M_tV_y	-28.13	0.02	0.25	0.44	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	24.1	17.9	3.0	10.0	0.9	34.0	N.P.(1)	34.0	G, V, N [NL](4)	N_t,NM_yM_z	-27.68	-0.01	-0.31	0.21	0.00	Cumple
												G, G, V, V(9)	N_c	16.56	0.00	0.16	-0.20	0.01	
												G, V, N [NL](15)	M_y	-3.61	-0.20	0.16	-0.46	0.16	
												G, V, N [NL](11)	M_z	-18.79	0.00	-0.32	0.47	-0.01	
												G, V [NL](16)	V_y	-0.90	-0.20	0.18	-0.48	0.16	
		Pie	Cumple	24.0	18.0	3.1	8.6	1.0	31.0	N.P.(1)	31.0	G, V, N [NL](4)	N_t,NM_yM_z	-27.57	-0.01	0.22	0.21	0.00	Cumple
												G, G, V, V(9)	N_c	16.63	0.01	-0.02	0.05	0.01	
												G, V [NL](10)	M_y	-1.30	0.21	0.21	0.50	0.16	
												G, V, N [NL](13)	M_z,V_y	-8.61	0.20	0.27	0.55	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.4	8.0	1.6	7.7	0.8	13.4	N.P.(1)	13.4	G, V, N [NL](17)	N_t	-7.37	0.00	-0.17	0.15	0.01	Cumple
												G, G, V, V(9)	N_c	9.13	0.00	0.13	-0.18	-0.01	
												G, V, N [NL](13)	M_y	0.48	-0.10	0.10	-0.38	0.15	
												G, V, N [NL](11)	M_z,NM_yM_z	-6.42	0.00	-0.25	0.42	0.00	
												G, V [NL](18)	V_y	3.78	0.00	0.17	-0.44	0.00	
		Pie	Cumple	6.3	8.0	4.1	8.9	1.0	12.5	N.P.(1)	12.5	G, V, N [NL](17)	N_t	-7.26	0.01	0.19	0.15	0.01	Cumple
												G, G, V, V(9)	N_c	9.20	-0.01	-0.04	0.04	-0.01	
												G, V, N [NL](13)	M_y,V_y	0.59	0.27	0.28	0.53	0.15	
												G, V, N [NL](6)	M_z	1.42	0.26	0.28	0.53	0.15	
												G, V, N [NL](19)	NM_yM_z	-7.12	0.01	0.19	0.15	0.01	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 0.8·PP+0.8·CM1+1.5·V(180°)H1 [NL]

(3) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

(4) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

(5) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(7) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

(11) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(12) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(13) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(14) 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]

(15) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

(16) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

(17) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]

(18) 0.8·PP+1.35·CM1+1.5·V(270°)H2 [NL]

(19) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]

2.2.2.1.1180.

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_z (%)	M_zV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.8	3.3	14.7	0.7	1.3	16.5	N.P.[1]	N.P.[1]	16.5	G, G, V, V, N[2]	N_t	-0.69	-0.13	0.31	-0.66	0.09	Cumple
														G, V, N [NL][3]	N_c	0.87	-0.18	-0.23	0.19	0.10	
														G, V, N [NL][4]	M_y	-0.46	-0.21	-0.12	0.09	0.13	
														G, Q [NL][5]	M_z,NM_yM_z	0.28	-0.19	-0.47	0.37	0.11	
														G, G, V, V[6]	V_z	-0.59	-0.21	0.27	-0.63	0.14	
														G, G, V, V[7]	V_y	-0.67	-0.13	0.36	-0.70	0.09	
		Pie	Cumple	0.5	0.9	2.2	20.0	0.7	1.7	21.6	N.P.[1]	N.P.[1]	21.6	G, G, V, V, N[2]	N_t	-0.62	0.10	0.16	0.53	0.09	Cumple
														G, V, N [NL][8]	N_c	0.99	0.10	0.35	0.26	0.11	
														G, G, V, V[6]	M_y,V_z	-0.47	0.15	0.19	0.56	0.14	
														G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.26	0.09	0.64	0.89	0.10	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	44.8	21.0	5.8	17.1	1.4	1.4	60.9	1.4	1.4	60.9	G, Q [NL][10]	N_t	-51.48	-0.16	0.43	-0.27	0.14	Cumple
														G, G, V, V[11]	N_c	19.43	-0.04	0.08	-0.46	0.05	
														G, V, N [NL][12]	M_y,V_z,M_yV_z	-35.59	-0.38	0.22	0.00	0.29	
														G, V, N [NL][9]	M_z,V_y,M_yV_y	-38.76	-0.16	0.55	-0.75	0.15	
														G, Q [NL][5]	NM_yM_z	-51.05	-0.19	0.43	-0.27	0.17	
		Pie	Cumple	44.7	21.1	5.1	10.0	1.4	1.2	56.0	1.4	1.2	56.0	G, Q [NL][10]	N_t	-51.37	0.20	-0.25	-0.27	0.14	Cumple
														G, G, V, V[11]	N_c	19.49	0.08	0.32	0.64	0.05	
														G, V, N [NL][12]	M_y,V_z,M_yV_z	-35.48	0.33	-0.26	-0.39	0.29	
														G, G, V, V[7]	M_z,V_y,M_yV_y	19.06	0.03	0.32	0.64	0.02	
														G, Q [NL][5]	NM_yM_z	-50.94	0.25	-0.25	-0.27	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	19.4	9.0	4.6	16.3	0.8	1.7	34.3	0.8	1.7	34.3	G, Q [NL][10]	N_t	-22.28	-0.13	0.30	-0.21	0.04	Cumple
														G, V [NL][13]	N_c	10.28	-0.02	-0.09	0.06	-0.02	
														G, V, N [NL][12]	M_y	-14.73	-0.30	0.10	0.14	0.16	
														G, V, N [NL][14]	M_z,V_y,NM_yM_z,M_yV_y	-18.97	-0.10	0.52	-0.94	0.03	
														G, V, N [NL][15]	V_z,M_yV_z	-15.50	-0.28	0.10	0.14	0.16	
		Pie	Cumple	19.3	9.0	2.0	13.0	0.8	1.6	26.8	0.8	1.6	26.8	G, Q [NL][10]	N_t,NM_yM_z	-22.17	-0.02	-0.23	-0.21	0.04	Cumple
														G, V [NL][13]	N_c	10.35	-0.08	0.07	0.06	-0.02	
														G, V [NL][16]	M_y	-6.15	-0.13	-0.21	-0.38	-0.05	
														G, G, V, V[11]	M_z,V_y,M_yV_y	8.22	-0.08	0.42	0.87	-0.03	
														G, V, N [NL][15]	V_z,M_yV_z	-15.39	0.12	-0.28	-0.45	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.2	6.8	2.2	14.2	0.5	1.6	18.5	0.5	1.6	18.5	G, G, V, V, N[17]	N_t	-4.82	0.09	0.23	-0.66	-0.07	Cumple
														G, V, N [NL][4]	N_c	7.83	0.13	0.06	-0.06	-0.08	
														G, G, V, V[11]	M_y,M_yV_z	-3.81	0.15	0.20	-0.64	-0.10	
														G, V, N [NL][14]	M_z,V_y,M_yV_y	-3.51	0.07	0.45	-0.88	-0.02	
														G, V [NL][16]	V_z	3.57	0.13	-0.03	0.20	-0.11	
														G, V, N [NL][18]	NM_yM_z	-3.17	0.12	0.44	-0.87	-0.05	
		Pie	Cumple	4.1	6.9	3.6	13.7	0.5	1.5	18.9	0.5	1.5	18.9	G, G, V, V, N[17]	N_t	-4.76	-0.07	0.40	0.80	-0.07	Cumple
														G, V, N [NL][4]	N_c	7.94	-0.05	-0.09	-0.06	-0.08	
														G, V, N [NL][15]	M_y	2.21	0.23	-0.32	-0.44	0.08	
														G, G, V, V[11]	M_z,V_y,M_yV_z,M_yV_y	-3.74	-0.11	0.44	0.82	-0.10	
														G, V [NL][16]	V_z	3.63	-0.13	-0.23	-0.36	-0.11	
														G, G, V, V[7]	NM_yM_z	-4.49	-0.09	0.44	0.82	-0.07	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2+0.75·N(R) 1 [NL]
[3] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[5] 1.35·PP+1.35·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0º)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0º)H1+0.75·N(EI) [NL]
[15] 1.35·PP+0.8·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]
[16] 0.8·PP+1.35·CM1+1.5·V(90º)H1 [NL]
[17] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2+0.75·N(R) 2 [NL]
[18] 1.35·PP+1.35·CM1+1.5·V(0º)H1+0.75·N(R)2 [NL]

2.2.2.1.54. P110

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.6	0.5	14.7	0.9	15.0	15.0	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.24	-0.19	-0.02	
											G, V, N [NL](3)	M_y	0.47	0.03	0.39	-0.31	-0.03	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.03	0.47	-0.37	-0.03	
											G, V, N [NL](5)	V_y	-0.08	0.02	0.41	-0.46	-0.01	
		Pie	Cumple	0.6	0.6	1.1	17.3	1.3	18.4	18.4	G, V, N [NL](6)	N_t	-0.64	0.01	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.73	-0.05	-0.34	-0.26	-0.03	
											G, V, N [NL](8)	M_y	0.05	-0.07	-0.25	-0.05	-0.04	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.55	-0.04	-0.55	-0.70	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.9	20.7	4.2	14.4	1.1	60.6	60.6	G, Q [NL](10)	N_t,NM_yM_z	-53.80	-0.06	-0.41	0.26	0.04	Cumple
											G, G, V, V(11)	N_c	19.13	0.03	0.17	-0.20	-0.02	
											G, V, N [NL](12)	M_y	-37.67	-0.27	-0.20	-0.02	0.17	
											G, V, N [NL](13)	M_z,V_y	-41.56	-0.05	-0.46	0.57	0.03	
		Pie	Cumple	46.8	20.7	2.3	8.0	0.7	55.0	55.0	G, Q [NL](10)	N_t,NM_yM_z	-53.69	0.04	0.25	0.26	0.04	Cumple
											G, G, V, V(11)	N_c	19.20	-0.02	-0.01	0.06	-0.02	
											G, V, N [NL](12)	M_y	-37.56	0.15	0.25	0.37	0.17	
											G, V, N [NL](14)	M_z	-41.40	0.03	0.26	0.33	0.03	
											G, V, N [NL](15)	V_y	-37.33	-0.04	0.25	0.38	-0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	23.7	11.4	3.2	11.1	0.9	33.3	33.3	G, Q [NL](10)	N_t,NM_yM_z	-27.16	-0.05	-0.29	0.20	0.04	Cumple
											G, G, V, V(11)	N_c	13.12	0.03	0.12	-0.17	-0.02	
											G, V, N [NL](8)	M_y	-18.93	-0.21	-0.12	-0.05	0.18	
											G, V, N [NL](13)	M_z,V_y	-22.35	-0.03	-0.35	0.49	0.03	
		Pie	Cumple	23.6	11.5	3.5	7.3	0.6	30.9	30.9	G, Q [NL](10)	N_t,NM_yM_z	-27.05	0.05	0.21	0.20	0.04	Cumple
											G, G, V, V(11)	N_c	13.19	-0.03	0.01	0.07	-0.02	
											G, V, N [NL](8)	M_y	-18.82	0.23	0.23	0.33	0.18	
											G, V, N [NL](15)	M_z,V_y	-18.22	-0.05	0.23	0.34	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	7.4	1.8	8.5	0.8	14.6	14.6	G, V, N [NL](16)	N_t	-6.92	-0.02	-0.26	0.43	0.02	Cumple
											G, G, V, V(11)	N_c	8.50	0.01	0.09	-0.15	-0.02	
											G, V, N [NL](12)	M_y	-1.79	-0.12	-0.07	-0.05	0.17	
											G, V, N [NL](13)	M_z,V_y,NM_yM_z	-6.75	-0.02	-0.27	0.44	0.02	
		Pie	Cumple	5.9	7.5	4.4	8.1	0.6	14.5	14.5	G, V, N [NL](16)	N_t	-6.81	0.04	0.03	-0.18	0.02	Cumple
											G, G, V, V(11)	N_c	8.57	-0.03	-0.01	0.07	-0.02	
											G, V, N [NL](8)	M_y,NM_yM_z	-2.48	0.29	0.25	0.32	0.17	
											G, V, N [NL](5)	M_z	-0.85	-0.07	0.26	0.33	-0.04	
											G, V, N [NL](15)	V_y	-1.66	-0.07	0.26	0.33	-0.04	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.55. P111

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	22.8	80.7	3.5	16.7	2.4	89.2	2.4	89.2	G, V [NL](2)	N_t	-32.81	0.06	1.73	-0.86	-0.04	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.02	-0.12	-5.17	2.54	0.07	
												G, V, N [NL](4)	M_y	68.46	-0.46	-3.54	1.73	0.25	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.82	-0.12	-5.18	2.55	0.07	
		Pie	Cumple	16.2	57.7	1.2	3.8	2.4	60.1	2.4	60.1	G, V [NL](2)	N_t	-32.67	-0.03	-0.40	-0.86	-0.04	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.25	0.05	1.19	2.54	0.07	
												G, V, N [NL](4)	M_y	68.69	0.15	0.79	1.73	0.25	
												G, Q [NL](5)	M_z,V_y,M_yV_y	99.04	0.05	1.19	2.55	0.07	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	41.3	2.2	1.6	0.4	42.6	N.P.(1)	42.6	G, G, V, V(6)	N_t	-24.68	0.03	-0.12	0.12	-0.03	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	75.17	-0.06	0.49	-0.46	0.05	
												G, V, N [NL](4)	M_y	52.39	-0.29	0.32	-0.32	0.24	
												G, Q [NL](5)	V_y	74.83	-0.06	0.48	-0.46	0.05	
		Pie	Cumple	11.6	42.4	2.3	2.1	0.4	44.1	N.P.(1)	44.1	G, G, V, V(6)	N_t	-24.54	-0.04	0.19	0.12	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	75.40	0.07	-0.66	-0.46	0.05	
												G, V, N [NL](4)	M_y	52.62	0.30	-0.48	-0.32	0.24	
												G, Q [NL](5)	M_z,V_y	75.06	0.07	-0.66	-0.46	0.05	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.3	32.5	0.9	3.9	1.4	34.8	N.P.(1)	34.8	G, G, V, V(6)	N_t	-17.26	0.01	0.37	-0.39	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	50.48	-0.02	-1.20	1.49	0.05	
												G, V, N [NL](4)	M_y	35.28	-0.11	-0.86	1.06	0.27	
												G, Q [NL](5)	M_z,V_y	50.01	-0.02	-1.20	1.49	0.05	
		Pie	Cumple	10.5	39.5	4.2	7.8	1.4	44.5	N.P.(1)	44.5	G, V [NL](2)	N_t	-15.07	-0.06	-0.80	-0.51	-0.03	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	50.70	0.11	2.40	1.49	0.05	
												G, V, N [NL](4)	M_y	35.50	0.55	1.71	1.06	0.27	
												G, Q [NL](5)	V_y	50.23	0.11	2.40	1.49	0.05	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.56. P112

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones											Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_z (%)	M_zV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	27.2	88.2	5.6	17.2	1.1	2.4	99.9	1.1	2.4	99.9	G, G, V, V[1]	N_t	-40.66	0.19	-1.91	0.91	-0.13	Cumple
														G, Q [NL][2]	N_t,M_z,V_y,NM_yM_z,M_yV_z	111.81	-0.51	5.33	-2.60	0.35	
														G, V, N [NL][3]	M_y	77.72	-0.74	3.65	-1.77	0.44	
														G, V, N [NL][*]	V_z,M_yV_z	77.27	-0.74	3.63	-1.76	0.44	
		Pie	Cumple	19.4	64.2	2.8	3.8	1.1	2.4	68.9	1.1	2.4	68.9	G, G, V, V[1]	N_t	-40.52	-0.14	0.36	0.91	-0.13	Cumple
														G, Q [NL][2]	N_t,M_y,M_z,V_y,NM_yM_z,M_yV_z	112.04	0.36	-1.17	-2.60	0.35	
														G, V, N [NL][4]	V_z,M_yV_z	77.50	0.36	-0.77	-1.76	0.44	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	13.7	47.0	2.8	1.4	0.6	0.4	49.1	0.6	0.4	49.1	G, G, V, V[1]	N_t	-31.06	0.09	0.04	-0.14	-0.06	Cumple
														G, Q [NL][2]	N_t,M_z,V_y,NM_yM_z,M_yV_z	87.15	-0.17	-0.42	0.45	0.10	
														G, V, N [NL][4]	M_y,V_z,M_yV_z	60.81	-0.37	-0.27	0.32	0.25	
		Pie	Cumple	15.0	48.8	2.0	2.3	0.6	0.4	50.7	0.6	0.4	50.7	G, G, V, V[1]	N_t	-30.93	-0.06	-0.31	-0.14	-0.06	Cumple
														G, Q [NL][2]	N_t,V_y,NM_yM_z,M_yV_z	87.38	0.08	0.70	0.45	0.10	
														G, V, N [NL][*]	M_y,V_z,M_yV_z	61.04	0.26	0.53	0.32	0.25	
														G, Q [NL][5]	M_z	86.95	0.09	0.70	0.44	0.11	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	11.2	38.1	0.3	4.3	0.5	1.6	40.7	0.5	1.6	40.7	G, G, V, V[1]	N_t	-18.18	0.03	-0.67	0.88	-0.05	Cumple
														G, Q [NL][2]	N_t,NM_yM_z	60.11	-0.02	1.34	-1.71	0.07	
														G, G, V, V[6]	M_y	-17.47	0.04	-0.67	0.89	-0.05	
														G, Q [NL][5]	M_z,V_y,M_yV_y	59.39	-0.03	1.34	-1.72	0.07	
														G, V, N [NL][4]	V_z,M_yV_z	41.91	-0.01	0.96	-1.22	0.22	
		Pie	Cumple	15.0	46.6	4.0	9.1	0.5	1.6	52.5	0.5	1.6	52.5	G, G, V, V[1]	N_t	-18.05	-0.09	1.46	0.88	-0.05	Cumple
														G, Q [NL][2]	N_t,NM_yM_z	60.33	0.14	-2.79	-1.71	0.07	
														G, V, N [NL][3]	M_y	42.79	0.52	-1.99	-1.22	0.22	
														G, Q [NL][5]	M_z,V_y,M_yV_y	59.61	0.14	-2.81	-1.72	0.07	
														G, V, N [NL][4]	V_z,M_yV_z	42.13	0.52	-2.00	-1.22	0.22	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.57. P113

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)		Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.4	14.7	1.3	14.9	14.9		G, G, V, V, N[1]	N_t	-0.86	0.00	0.23	-0.59	0.00	Cumple
												G, V, N [NL][2]	N_c	0.62	0.01	-0.24	0.19	-0.01	
												G, V, N [NL][3]	M_y	0.44	0.02	-0.39	0.31	-0.02	
												G, Q [NL][4]	M_z,NM_yM_z	0.00	0.02	-0.47	0.37	-0.02	
												G, G, V, V[5]	V_y	-0.82	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.8	19.9	1.7	20.7	20.7		G, G, V, V, N[6]	N_t	-0.77	0.01	0.16	0.53	0.00	Cumple
												G, V, N [NL][7]	N_c	0.71	-0.02	0.34	0.26	-0.01	
												G, V, N [NL][8]	M_y	0.03	-0.05	0.25	0.05	-0.02	
												G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.52	-0.02	0.64	0.89	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.4	19.7	4.4	17.1	1.4	60.2	60.2		G, Q [NL][10]	N_t,NM_yM_z	-52.07	-0.10	0.43	-0.28	0.06	Cumple
												G, G, V, V[11]	N_c	18.24	0.05	0.07	-0.46	-0.03	
												G, V, N [NL][8]	M_y	-35.97	-0.29	0.21	0.00	0.18	
												G, V, N [NL][12]	M_z,V_y	-40.03	-0.07	0.55	-0.76	0.04	
		Pie	Cumple	45.3	19.8	2.4	10.0	1.2	54.3	54.3		G, Q [NL][10]	N_t,NM_yM_z	-51.96	0.05	-0.26	-0.28	0.06	Cumple
												G, G, V, V[11]	N_c,M_z,V_y	18.30	-0.02	0.32	0.64	-0.03	
												G, V, N [NL][8]	M_y	-35.86	0.16	-0.26	-0.38	0.18	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	21.4	8.8	3.2	13.5	1.3	32.0	32.0		G, Q [NL][10]	N_t	-24.53	-0.03	0.30	-0.21	0.02	Cumple
												G, V [NL][13]	N_c	10.06	0.02	-0.09	0.06	-0.02	
												G, V, N [NL][14]	M_y	-16.37	-0.21	0.13	0.05	0.17	
												G, V, N [NL][12]	M_z,V_y,NM_yM_z	-20.87	-0.02	0.43	-0.68	0.01	
		Pie	Cumple	21.3	8.8	3.4	9.3	1.1	28.6	28.6		G, Q [NL][10]	N_t,NM_yM_z	-24.42	0.02	-0.22	-0.21	0.02	Cumple
												G, V [NL][13]	N_c	10.13	-0.02	0.06	0.06	-0.02	
												G, V, N [NL][14]	M_y	-16.26	0.22	-0.24	-0.34	0.17	
												G, G, V, V[11]	M_z,V_y	7.92	-0.02	0.30	0.60	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.2	6.5	2.1	10.7	1.1	16.3	16.3		G, V, N [NL][15]	N_t,NM_yM_z	-6.00	-0.04	0.33	-0.61	0.05	Cumple
												G, V, N [NL][16]	N_c	7.41	0.00	0.02	-0.02	0.00	
												G, V, N [NL][8]	M_y	1.55	-0.14	0.08	0.04	0.19	
												G, V, N [NL][12]	M_z	-5.70	-0.04	0.34	-0.62	0.05	
												G, V, N [NL][9]	V_y	-4.85	-0.04	0.34	-0.62	0.05	
		Pie	Cumple	5.1	6.5	4.9	10.0	1.1	13.0	13.0		G, V, N [NL][15]	N_t	-5.89	0.07	0.04	0.36	0.05	Cumple
												G, V, N [NL][16]	N_c	7.47	0.00	-0.03	-0.02	0.00	
												G, V, N [NL][8]	M_y	1.66	0.32	-0.27	-0.33	0.19	
												G, G, V, V[5]	M_z,V_y,NM_yM_z	-2.52	-0.05	0.32	0.57	-0.03	

Notas:
[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[15] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[16] 0.8·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]

2.2.2.1.58. P114

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.4	14.7	0.9	14.9	14.9	G, V, N [NL](1)	N_t	-0.73	0.01	0.12	-0.09	-0.01	Cumple
											G, V, N [NL](2)	N_c	0.63	0.01	0.23	-0.19	-0.01	
											G, V, N [NL](3)	M_y	0.46	0.02	0.38	-0.31	-0.02	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.02	0.47	-0.37	-0.02	
											G, V, N [NL](5)	V_y	-0.07	0.01	0.41	-0.46	-0.01	
		Pie	Cumple	0.6	0.6	0.9	17.3	1.3	18.2	18.2	G, V, N [NL](6)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.72	-0.03	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.04	-0.06	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.56	-0.03	-0.55	-0.70	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.2	20.4	4.5	14.5	1.1	60.6	60.6	G, Q [NL](10)	N_t,NM_yM_z	-53.01	-0.10	-0.41	0.27	0.06	Cumple
											G, G, V, V(11)	N_c	18.92	0.05	0.17	-0.20	-0.03	
											G, V, N [NL](12)	M_y	-36.68	-0.30	-0.21	-0.01	0.18	
											G, V, N [NL](13)	M_z,V_y	-40.94	-0.07	-0.46	0.57	0.04	
		Pie	Cumple	46.1	20.5	2.5	8.1	0.7	54.7	54.7	G, Q [NL](10)	N_t,NM_yM_z	-52.90	0.05	0.25	0.27	0.06	Cumple
											G, G, V, V(11)	N_c	18.99	-0.02	-0.01	0.05	-0.03	
											G, V, N [NL](12)	M_y	-36.57	0.16	0.26	0.38	0.18	
											G, V, N [NL](14)	M_z	-40.79	0.04	0.26	0.34	0.05	
											G, V, N [NL](15)	V_y	-37.30	-0.03	0.25	0.38	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.8	11.1	3.2	11.1	0.9	32.5	32.5	G, Q [NL](10)	N_t,NM_yM_z	-26.15	-0.05	-0.29	0.20	0.04	Cumple
											G, G, V, V(11)	N_c	12.72	0.03	0.12	-0.17	-0.02	
											G, V, N [NL](12)	M_y	-17.43	-0.21	-0.13	-0.05	0.18	
											G, V, N [NL](13)	M_z,V_y	-21.54	-0.03	-0.36	0.50	0.03	
		Pie	Cumple	22.7	11.1	3.5	7.3	0.6	30.2	30.2	G, Q [NL](10)	N_t,NM_yM_z	-26.04	0.06	0.21	0.20	0.04	Cumple
											G, G, V, V(11)	N_c	12.79	-0.03	0.00	0.07	-0.02	
											G, V, N [NL](12)	M_y	-17.31	0.23	0.23	0.34	0.18	
											G, V, N [NL](15)	M_z,V_y	-18.15	-0.05	0.23	0.34	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.2	6.9	1.8	8.5	0.8	13.8	13.8	G, V, N [NL](16)	N_t	-5.99	-0.02	-0.27	0.44	0.03	Cumple
											G, G, V, V(11)	N_c	7.94	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](12)	M_y	-0.73	-0.12	-0.08	-0.05	0.17	
											G, V, N [NL](13)	M_z,V_y,NM_yM_z	-5.77	-0.02	-0.27	0.44	0.03	
		Pie	Cumple	5.1	7.0	4.4	8.2	0.6	13.1	13.1	G, V, N [NL](16)	N_t	-5.88	0.05	0.04	-0.18	0.03	Cumple
											G, G, V, V(11)	N_c	8.01	-0.03	-0.01	0.07	-0.02	
											G, V, N [NL](12)	M_y,NM_yM_z	-0.62	0.29	0.26	0.33	0.17	
											G, V, N [NL](8)	M_z	0.18	0.29	0.26	0.33	0.17	
											G, V, N [NL](15)	V_y	-1.53	-0.07	0.26	0.33	-0.04	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.59. P115

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.0	80.7	3.7	16.8	2.4	89.4	2.4	89.4	G, V [NL](2)	N_t	-32.94	0.07	1.75	-0.87	-0.04	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	98.79	-0.15	-5.19	2.55	0.08	
												G, V, N [NL](4)	M_y	68.53	-0.48	-3.58	1.76	0.25	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.58	-0.15	-5.19	2.56	0.08	
		Pie	Cumple	16.3	57.6	1.2	3.9	2.4	60.1	2.4	60.1	G, V [NL](2)	N_t	-32.80	-0.03	-0.41	-0.87	-0.04	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.02	0.06	1.20	2.55	0.08	
												G, V, N [NL](5)	M_y	68.97	0.16	0.81	1.75	0.25	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.81	0.06	1.20	2.56	0.08	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	41.1	2.2	1.6	0.4	42.4	N.P.(1)	42.4	G, G, V, V(7)	N_t	-24.59	0.03	-0.12	0.12	-0.03	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	74.69	-0.06	0.49	-0.46	0.06	
												G, V, N [NL](4)	M_y	51.97	-0.29	0.33	-0.32	0.24	
												G, Q [NL](5)	V_y	74.34	-0.06	0.49	-0.46	0.06	
		Pie	Cumple	11.6	42.1	2.3	2.1	0.4	43.9	N.P.(1)	43.9	G, G, V, V(7)	N_t	-24.46	-0.04	0.18	0.12	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	74.92	0.08	-0.65	-0.46	0.06	
												G, V, N [NL](4)	M_y	52.20	0.31	-0.48	-0.32	0.24	
												G, Q [NL](5)	M_z,V_y	74.57	0.08	-0.65	-0.46	0.06	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.2	32.1	0.8	3.9	1.4	34.5	N.P.(1)	34.5	G, G, V, V(7)	N_t	-16.98	0.01	0.37	-0.41	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	49.77	-0.01	-1.20	1.50	0.05	
												G, V, N [NL](4)	M_y	34.42	-0.11	-0.86	1.09	0.27	
												G, Q [NL](5)	M_z,V_y	49.30	-0.01	-1.20	1.50	0.05	
		Pie	Cumple	10.5	39.3	4.2	7.9	1.4	44.6	N.P.(1)	44.6	G, V [NL](2)	N_t	-14.85	-0.07	-0.82	-0.52	-0.03	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	49.99	0.12	2.44	1.50	0.05	
												G, V, N [NL](4)	M_y	34.65	0.55	1.78	1.09	0.27	
												G, Q [NL](5)	V_y	49.52	0.12	2.44	1.50	0.05	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.60. P116

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_v (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.8	81.4	3.8	17.1	2.4	90.6	2.4	90.6	G, G, V, V[2]	N_t	-37.07	0.09	-1.96	0.97	-0.05	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.25	-0.19	5.28	-2.61	0.11	
												G, V, N [NL][4]	M_y	68.84	-0.50	3.64	-1.79	0.26	
												G, Q [NL][5]	M_z,V_y,M_yV_y	99.04	-0.19	5.28	-2.61	0.11	
		Pie	Cumple	18.3	58.1	1.2	4.0	2.4	60.8	2.4	60.8	G, G, V, V[2]	N_t	-36.93	-0.03	0.45	0.97	-0.05	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.48	0.08	-1.24	-2.61	0.11	
												G, V, N [NL][4]	M_y	69.07	0.16	-0.84	-1.79	0.26	
												G, Q [NL][5]	M_z,V_y,M_yV_y	99.27	0.08	-1.25	-2.61	0.11	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	41.0	2.3	1.7	0.4	42.3	N.P.[1]	42.3	G, G, V, V[2]	N_t	-26.68	0.03	0.12	-0.15	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.32	-0.05	-0.52	0.47	0.04	
												G, V, N [NL][6]	M_y	52.10	-0.31	-0.35	0.33	0.25	
												G, Q [NL][5]	V_y	73.96	-0.05	-0.52	0.47	0.04	
		Pie	Cumple	12.8	41.9	2.4	2.1	0.4	43.5	N.P.[1]	43.5	G, G, V, V[2]	N_t	-26.55	-0.04	-0.26	-0.15	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.54	0.06	0.65	0.47	0.04	
												G, V, N [NL][4]	M_y	51.96	0.32	0.48	0.33	0.25	
												G, Q [NL][5]	M_z,V_y	74.18	0.06	0.65	0.47	0.04	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.3	31.7	0.9	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[2]	N_t	-14.84	0.02	-0.58	0.76	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	48.73	-0.05	1.21	-1.54	0.08	
												G, V, N [NL][6]	M_y	34.21	-0.12	0.87	-1.12	0.29	
												G, Q [NL][5]	M_z,V_y	48.22	-0.05	1.22	-1.54	0.08	
		Pie	Cumple	12.6	39.3	4.4	8.2	1.4	45.0	N.P.[1]	45.0	G, G, V, V[2]	N_t	-14.70	-0.09	1.25	0.76	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	48.95	0.16	-2.52	-1.54	0.08	
												G, V, N [NL][6]	M_y	34.43	0.58	-1.84	-1.12	0.29	
												G, Q [NL][5]	M_z,V_y	48.44	0.15	-2.52	-1.54	0.08	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.61. P117

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.6	0.3	14.6	1.3	14.8	14.8	G, G, V, V, N[1]	N_t	-0.87	0.00	0.23	-0.59	0.00	Cumple
											G, V, N [NL][4]	N_c	0.63	0.01	-0.23	0.19	-0.02	
											G, V, N [NL][4]	M_y	0.47	0.02	-0.38	0.31	-0.02	
											G, Q [NL][4]	M_z,NM_yM_z	0.04	0.02	-0.47	0.37	-0.02	
											G, G, V, V[5]	V_y	-0.83	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	0.9	19.8	1.7	20.7	20.7	G, G, V, V, N[6]	N_t	-0.78	0.02	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.73	-0.03	0.34	0.26	-0.02	
											G, V, N [NL][8]	M_y	0.05	-0.06	0.24	0.05	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.49	-0.03	0.63	0.89	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.8	20.2	4.5	16.8	1.4	60.3	60.3	G, Q [NL][10]	N_t,NM_yM_z	-52.58	-0.10	0.42	-0.27	0.06	Cumple
											G, G, V, V[11]	N_c	18.68	0.05	0.08	-0.46	-0.03	
											G, V, N [NL][8]	M_y	-36.60	-0.30	0.20	0.01	0.18	
											G, V, N [NL][12]	M_z,V_y	-40.40	-0.07	0.54	-0.75	0.05	
		Pie	Cumple	45.7	20.2	2.5	9.8	1.2	54.5	54.5	G, Q [NL][10]	N_t,NM_yM_z	-52.47	0.06	-0.25	-0.27	0.06	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.75	-0.03	0.31	0.64	-0.03	
											G, V, N [NL][8]	M_y	-36.48	0.16	-0.25	-0.38	0.18	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.3	9.2	3.3	13.4	1.3	32.6	32.6	G, Q [NL][10]	N_t	-25.54	-0.04	0.29	-0.20	0.03	Cumple
											G, V [NL][13]	N_c	10.56	0.03	-0.09	0.06	-0.02	
											G, V, N [NL][14]	M_y	-17.44	-0.22	0.13	0.05	0.18	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.53	-0.03	0.43	-0.68	0.02	
		Pie	Cumple	22.2	9.3	3.5	9.2	1.1	29.6	29.6	G, Q [NL][10]	N_t,NM_yM_z	-25.43	0.04	-0.22	-0.20	0.03	Cumple
											G, V [NL][15]	N_c	10.62	-0.03	0.06	0.06	-0.02	
											G, V, N [NL][14]	M_y	-17.33	0.23	-0.23	-0.34	0.18	
											G, G, V, V[11]	M_z,V_y	8.58	-0.03	0.29	0.59	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	6.3	2.1	10.6	1.1	16.9	16.9	G, V, N [NL][15]	N_t	-6.81	-0.04	0.33	-0.61	0.05	Cumple
											G, V [NL][16]	N_c	7.24	0.01	0.00	0.00	-0.01	
											G, V, N [NL][8]	M_y	0.11	-0.14	0.08	0.05	0.19	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-6.58	-0.04	0.34	-0.62	0.05	
		Pie	Cumple	5.8	6.4	4.9	9.9	1.1	13.6	13.6	G, V, N [NL][15]	N_t	-6.70	0.07	0.05	0.37	0.05	Cumple
											G, V [NL][16]	N_c	7.30	-0.02	0.00	0.00	-0.01	
											G, V, N [NL][8]	M_y	0.22	0.32	-0.26	-0.33	0.19	
											G, G, V, V[5]	M_z	-1.70	-0.05	0.32	0.57	-0.03	
											G, G, V, V[11]	V_y	-0.86	-0.05	0.32	0.57	-0.03	
											G, V, N [NL][14]	NM_yM_z	-0.63	0.32	-0.26	-0.33	0.19	

Notas:
[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[15] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[16] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

2.2.2.1.1185.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.6	0.4	14.6	0.9	14.8	14.8	G, V, N [NL](1)	N_t	-0.73	0.00	0.12	-0.09	0.00	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.23	-0.19	-0.02	
											G, V, N [NL](3)	M_y	0.47	0.03	0.38	-0.30	-0.03	
											G, Q [NL](4)	M_z,NM_yM_z	0.04	0.03	0.47	-0.37	-0.03	
											G, V, N [NL](5)	V_y	-0.08	0.02	0.41	-0.46	-0.01	
		Pie	Cumple	0.6	0.6	1.0	17.2	1.3	18.2	18.2	G, V, N [NL](6)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.73	-0.04	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.05	-0.07	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.55	-0.04	-0.55	-0.70	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.8	20.4	4.5	14.5	1.1	60.2	60.2	G, Q [NL](10)	N_t,NM_yM_z	-52.58	-0.10	-0.41	0.27	0.06	Cumple
											G, G, V, V(11)	N_c	18.87	0.04	0.17	-0.20	-0.03	
											G, V, N [NL](12)	M_y	-36.70	-0.30	-0.20	-0.01	0.19	
											G, V, N [NL](13)	M_z,V_y	-40.61	-0.07	-0.46	0.57	0.05	
		Pie	Cumple	45.7	20.5	2.5	8.1	0.7	54.4	54.4	G, Q [NL](10)	N_t,NM_yM_z	-52.47	0.06	0.25	0.27	0.06	Cumple
											G, G, V, V(11)	N_c	18.94	-0.02	-0.01	0.05	-0.03	
											G, V, N [NL](12)	M_y	-36.59	0.17	0.25	0.38	0.19	
											G, V, N [NL](14)	M_z	-40.52	0.04	0.26	0.34	0.05	
											G, V, N [NL](15)	V_y	-36.95	-0.02	0.26	0.38	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	10.9	3.3	11.1	0.9	32.2	32.2	G, Q [NL](10)	N_t,NM_yM_z	-25.73	-0.05	-0.29	0.20	0.05	Cumple
											G, G, V, V(11)	N_c	12.53	0.03	0.13	-0.17	-0.02	
											G, V, N [NL](12)	M_y	-17.57	-0.22	-0.12	-0.05	0.18	
											G, V, N [NL](13)	M_z,V_y	-21.19	-0.04	-0.36	0.50	0.03	
		Pie	Cumple	22.3	11.0	3.6	7.4	0.6	30.0	30.0	G, Q [NL](10)	N_t,NM_yM_z	-25.61	0.06	0.21	0.20	0.05	Cumple
											G, G, V, V(11)	N_c	12.60	-0.03	0.00	0.07	-0.02	
											G, V, N [NL](12)	M_y	-17.46	0.23	0.23	0.34	0.18	
											G, V, N [NL](15)	M_z,V_y	-17.64	-0.04	0.24	0.34	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.9	6.6	1.8	8.5	0.8	13.5	13.5	G, V, N [NL](16)	N_t	-5.62	-0.02	-0.27	0.44	0.03	Cumple
											G, G, V, V(11)	N_c	7.63	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](12)	M_y	-0.97	-0.12	-0.08	-0.05	0.17	
											G, V, N [NL](13)	M_z,V_y,NM_yM_z	-5.40	-0.02	-0.27	0.44	0.03	
		Pie	Cumple	4.8	6.7	4.5	8.2	0.6	13.3	13.3	G, V, N [NL](16)	N_t	-5.51	0.05	0.04	-0.18	0.03	Cumple
											G, G, V, V(11)	N_c	7.69	-0.04	-0.01	0.07	-0.02	
											G, V, N [NL](12)	M_y,NM_yM_z	-0.86	0.29	0.26	0.33	0.17	
											G, V, N [NL](5)	M_z	-0.05	-0.07	0.26	0.33	-0.04	
											G, V, N [NL](15)	V_y	-0.89	-0.07	0.26	0.33	-0.04	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·Q [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(16) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.63. P119

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.0	80.2	3.7	16.7	2.4	88.9	1.9	88.9	G, V [NL][2]	N_t	-32.95	0.08	1.76	-0.87	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.11	-0.16	-5.16	2.54	0.09	
												G, V, N [NL][4]	M_y	68.21	-0.48	-3.55	1.74	0.26	
												G, Q [NL][5]	M_z,V_y	97.91	-0.16	-5.17	2.55	0.09	
												G, V, N [NL][6]	M_yV_y	79.71	-0.35	-4.18	2.06	0.19	
		Pie	Cumple	16.3	57.3	1.2	3.9	2.4	59.8	1.9	59.8	G, V [NL][2]	N_t	-32.81	-0.03	-0.41	-0.87	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.34	0.07	1.20	2.54	0.09	
												G, V, N [NL][4]	M_y	68.44	0.16	0.80	1.74	0.26	
												G, Q [NL][5]	M_z,V_y	98.13	0.07	1.20	2.55	0.09	
												G, V, N [NL][6]	M_yV_y	79.94	0.12	0.96	2.06	0.19	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	40.7	2.2	1.6	0.4	42.1	N.P.[1]	42.1	G, G, V, V[7]	N_t	-24.49	0.04	-0.12	0.12	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.01	-0.07	0.49	-0.45	0.06	
												G, V, N [NL][8]	M_y	51.59	-0.29	0.33	-0.32	0.24	
												G, Q [NL][5]	V_y	73.66	-0.07	0.49	-0.45	0.06	
		Pie	Cumple	11.5	41.8	2.4	2.1	0.4	43.6	N.P.[1]	43.6	G, G, V, V[7]	N_t	-24.35	-0.05	0.18	0.12	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.24	0.09	-0.65	-0.45	0.06	
												G, V, N [NL][8]	M_y	51.81	0.31	-0.48	-0.32	0.24	
												G, Q [NL][5]	M_z,V_y	73.89	0.09	-0.65	-0.45	0.06	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.1	31.8	0.8	3.9	1.4	34.1	N.P.[1]	34.1	G, G, V, V[7]	N_t	-16.73	0.01	0.38	-0.42	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.10	-0.01	-1.20	1.50	0.06	
												G, V, N [NL][8]	M_y	34.16	-0.11	-0.86	1.08	0.27	
												G, Q [NL][5]	M_z,V_y	48.61	-0.01	-1.20	1.50	0.06	
		Pie	Cumple	10.5	39.0	4.2	7.9	1.4	44.3	N.P.[1]	44.3	G, V [NL][2]	N_t	-14.73	-0.07	-0.83	-0.52	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.32	0.12	2.44	1.50	0.06	
												G, V, N [NL][8]	M_y	34.38	0.55	1.76	1.08	0.27	
												G, Q [NL][5]	V_y	48.83	0.12	2.44	1.50	0.06	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.64. P120

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.5	80.2	3.6	16.8	2.4	89.0	2.4	89.0	G, G, V, V[2]	N_t	-36.65	0.08	-1.93	0.95	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.02	-0.15	5.18	-2.55	0.08	
												G, V, N [NL][4]	M_y	67.94	-0.48	3.56	-1.75	0.25	
												G, Q [NL][5]	M_z,V_y,M_yV_y	97.82	-0.15	5.18	-2.55	0.08	
		Pie	Cumple	18.1	57.3	1.1	3.9	2.4	59.7	2.4	59.7	G, G, V, V[2]	N_t	-36.52	-0.03	0.44	0.95	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.25	0.06	-1.20	-2.55	0.08	
												G, V, N [NL][4]	M_y	68.16	0.14	-0.80	-1.75	0.25	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.04	0.06	-1.20	-2.55	0.08	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.1	40.6	2.4	1.6	0.4	42.0	N.P.[1]	42.0	G, G, V, V[2]	N_t	-26.58	0.04	0.11	-0.15	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	73.75	-0.06	-0.49	0.45	0.06	
												G, V, N [NL][6]	M_y	51.76	-0.31	-0.33	0.32	0.25	
												G, Q [NL][5]	V_y	73.39	-0.07	-0.49	0.45	0.06	
		Pie	Cumple	12.8	41.6	2.4	2.1	0.4	43.4	N.P.[1]	43.4	G, G, V, V[7]	N_t	-26.44	-0.04	-0.26	-0.15	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	73.98	0.08	0.65	0.45	0.06	
												G, V, N [NL][4]	M_y	51.63	0.32	0.48	0.32	0.25	
												G, Q [NL][5]	M_z,V_y	73.62	0.08	0.65	0.45	0.06	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.3	31.6	0.9	3.9	1.4	34.1	N.P.[1]	34.1	G, G, V, V[2]	N_t	-14.96	0.02	-0.57	0.74	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	48.66	-0.04	1.20	-1.51	0.08	
												G, V, N [NL][6]	M_y	34.34	-0.12	0.86	-1.09	0.29	
												G, Q [NL][5]	M_z,V_y	48.17	-0.03	1.20	-1.51	0.08	
		Pie	Cumple	12.5	38.9	4.4	8.0	1.4	44.4	N.P.[1]	44.4	G, G, V, V[2]	N_t	-14.83	-0.09	1.23	0.74	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	48.88	0.15	-2.46	-1.51	0.08	
												G, V, N [NL][6]	M_y	34.56	0.58	-1.78	-1.09	0.29	
												G, Q [NL][5]	M_z,V_y	48.39	0.15	-2.46	-1.51	0.08	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1187.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.4	14.6	1.3	14.9	14.9	G, G, V, V, N[1]	N_t	-0.87	0.00	0.23	-0.59	0.00	Cumple
											G, V, N [NL][2]	N_c	0.63	0.02	-0.23	0.19	-0.02	
											G, V, N [NL][3]	M_y	0.47	0.03	-0.38	0.31	-0.03	
											G, Q [NL][4]	M_z,NM_yM_z	0.03	0.03	-0.47	0.37	-0.03	
											G, G, V, V[5]	V_y	-0.83	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	1.0	19.8	1.7	20.8	20.8	G, G, V, V, N[6]	N_t	-0.78	0.02	0.16	0.53	0.01	Cumple
											G, V, N [NL][7]	N_c	0.73	-0.04	0.34	0.26	-0.02	
											G, V, N [NL][8]	M_y	0.05	-0.07	0.24	0.05	-0.03	
											G, V, N [NL][9]	M_z,V_y,NM_yM_z	-0.50	-0.04	0.63	0.89	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.2	4.6	16.8	1.4	60.5	60.5	G, Q [NL][10]	N_t,NM_yM_z	-52.69	-0.11	0.42	-0.27	0.07	Cumple
											G, G, V, V[11]	N_c	18.73	0.05	0.08	-0.46	-0.03	
											G, V, N [NL][8]	M_y	-36.57	-0.30	0.20	0.01	0.19	
											G, V, N [NL][12]	M_z,V_y	-40.43	-0.08	0.54	-0.75	0.05	
		Pie	Cumple	45.8	20.3	2.5	9.8	1.2	54.6	54.6	G, Q [NL][10]	N_t,NM_yM_z	-52.57	0.06	-0.25	-0.27	0.07	Cumple
											G, G, V, V[11]	N_c,M_z,V_y	18.80	-0.03	0.31	0.64	-0.03	
											G, V, N [NL][8]	M_y	-36.45	0.17	-0.25	-0.38	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	9.2	3.4	13.4	1.3	32.8	32.8	G, Q [NL][10]	N_t	-25.69	-0.05	0.29	-0.20	0.04	Cumple
											G, V [NL][13]	N_c	10.61	0.03	-0.09	0.06	-0.03	
											G, V, N [NL][14]	M_y	-17.49	-0.22	0.13	0.05	0.18	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.60	-0.04	0.43	-0.68	0.03	
		Pie	Cumple	22.3	9.3	3.6	9.2	1.1	29.8	29.8	G, Q [NL][10]	N_t,NM_yM_z	-25.57	0.05	-0.22	-0.20	0.04	Cumple
											G, V [NL][13]	N_c	10.68	-0.03	0.06	0.06	-0.03	
											G, V, N [NL][14]	M_y	-17.38	0.23	-0.23	-0.34	0.18	
											G, G, V, V[11]	M_z,V_y	8.66	-0.03	0.29	0.59	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.3	2.0	10.6	1.1	16.9	16.9	G, V, N [NL][15]	N_t	-6.90	-0.03	0.33	-0.61	0.04	Cumple
											G, V [NL][16]	N_c	7.22	0.01	0.00	0.00	-0.01	
											G, V, N [NL][8]	M_y	-0.02	-0.13	0.08	0.05	0.19	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-6.67	-0.04	0.34	-0.62	0.05	
		Pie	Cumple	5.9	6.3	4.8	9.9	1.1	13.6	13.6	G, V, N [NL][15]	N_t	-6.79	0.07	0.05	0.37	0.04	Cumple
											G, V [NL][16]	N_c	7.29	-0.02	0.00	0.00	-0.01	
											G, V, N [NL][8]	M_y	0.09	0.32	-0.26	-0.33	0.19	
											G, G, V, V[5]	M_z	-1.59	-0.05	0.32	0.57	-0.03	
											G, G, V, V[11]	V_y	-0.75	-0.05	0.32	0.57	-0.03	
											G, V, N [NL][14]	NM_yM_z	-0.74	0.32	-0.26	-0.33	0.18	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·Q [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[15] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[16] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

2.2.2.1.1188.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.4	14.6	0.9	14.9	14.9	G, V, N [NL](1)	N_t	-0.73	0.01	0.12	-0.09	-0.01	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.23	-0.19	-0.02	
											G, V, N [NL](3)	M_y	0.47	0.03	0.39	-0.31	-0.03	
											G, Q [NL](4)	M_z,NM_yM_z	0.03	0.03	0.47	-0.37	-0.03	
											G, V, N [NL](5)	V_y	-0.08	0.02	0.41	-0.46	-0.01	
		Pie	Cumple	0.6	0.6	1.1	17.2	1.3	18.3	18.3	G, V, N [NL](6)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](7)	N_c	0.73	-0.04	-0.34	-0.26	-0.02	
											G, V, N [NL](8)	M_y	0.05	-0.07	-0.24	-0.05	-0.03	
											G, V, N [NL](9)	M_z,V_y,NM_yM_z	-0.55	-0.04	-0.55	-0.70	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.4	4.6	14.5	1.1	60.5	60.5	G, Q [NL](10)	N_t,NM_yM_z	-52.68	-0.11	-0.42	0.27	0.07	Cumple
											G, G, V, V(11)	N_c	18.91	0.05	0.17	-0.20	-0.03	
											G, V, N [NL](12)	M_y	-36.67	-0.30	-0.20	-0.01	0.19	
											G, V, N [NL](13)	M_z,V_y	-40.62	-0.08	-0.46	0.57	0.05	
		Pie	Cumple	45.8	20.5	2.6	8.1	0.7	54.6	54.6	G, Q [NL](10)	N_t,NM_yM_z	-52.57	0.06	0.25	0.27	0.07	Cumple
											G, G, V, V(11)	N_c	18.98	-0.03	-0.01	0.05	-0.03	
											G, V, N [NL](12)	M_y	-36.55	0.17	0.25	0.38	0.19	
											G, V, N [NL](14)	M_z	-40.56	0.05	0.26	0.34	0.06	
											G, V, N [NL](15)	V_y	-36.89	-0.02	0.26	0.38	-0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	10.9	3.3	11.2	0.9	32.3	32.3	G, Q [NL](10)	N_t,NM_yM_z	-25.71	-0.05	-0.29	0.20	0.05	Cumple
											G, G, V, V(11)	N_c	12.51	0.03	0.13	-0.17	-0.03	
											G, V, N [NL](12)	M_y	-17.51	-0.22	-0.13	-0.05	0.18	
											G, V, N [NL](13)	M_z,V_y	-21.13	-0.04	-0.36	0.50	0.04	
		Pie	Cumple	22.3	11.0	3.6	7.4	0.6	30.1	30.1	G, Q [NL](10)	N_t,NM_yM_z	-25.60	0.07	0.22	0.20	0.05	Cumple
											G, G, V, V(11)	N_c	12.57	-0.04	0.00	0.07	-0.03	
											G, V, N [NL](12)	M_y	-17.40	0.24	0.23	0.34	0.18	
											G, V, N [NL](15)	M_z,V_y	-17.54	-0.04	0.24	0.34	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.6	1.8	8.5	0.8	13.4	13.4	G, V, N [NL](16)	N_t	-5.51	-0.02	-0.27	0.44	0.03	Cumple
											G, G, V, V(11)	N_c	7.55	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](8)	M_y	-0.05	-0.12	-0.08	-0.05	0.17	
											G, V, N [NL](13)	M_z,V_y,NM_yM_z	-5.28	-0.02	-0.27	0.44	0.03	
		Pie	Cumple	4.7	6.6	4.5	8.3	0.6	13.3	13.3	G, V, N [NL](16)	N_t	-5.40	0.05	0.04	-0.18	0.03	Cumple
											G, G, V, V(11)	N_c	7.61	-0.04	-0.01	0.06	-0.02	
											G, V, N [NL](8)	M_y	0.06	0.29	0.26	0.33	0.17	
											G, V, N [NL](5)	M_z	0.08	-0.06	0.26	0.33	-0.04	
											G, V, N [NL](15)	V_y	-0.76	-0.06	0.26	0.33	-0.04	
											G, V, N [NL](12)	NM_yM_z	-0.78	0.29	0.26	0.33	0.17	

Notas:

(1) *1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(2) *0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(5) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(6) *0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(7) *1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(8) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(9) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(10) *1.35·PP+0.8·CM1+1.5·Q [NL]*
(11) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(12) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(14) *1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]*
(15) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(16) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]*

2.2.2.1.67. P123

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.1	80.4	3.8	16.8	2.4	89.3	1.9	89.3	G, V [NL][2]	N_t	-33.05	0.09	1.77	-0.87	-0.05	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	98.34	-0.17	-5.18	2.55	0.10	
												G, V, N [NL][4]	M_y	68.23	-0.49	-3.55	1.74	0.26	
												G, Q [NL][5]	M_zV_y	98.13	-0.17	-5.19	2.56	0.10	
												G, V, N [NL][6]	M_tV_y	79.81	-0.37	-4.19	2.06	0.20	
		Pie	Cumple	16.4	57.4	1.3	3.9	2.4	60.0	1.9	60.0	G, V [NL][2]	N_t	-32.91	-0.04	-0.42	-0.87	-0.05	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	98.56	0.07	1.20	2.55	0.10	
												G, V, N [NL][4]	M_y	68.46	0.17	0.80	1.74	0.26	
												G, Q [NL][5]	M_zV_y	98.36	0.07	1.20	2.56	0.10	
												G, V, N [NL][6]	M_tV_y	80.04	0.13	0.96	2.06	0.20	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	40.8	2.3	1.6	0.4	42.2	N.P.[1]	42.2	G, G, V, V[7]	N_t	-24.52	0.04	-0.12	0.12	-0.04	Cumple
												G, Q [NL][3]	N_tM_z,NM_yM_z	74.12	-0.07	0.49	-0.46	0.07	
												G, V, N [NL][8]	M_y	51.57	-0.30	0.33	-0.32	0.25	
												G, Q [NL][5]	V_y	73.76	-0.07	0.49	-0.46	0.07	
		Pie	Cumple	11.5	41.8	2.4	2.1	0.4	43.8	N.P.[1]	43.8	G, G, V, V[7]	N_t	-24.38	-0.05	0.18	0.12	-0.04	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	74.35	0.10	-0.65	-0.46	0.07	
												G, V, N [NL][8]	M_y	51.80	0.32	-0.48	-0.32	0.25	
												G, Q [NL][5]	M_zV_y	73.99	0.10	-0.65	-0.46	0.07	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.1	31.8	0.8	3.9	1.4	34.1	N.P.[1]	34.1	G, G, V, V[7]	N_t	-16.70	0.01	0.38	-0.42	-0.03	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	49.09	-0.01	-1.20	1.51	0.06	
												G, V, N [NL][8]	M_y	34.12	-0.10	-0.86	1.08	0.27	
												G, Q [NL][5]	M_zV_y	48.60	-0.01	-1.20	1.51	0.06	
		Pie	Cumple	10.5	39.1	4.2	7.9	1.4	44.4	N.P.[1]	44.4	G, V [NL][2]	N_t	-14.73	-0.07	-0.84	-0.52	-0.03	Cumple
												G, Q [NL][3]	N_tM_z,NM_yM_z	49.31	0.13	2.45	1.51	0.06	
												G, V, N [NL][8]	M_y	34.34	0.55	1.77	1.08	0.27	
												G, Q [NL][5]	V_y	48.82	0.13	2.45	1.51	0.06	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.68. P124

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.5	80.4	3.7	16.8	2.4	89.2	1.9	89.2	G, G, V, V[2]	N_t	-36.75	0.09	-1.93	0.95	-0.05	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	98.30	-0.16	5.18	-2.55	0.09	
												G, V, N [NL][4]	M_y	68.00	-0.48	3.56	-1.74	0.25	
												G, Q [NL][5]	M_zV_y	98.10	-0.16	5.19	-2.56	0.09	
												G, V, N [NL][6]	M_tV_y	79.78	-0.36	4.20	-2.06	0.19	
		Pie	Cumple	18.1	57.4	1.1	3.9	2.4	59.9	1.9	59.9	G, G, V, V[7]	N_t	-36.61	-0.03	0.44	0.95	-0.05	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	98.53	0.06	-1.20	-2.55	0.09	
												G, V, N [NL][4]	M_y	68.23	0.15	-0.80	-1.74	0.25	
												G, Q [NL][5]	M_zV_y	98.33	0.07	-1.20	-2.56	0.09	
												G, V, N [NL][6]	M_tV_y	80.01	0.12	-0.96	-2.06	0.19	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	40.8	2.4	1.6	0.4	42.2	N.P.[1]	42.2	G, G, V, V[2]	N_t	-26.70	0.04	0.11	-0.15	-0.04	Cumple
												G, Q [NL][3]	N_tM_z,NM_yM_z	74.06	-0.07	-0.49	0.46	0.06	
												G, V, N [NL][7]	M_y	51.88	-0.31	-0.33	0.32	0.25	
												G, Q [NL][5]	V_y	73.71	-0.07	-0.49	0.46	0.06	
		Pie	Cumple	12.9	41.8	2.5	2.1	0.4	43.6	N.P.[1]	43.6	G, G, V, V[2]	N_t	-26.56	-0.05	-0.26	-0.15	-0.04	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	74.29	0.09	0.65	0.46	0.06	
												G, V, N [NL][4]	M_y	51.75	0.32	0.48	0.32	0.25	
												G, Q [NL][5]	M_zV_y	73.93	0.09	0.65	0.46	0.06	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	31.7	0.9	3.9	1.4	34.2	N.P.[1]	34.2	G, G, V, V[2]	N_t	-15.11	0.02	-0.57	0.74	-0.04	Cumple
												G, Q [NL][3]	$N_tNM_yM_z$	49.00	-0.03	1.20	-1.51	0.08	
												G, V, N [NL][7]	M_y	34.55	-0.11	0.86	-1.09	0.29	
												G, Q [NL][5]	M_zV_y	48.52	-0.03	1.20	-1.51	0.08	
		Pie	Cumple	12.6	39.1	4.4	7.9	1.4	44.6	N.P.[1]	44.6	G, G, V, V[2]	N_t	-14.98	-0.09	1.22	0.74	-0.04	Cumple
												G, Q [NL][3]	N_tM_z,NM_yM_z	49.22	0.15	-2.46	-1.51	0.08	
												G, V, N [NL][7]	M_y	34.77	0.58	-1.77	-1.09	0.29	
												G, Q [NL][5]	V_y	48.74	0.15	-2.46	-1.51	0.08	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1190.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.4	14.6	1.3	14.9	14.9	G, G, V, V, N[1]	N_t	-0.87	0.00	0.23	-0.59	0.00	Cumple
											G, V, N [NL][2]	N_c	0.63	0.02	-0.23	0.19	-0.02	
											G, Q [NL][3]	M_y,M_z,NM_yM_z	0.03	0.03	-0.47	0.37	-0.03	
											G, G, V, V[4]	V_y	-0.83	-0.01	0.36	-0.70	0.01	
		Pie	Cumple	0.7	0.6	1.1	19.8	1.7	20.9	20.9	G, G, V, V, N[5]	N_t	-0.78	0.02	0.16	0.53	0.01	Cumple
											G, V, N [NL][6]	N_c	0.73	-0.04	0.34	0.26	-0.02	
											G, V, N [NL][7]	M_y	0.05	-0.07	0.24	0.05	-0.03	
											G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.50	-0.04	0.63	0.89	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.3	4.7	16.8	1.4	60.7	60.7	G, Q [NL][9]	N_t,NM_yM_z	-52.71	-0.12	0.42	-0.27	0.07	Cumple
											G, G, V, V[10]	N_c	18.80	0.06	0.08	-0.46	-0.04	
											G, V, N [NL][11]	M_y	-36.63	-0.31	0.20	0.01	0.19	
											G, V, N [NL][12]	M_z,V_y	-40.45	-0.09	0.54	-0.75	0.05	
		Pie	Cumple	45.8	20.4	2.6	9.8	1.2	54.8	54.8	G, Q [NL][9]	N_t,NM_yM_z	-52.60	0.07	-0.25	-0.27	0.07	Cumple
											G, G, V, V[10]	N_c,M_z,V_y	18.87	-0.03	0.31	0.64	-0.04	
											G, V, N [NL][11]	M_y	-36.51	0.17	-0.25	-0.38	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	9.3	3.4	13.4	1.3	32.8	32.8	G, Q [NL][9]	N_t	-25.71	-0.05	0.29	-0.20	0.05	Cumple
											G, V [NL][13]	N_c	10.65	0.03	-0.09	0.06	-0.03	
											G, V, N [NL][11]	M_y	-17.48	-0.22	0.13	0.05	0.18	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.62	-0.04	0.43	-0.68	0.03	
		Pie	Cumple	22.3	9.3	3.6	9.2	1.1	30.0	30.0	G, Q [NL][9]	N_t,NM_yM_z	-25.59	0.06	-0.22	-0.20	0.05	Cumple
											G, V [NL][13]	N_c	10.72	-0.04	0.06	0.06	-0.03	
											G, V, N [NL][11]	M_y	-17.37	0.24	-0.23	-0.34	0.18	
											G, G, V, V[10]	M_z,V_y	8.70	-0.04	0.29	0.59	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.3	2.0	10.6	1.1	16.9	16.9	G, V, N [NL][14]	N_t	-6.92	-0.03	0.33	-0.61	0.04	Cumple
											G, V [NL][15]	N_c	7.22	0.01	0.00	0.00	-0.01	
											G, V, N [NL][7]	M_y	-0.04	-0.13	0.08	0.05	0.18	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-6.69	-0.03	0.34	-0.62	0.04	
		Pie	Cumple	5.9	6.3	4.8	9.9	1.1	13.6	13.6	G, V, N [NL][14]	N_t	-6.81	0.07	0.05	0.37	0.04	Cumple
											G, V [NL][15]	N_c	7.28	-0.02	0.00	0.00	-0.01	
											G, V, N [NL][7]	M_y	0.07	0.31	-0.26	-0.33	0.18	
											G, G, V, V[4]	M_z	-1.57	-0.05	0.32	0.57	-0.03	
											G, G, V, V[10]	V_y	-0.73	-0.05	0.32	0.57	-0.03	
											G, V, N [NL][11]	NM_yM_z	-0.76	0.31	-0.26	-0.33	0.18	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·Q [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

2.2.2.1.1191.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.5	14.6	0.9	14.9	14.9	G, V, N [NL](1)	N_t	-0.73	0.01	0.12	-0.08	-0.01	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.23	-0.19	-0.02	
											G, Q [NL](3)	M_y,M_z,NM_yM_z	0.03	0.03	0.47	-0.37	-0.03	
											G, V, N [NL](4)	V_y	-0.07	0.02	0.41	-0.46	-0.02	
		Pie	Cumple	0.6	0.6	1.1	17.2	1.3	18.4	18.4	G, V, N [NL](5)	N_t	-0.64	0.00	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](6)	N_c	0.73	-0.04	-0.34	-0.26	-0.03	
											G, V, N [NL](7)	M_y	0.05	-0.07	-0.24	-0.05	-0.03	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.55	-0.04	-0.55	-0.70	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.9	20.5	4.8	14.5	1.1	60.8	60.8	G, Q [NL](9)	N_t,NM_yM_z	-52.71	-0.12	-0.42	0.27	0.08	Cumple
											G, G, V, V(10)	N_c	18.98	0.06	0.17	-0.20	-0.04	
											G, V, N [NL](7)	M_y	-36.52	-0.31	-0.20	-0.01	0.20	
											G, V, N [NL](11)	M_z,V_y	-40.65	-0.09	-0.46	0.57	0.06	
		Pie	Cumple	45.8	20.6	2.7	8.1	0.7	54.8	54.8	G, Q [NL](9)	N_t,NM_yM_z	-52.60	0.07	0.25	0.27	0.08	Cumple
											G, G, V, V(10)	N_c	19.04	-0.03	-0.01	0.05	-0.04	
											G, V, N [NL](7)	M_y	-36.41	0.18	0.25	0.38	0.20	
											G, V, N [NL](12)	M_z	-40.58	0.06	0.26	0.34	0.06	
											G, V, N [NL](13)	V_y	-36.75	-0.01	0.26	0.38	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.4	10.9	3.3	11.2	0.9	32.3	32.3	G, Q [NL](9)	N_t,NM_yM_z	-25.71	-0.06	-0.29	0.20	0.05	Cumple
											G, G, V, V(10)	N_c	12.53	0.03	0.13	-0.17	-0.03	
											G, V, N [NL](14)	M_y	-17.48	-0.22	-0.13	-0.05	0.18	
											G, V, N [NL](11)	M_z,V_y	-21.13	-0.04	-0.36	0.50	0.04	
		Pie	Cumple	22.3	11.0	3.7	7.4	0.6	30.2	30.2	G, Q [NL](9)	N_t,NM_yM_z	-25.59	0.07	0.22	0.20	0.05	Cumple
											G, G, V, V(10)	N_c	12.60	-0.04	0.00	0.07	-0.03	
											G, V, N [NL](14)	M_y	-17.37	0.24	0.23	0.34	0.18	
											G, V, N [NL](13)	M_z,V_y	-17.45	-0.04	0.24	0.34	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.6	1.8	8.5	0.8	13.4	13.4	G, V, N [NL](15)	N_t	-5.49	-0.02	-0.27	0.44	0.03	Cumple
											G, G, V, V(10)	N_c	7.54	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](7)	M_y	-0.04	-0.12	-0.07	-0.05	0.17	
											G, V, N [NL](11)	M_z,V_y,NM_yM_z	-5.26	-0.02	-0.27	0.44	0.03	
		Pie	Cumple	4.7	6.6	4.5	8.3	0.6	13.3	13.3	G, V, N [NL](15)	N_t	-5.38	0.05	0.04	-0.18	0.03	Cumple
											G, G, V, V(10)	N_c	7.60	-0.04	-0.01	0.06	-0.02	
											G, V, N [NL](7)	M_y	0.07	0.29	0.26	0.33	0.17	
											G, V, N [NL](4)	M_z	0.13	-0.06	0.26	0.33	-0.04	
											G, V, N [NL](13)	V_y	-0.70	-0.06	0.26	0.33	-0.04	
											G, V, N [NL](14)	NM_yM_z	-0.77	0.29	0.26	0.33	0.17	

Notas:

(1) *1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(2) *0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(4) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(5) *0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(6) *1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(7) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(8) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(9) *1.35·PP+0.8·CM1+1.5·Q [NL]*
(10) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(11) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(12) *1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(14) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(15) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]*

2.2.2.1.71. P127

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.2	80.5	3.9	16.8	2.4	89.6	1.9	89.6	G, V [NL][2]	N_t	-33.19	0.10	1.77	-0.88	-0.06	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.40	-0.19	-5.19	2.56	0.11	
												G, V, N [NL][4]	M_y	68.21	-0.51	-3.55	1.74	0.27	
												G, Q [NL][5]	M_z,V_y	98.19	-0.19	-5.19	2.56	0.11	
												G, V, N [NL][6]	M_yV_y	79.82	-0.38	-4.19	2.06	0.21	
		Pie	Cumple	16.5	57.5	1.3	3.9	2.4	60.2	1.9	60.2	G, V [NL][2]	N_t	-33.05	-0.04	-0.42	-0.88	-0.06	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.63	0.09	1.20	2.56	0.11	
												G, V, N [NL][4]	M_y	68.44	0.17	0.80	1.74	0.27	
												G, Q [NL][5]	M_z,V_y	98.42	0.09	1.20	2.56	0.11	
												G, V, N [NL][6]	M_yV_y	80.05	0.14	0.96	2.06	0.21	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.3	40.8	2.3	1.6	0.4	42.3	N.P.[1]	42.3	G, G, V, V[7]	N_t	-24.61	0.04	-0.13	0.12	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.16	-0.07	0.49	-0.46	0.07	
												G, V, N [NL][8]	M_y	51.56	-0.29	0.33	-0.32	0.25	
												G, Q [NL][5]	V_y	73.80	-0.07	0.49	-0.46	0.07	
		Pie	Cumple	11.6	41.8	2.5	2.1	0.4	43.8	N.P.[1]	43.8	G, G, V, V[7]	N_t	-24.48	-0.06	0.19	0.12	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.38	0.11	-0.65	-0.46	0.07	
												G, V, N [NL][4]	M_y	52.14	0.32	-0.48	-0.32	0.25	
												G, Q [NL][5]	M_z,V_y	74.03	0.11	-0.65	-0.46	0.07	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.2	31.8	0.8	3.9	1.4	34.1	N.P.[1]	34.1	G, G, V, V[7]	N_t	-16.75	0.01	0.38	-0.42	-0.03	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.10	-0.01	-1.20	1.51	0.06	
												G, V, N [NL][8]	M_y	34.12	-0.10	-0.86	1.08	0.27	
												G, Q [NL][5]	M_z,V_y	48.61	-0.01	-1.20	1.51	0.06	
		Pie	Cumple	10.6	39.1	4.2	7.9	1.4	44.5	N.P.[1]	44.5	G, V [NL][2]	N_t	-14.79	-0.07	-0.84	-0.52	-0.03	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.32	0.13	2.46	1.51	0.06	
												G, V, N [NL][8]	M_y	34.34	0.55	1.76	1.08	0.27	
												G, Q [NL][5]	V_y	48.83	0.13	2.46	1.51	0.06	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.72. P128

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.6	80.5	3.8	16.8	2.4	89.5	1.9	89.5	G, G, V, V[2]	N_t	-36.88	0.10	-1.94	0.95	-0.06	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.40	-0.18	5.19	-2.56	0.10	
												G, V, N [NL][4]	M_y	68.00	-0.50	3.55	-1.74	0.26	
												G, Q [NL][5]	M_z,V_y	98.19	-0.18	5.19	-2.56	0.10	
												G, V, N [NL][6]	M_yV_y	79.82	-0.37	4.19	-2.06	0.20	
		Pie	Cumple	18.2	57.5	1.2	3.9	2.4	60.1	1.9	60.1	G, G, V, V[7]	N_t	-36.75	-0.04	0.44	0.95	-0.06	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.62	0.08	-1.20	-2.56	0.10	
												G, V, N [NL][4]	M_y	68.23	0.16	-0.80	-1.74	0.26	
												G, Q [NL][5]	M_z,V_y	98.42	0.08	-1.20	-2.56	0.10	
												G, V, N [NL][6]	M_yV_y	80.05	0.13	-0.96	-2.06	0.20	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	40.8	2.4	1.6	0.4	42.3	N.P.[1]	42.3	G, G, V, V[2]	N_t	-26.81	0.04	0.11	-0.15	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.15	-0.07	-0.49	0.46	0.07	
												G, V, N [NL][7]	M_y	51.55	-0.31	-0.33	0.32	0.26	
												G, Q [NL][5]	V_y	73.79	-0.07	-0.49	0.46	0.07	
		Pie	Cumple	12.9	41.8	2.5	2.1	0.4	43.8	N.P.[1]	43.8	G, G, V, V[2]	N_t	-26.67	-0.06	-0.26	-0.15	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.37	0.10	0.65	0.46	0.07	
												G, V, N [NL][4]	M_y	51.78	0.33	0.48	0.32	0.26	
												G, Q [NL][5]	M_z,V_y	74.02	0.10	0.65	0.46	0.07	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.5	31.8	0.8	3.9	1.4	34.2	N.P.[1]	34.2	G, G, V, V[2]	N_t	-15.19	0.01	-0.57	0.74	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.09	-0.02	1.20	-1.51	0.07	
												G, V, N [NL][7]	M_y	34.60	-0.11	0.86	-1.08	0.28	
												G, Q [NL][5]	M_z,V_y	48.60	-0.02	1.20	-1.51	0.07	
		Pie	Cumple	12.6	39.1	4.4	7.9	1.4	44.6	N.P.[1]	44.6	G, G, V, V[2]	N_t	-15.06	-0.09	1.22	0.74	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.31	0.16	-2.46	-1.51	0.07	
												G, V, N [NL][7]	M_y	34.82	0.58	-1.76	-1.08	0.28	
												G, Q [NL][5]	V_y	48.82	0.15	-2.46	-1.51	0.07	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1193.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.6	14.7	1.3	15.0	15.0	G, G, V, V, N[1]	N_t	-0.86	0.00	0.23	-0.59	0.01	Cumple
											G, V, N [NL][2]	N_c	0.63	0.02	-0.24	0.19	-0.03	
											G, Q [NL][3]	M_y,M_z,NM_yM_z	0.03	0.04	-0.47	0.37	-0.04	
											G, G, V, V[4]	V_y	-0.83	-0.02	0.37	-0.70	0.02	
		Pie	Cumple	0.7	0.6	1.3	19.9	1.7	21.2	21.2	G, G, V, V, N[5]	N_t	-0.78	0.03	0.15	0.53	0.01	Cumple
											G, V, N [NL][6]	N_c	0.72	-0.06	0.34	0.26	-0.03	
											G, V, N [NL][7]	M_y	0.05	-0.08	0.25	0.05	-0.04	
											G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.50	-0.05	0.64	0.89	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.2	20.7	4.7	16.9	1.4	61.0	61.0	G, Q [NL][9]	N_t,NM_yM_z	-53.05	-0.11	0.42	-0.27	0.07	Cumple
											G, G, V, V[10]	N_c	19.14	0.05	0.08	-0.46	-0.04	
											G, V, N [NL][11]	M_y	-37.26	-0.31	0.20	0.01	0.19	
											G, V, N [NL][12]	M_z,V_y	-40.76	-0.09	0.54	-0.75	0.06	
		Pie	Cumple	46.1	20.7	2.7	9.8	1.2	55.1	55.1	G, Q [NL][9]	N_t,NM_yM_z	-52.94	0.07	-0.25	-0.27	0.07	Cumple
											G, G, V, V[10]	N_c,M_z,V_y	19.21	-0.03	0.31	0.64	-0.04	
											G, V, N [NL][11]	M_y	-37.15	0.17	-0.25	-0.38	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.6	9.5	3.4	13.4	1.3	33.1	33.1	G, Q [NL][9]	N_t	-25.98	-0.06	0.29	-0.20	0.05	Cumple
											G, V [NL][13]	N_c	10.92	0.04	-0.09	0.06	-0.03	
											G, V, N [NL][11]	M_y	-18.14	-0.22	0.12	0.05	0.19	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-21.87	-0.04	0.43	-0.68	0.04	
		Pie	Cumple	22.5	9.6	3.7	9.2	1.1	30.4	30.4	G, Q [NL][9]	N_t,NM_yM_z	-25.87	0.07	-0.22	-0.20	0.05	Cumple
											G, V [NL][13]	N_c	10.99	-0.04	0.06	0.06	-0.03	
											G, V, N [NL][11]	M_y	-18.02	0.24	-0.23	-0.34	0.19	
											G, G, V, V[10]	M_z,V_y	8.97	-0.04	0.29	0.60	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.2	6.3	1.9	10.6	1.1	17.1	17.1	G, V, N [NL][14]	N_t	-7.10	-0.03	0.33	-0.61	0.04	Cumple
											G, V [NL][15]	N_c	7.28	0.01	-0.01	0.00	-0.01	
											G, V, N [NL][7]	M_y	-0.71	-0.13	0.07	0.05	0.18	
											G, V, N [NL][12]	M_z,V_y,NM_yM_z	-6.89	-0.03	0.34	-0.62	0.04	
		Pie	Cumple	6.1	6.4	4.8	9.9	1.1	14.1	14.1	G, V, N [NL][14]	N_t	-6.99	0.07	0.05	0.37	0.04	Cumple
											G, V [NL][15]	N_c	7.35	-0.02	0.00	0.00	-0.01	
											G, V, N [NL][7]	M_y	-0.60	0.31	-0.26	-0.33	0.18	
											G, G, V, V[4]	M_z	-1.37	-0.05	0.32	0.57	-0.03	
											G, G, V, V[10]	V_y	-0.54	-0.05	0.32	0.57	-0.03	
											G, V, N [NL][11]	NM_yM_z	-1.44	0.31	-0.26	-0.33	0.18	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·Q [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

2.2.2.1.74. P130

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.6	14.7	0.9	15.0	15.0	G, V, N [NL](1)	N_t	-0.73	0.01	0.12	-0.08	-0.01	Cumple
											G, V, N [NL](2)	N_c	0.63	0.02	0.24	-0.19	-0.03	
											G, Q [NL](3)	M_y,M_z,NM_yM_z	0.03	0.04	0.47	-0.37	-0.05	
											G, V, N [NL](4)	V_y	-0.07	0.03	0.41	-0.46	-0.02	
		Pie	Cumple	0.6	0.6	1.3	17.3	1.3	18.7	18.7	G, V, N [NL](5)	N_t	-0.64	0.01	-0.01	-0.02	0.00	Cumple
											G, V, N [NL](6)	N_c	0.72	-0.06	-0.34	-0.26	-0.03	
											G, V, N [NL](7)	M_y	0.05	-0.09	-0.25	-0.05	-0.04	
											G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.56	-0.06	-0.55	-0.70	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.2	20.9	4.7	14.6	1.1	61.1	61.1	G, Q [NL](9)	N_t,NM_yM_z	-53.06	-0.12	-0.42	0.27	0.08	Cumple
											G, G, V, V(10)	N_c	19.32	0.05	0.17	-0.20	-0.03	
											G, V, N [NL](7)	M_y	-37.16	-0.31	-0.20	-0.01	0.20	
											G, V, N [NL](11)	M_z,V_y	-40.96	-0.09	-0.47	0.57	0.06	
		Pie	Cumple	46.1	20.9	2.7	8.1	0.7	55.2	55.2	G, Q [NL](9)	N_t,NM_yM_z	-52.94	0.08	0.25	0.27	0.08	Cumple
											G, G, V, V(10)	N_c	19.39	-0.03	-0.01	0.05	-0.03	
											G, V, N [NL](7)	M_y	-37.05	0.18	0.25	0.37	0.20	
											G, V, N [NL](12)	M_z	-40.90	0.06	0.26	0.34	0.06	
											G, V, N [NL](13)	V_y	-36.40	-0.01	0.26	0.38	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.6	11.2	3.3	11.2	0.9	32.7	32.7	G, Q [NL](9)	N_t,NM_yM_z	-25.99	-0.06	-0.29	0.20	0.06	Cumple
											G, G, V, V(10)	N_c	12.80	0.03	0.13	-0.17	-0.03	
											G, V, N [NL](14)	M_y	-18.15	-0.22	-0.12	-0.05	0.18	
											G, V, N [NL](11)	M_z,V_y	-21.38	-0.05	-0.36	0.50	0.04	
		Pie	Cumple	22.5	11.2	3.7	7.4	0.6	30.5	30.5	G, Q [NL](9)	N_t,NM_yM_z	-25.87	0.08	0.22	0.20	0.06	Cumple
											G, G, V, V(10)	N_c	12.87	-0.04	0.00	0.07	-0.03	
											G, V, N [NL](14)	M_y	-18.04	0.24	0.23	0.34	0.18	
											G, V, N [NL](13)	M_z,V_y	-17.10	-0.03	0.24	0.34	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.9	6.7	1.8	8.6	0.8	13.6	13.6	G, V, N [NL](15)	N_t	-5.67	-0.02	-0.27	0.44	0.03	Cumple
											G, G, V, V(10)	N_c	7.74	0.01	0.10	-0.16	-0.02	
											G, V, N [NL](7)	M_y	-0.72	-0.12	-0.07	-0.05	0.17	
											G, V, N [NL](11)	M_z,V_y,NM_yM_z	-5.46	-0.02	-0.27	0.44	0.03	
		Pie	Cumple	4.8	6.8	4.5	8.3	0.6	13.8	13.8	G, V, N [NL](15)	N_t	-5.56	0.06	0.04	-0.18	0.03	Cumple
											G, G, V, V(10)	N_c	7.81	-0.04	-0.01	0.06	-0.02	
											G, V, N [NL](7)	M_y	-0.61	0.29	0.26	0.33	0.17	
											G, V, N [NL](4)	M_z	0.48	-0.06	0.26	0.33	-0.03	
											G, V, N [NL](13)	V_y	-0.36	-0.06	0.26	0.33	-0.03	
											G, V, N [NL](14)	NM_yM_z	-1.45	0.29	0.26	0.33	0.17	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·Q [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.75. P131

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	23.4	80.8	4.0	16.8	2.4	89.9	2.4	89.9	G, V [NL](2)	N_t	-33.53	0.11	1.79	-0.88	-0.06	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	98.80	-0.21	-5.20	2.56	0.13	
												G, V, N [NL](4)	M_y	68.56	-0.52	-3.55	1.74	0.28	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.59	-0.21	-5.21	2.57	0.13	
		Pie	Cumple	16.6	57.7	1.4	3.9	2.4	60.5	2.4	60.5	G, V [NL](2)	N_t	-33.40	-0.05	-0.42	-0.88	-0.06	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.02	0.10	1.20	2.56	0.13	
												G, V, N [NL](4)	M_y	68.79	0.19	0.80	1.74	0.28	
												G, Q [NL](5)	M_z,V_y,M_yV_y	98.81	0.10	1.21	2.57	0.13	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.5	41.0	2.2	1.6	0.4	42.4	N.P.(1)	42.4	G, G, V, V(6)	N_t	-24.89	0.04	-0.13	0.13	-0.04	Cumple
												G, Q [NL](5)	N_t,M_z,NM_yM_z	74.50	-0.07	0.49	-0.46	0.08	
												G, V, N [NL](7)	M_y	51.98	-0.29	0.32	-0.32	0.25	
												G, Q [NL](5)	V_y	74.14	-0.07	0.49	-0.46	0.08	
		Pie	Cumple	11.7	42.0	2.5	2.1	0.4	44.1	N.P.(1)	44.1	G, G, V, V(6)	N_t	-24.76	-0.06	0.19	0.13	-0.04	Cumple
												G, Q [NL](5)	N_t,NM_yM_z	74.73	0.12	-0.65	-0.46	0.08	
												G, V, N [NL](4)	M_y	52.56	0.33	-0.48	-0.32	0.25	
												G, Q [NL](5)	M_z,V_y	74.37	0.12	-0.65	-0.46	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.3	31.9	0.8	3.9	1.4	34.2	N.P.(1)	34.2	G, G, V, V(6)	N_t	-16.96	0.00	0.38	-0.43	-0.03	Cumple
												G, Q [NL](5)	N_t,NM_yM_z	49.38	0.00	-1.21	1.52	0.06	
												G, V, N [NL](7)	M_y	34.57	-0.10	-0.86	1.08	0.27	
												G, Q [NL](5)	M_z,V_y	48.89	0.00	-1.21	1.52	0.06	
		Pie	Cumple	10.7	39.3	4.2	8.0	1.4	44.7	N.P.(1)	44.7	G, V [NL](2)	N_t	-15.01	-0.08	-0.84	-0.53	-0.03	Cumple
												G, Q [NL](5)	N_t,M_z,NM_yM_z	49.60	0.13	2.46	1.52	0.06	
												G, V, N [NL](7)	M_y	34.79	0.55	1.75	1.08	0.27	
												G, Q [NL](5)	V_y	49.11	0.13	2.46	1.52	0.06	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.76. P132

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.9	80.8	3.9	16.8	2.4	90.0	2.4	90.0	G, G, V, V[2]	N_t	-37.25	0.11	-1.96	0.96	-0.06	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.79	-0.21	5.20	-2.56	0.12	
												G, V, N [NL][4]	M_y	68.35	-0.52	3.56	-1.74	0.28	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.58	-0.21	5.21	-2.57	0.12	
		Pie	Cumple	18.3	57.7	1.4	3.9	2.4	60.4	2.4	60.4	G, G, V, V[2]	N_t	-37.11	-0.05	0.44	0.96	-0.06	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.02	0.10	-1.20	-2.56	0.12	
												G, V, N [NL][4]	M_y	68.58	0.18	-0.80	-1.74	0.28	
												G, Q [NL][5]	M_z,V_y,M_yV_y	98.81	0.10	-1.21	-2.57	0.12	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.4	41.0	2.3	1.6	0.4	42.5	N.P.[1]	42.5	G, G, V, V[2]	N_t	-27.11	0.04	0.11	-0.15	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.50	-0.07	-0.49	0.46	0.07	
												G, V, N [NL][6]	M_y	51.97	-0.31	-0.32	0.32	0.26	
												G, Q [NL][5]	V_y	74.14	-0.07	-0.49	0.46	0.07	
		Pie	Cumple	13.1	42.0	2.6	2.1	0.4	44.1	N.P.[1]	44.1	G, G, V, V[2]	N_t	-26.97	-0.06	-0.27	-0.15	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.72	0.11	0.65	0.46	0.07	
												G, V, N [NL][6]	M_y	52.20	0.33	0.48	0.32	0.26	
												G, Q [NL][5]	M_z,V_y	74.37	0.11	0.65	0.46	0.07	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.6	31.9	0.8	3.9	1.4	34.3	N.P.[1]	34.3	G, G, V, V[2]	N_t	-15.42	0.01	-0.58	0.75	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.38	-0.02	1.21	-1.52	0.07	
												G, V, N [NL][6]	M_y	35.05	-0.11	0.86	-1.08	0.28	
												G, Q [NL][5]	M_z,V_y	48.89	-0.02	1.21	-1.52	0.07	
		Pie	Cumple	12.7	39.3	4.4	8.0	1.4	44.9	N.P.[1]	44.9	G, G, V, V[2]	N_t	-15.29	-0.09	1.23	0.75	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.60	0.16	-2.46	-1.52	0.07	
												G, V, N [NL][6]	M_y	35.27	0.58	-1.76	-1.08	0.28	
												G, Q [NL][5]	V_y	49.11	0.16	-2.46	-1.52	0.07	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.77. P133

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.6	14.7	0.2	1.3	15.0	15.0	G, G, V, V, N[1]	N_t	-0.85	0.00	0.23	-0.59	0.00	Cumple
												G, V, N [NL][2]	N_c	0.61	0.02	-0.24	0.19	-0.02	
												G, Q [NL][3]	M_y,M_z,V_z,NM_yM_z	0.02	0.04	-0.47	0.37	-0.04	
												G, G, V, V[4]	V_y	-0.81	-0.01	0.37	-0.70	0.02	
		Pie	Cumple	0.7	0.6	1.2	19.9	0.2	1.7	21.2	21.2	G, G, V, V, N[5]	N_t	-0.76	0.02	0.15	0.52	0.01	Cumple
												G, V, N [NL][6]	N_c	0.70	-0.05	0.35	0.26	-0.03	
												G, V, N [NL][7]	M_y	0.03	-0.08	0.24	0.05	-0.04	
												G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.51	-0.05	0.64	0.89	-0.03	
												G, Q [NL][3]	V_z	0.14	-0.07	0.48	0.37	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.0	20.9	5.0	16.9	1.0	1.4	61.4	61.4	G, Q [NL][9]	N_t,NM_yM_z	-52.82	-0.15	0.42	-0.27	0.10	Cumple
												G, G, V, V[10]	N_c	19.39	0.07	0.07	-0.46	-0.05	
												G, V, N [NL][7]	M_y,V_z	-36.59	-0.33	0.21	0.01	0.21	
												G, V, N [NL][11]	M_z,V_y	-40.62	-0.11	0.54	-0.76	0.07	
		Pie	Cumple	45.9	21.0	2.9	9.9	1.0	1.2	55.3	55.3	G, Q [NL][9]	N_t,NM_yM_z	-52.71	0.09	-0.25	-0.27	0.10	Cumple
												G, G, V, V[10]	N_c,M_z,V_y	19.46	-0.04	0.32	0.64	-0.05	
												G, V, N [NL][7]	M_y,V_z	-36.48	0.19	-0.26	-0.38	0.21	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.3	9.4	3.4	13.5	0.9	1.3	32.9	32.9	G, Q [NL][9]	N_t	-25.61	-0.06	0.29	-0.20	0.05	Cumple
												G, V [NL][12]	N_c	10.83	0.03	-0.09	0.06	-0.03	
												G, V, N [NL][7]	M_y,V_z	-17.10	-0.22	0.13	0.05	0.19	
												G, V, N [NL][11]	M_z,V_y,NM_yM_z	-21.57	-0.04	0.43	-0.68	0.04	
		Pie	Cumple	22.2	9.5	3.8	9.3	0.9	1.1	30.2	30.2	G, Q [NL][9]	N_t,NM_yM_z	-25.49	0.08	-0.22	-0.20	0.05	Cumple
												G, V [NL][12]	N_c	10.90	-0.04	0.07	0.06	-0.03	
												G, V, N [NL][7]	M_y,V_z	-16.98	0.25	-0.24	-0.34	0.19	
												G, G, V, V[10]	M_z,V_y	8.89	-0.04	0.30	0.60	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	6.2	1.9	10.6	0.9	1.1	16.7	16.7	G, V, N [NL][13]	N_t	-6.70	-0.03	0.33	-0.61	0.04	Cumple
												G, V [NL][14]	N_c	7.17	0.01	-0.01	0.00	-0.01	
												G, V, N [NL][15]	M_y,V_z	0.64	-0.13	0.08	0.05	0.18	
												G, V, N [NL][11]	M_z,V_y,NM_yM_z	-6.46	-0.03	0.34	-0.62	0.04	
		Pie	Cumple	5.7	6.3	4.8	10.0	0.9	1.1	13.1	13.1	G, V, N [NL][13]	N_t	-6.59	0.07	0.04	0.36	0.04	Cumple
												G, V [NL][14]	N_c	7.23	-0.02	0.00	0.00	-0.01	
												G, V, N [NL][15]	M_y,V_z	0.75	0.31	-0.26	-0.33	0.18	
												G, G, V, V[4]	M_z	-1.72	-0.05	0.32	0.57	-0.03	
												G, G, V, V[10]	V_y	-0.88	-0.05	0.32	0.57	-0.03	
												G, V, N [NL][7]	NM_yM_z	-0.09	0.31	-0.26	-0.33	0.18	

Notas:
[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·Q [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[12] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[13] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[14] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[15] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.78. P134

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.6	14.7	0.2	0.8	15.0	15.0	G, V, N [NL](1)	N_t	-0.73	0.01	0.12	-0.08	-0.01	Cumple
												G, V, N [NL](2)	N_c	0.61	0.02	0.24	-0.19	-0.02	
												G, Q [NL](3)	M_y,M_z,V_z,NM_yM_z	0.02	0.04	0.47	-0.37	-0.04	
												G, V, N [NL](4)	V_y	-0.08	0.02	0.41	-0.45	-0.04	
		Pie	Cumple	0.5	0.6	1.3	17.3	0.2	1.3	18.7	18.7	G, V, N [NL](5)	N_t	-0.63	0.00	-0.01	-0.02	0.00	Cumple
												G, V, N [NL](6)	N_c	0.70	-0.05	-0.35	-0.26	-0.03	
												G, V, N [NL](4)	M_y	0.03	-0.08	-0.25	-0.05	-0.04	
												G, V, N [NL](7)	M_z,V_y,NM_yM_z	-0.56	-0.05	-0.55	-0.70	-0.03	
												G, Q [NL](3)	V_z	0.14	-0.07	-0.48	-0.37	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	46.0	21.1	5.1	14.6	1.0	1.1	61.5	61.5	G, Q [NL](8)	N_t,NM_yM_z	-52.82	-0.16	-0.42	0.27	0.10	Cumple
												G, G, V, V(9)	N_c	19.55	0.07	0.18	-0.21	-0.04	
												G, V, N [NL](4)	M_y,V_z	-36.48	-0.33	-0.21	-0.01	0.21	
												G, V, N [NL](10)	M_z,V_y	-40.81	-0.11	-0.47	0.57	0.07	
		Pie	Cumple	45.9	21.2	2.9	8.2	1.0	0.7	55.3	55.3	G, Q [NL](8)	N_t,NM_yM_z	-52.70	0.10	0.25	0.27	0.10	Cumple
												G, G, V, V(9)	N_c	19.62	-0.04	-0.02	0.05	-0.04	
												G, V, N [NL](11)	M_y,V_y	-36.47	0.19	0.26	0.38	0.21	
												G, V, N [NL](12)	M_z	-40.76	0.08	0.26	0.34	0.08	
												G, V, N [NL](4)	V_z	-36.37	0.19	0.26	0.38	0.21	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.3	11.1	3.3	11.2	0.9	0.9	32.4	32.4	G, Q [NL](8)	N_t,NM_yM_z	-25.60	-0.06	-0.29	0.20	0.06	Cumple
												G, G, V, V(9)	N_c	12.70	0.03	0.13	-0.18	-0.03	
												G, V, N [NL](11)	M_y,V_z	-17.08	-0.22	-0.13	-0.05	0.19	
												G, V, N [NL](10)	M_z,V_y	-21.08	-0.05	-0.36	0.50	0.04	
		Pie	Cumple	22.2	11.1	3.7	7.4	0.9	0.6	30.3	30.3	G, Q [NL](8)	N_t,NM_yM_z	-25.49	0.08	0.22	0.20	0.06	Cumple
												G, G, V, V(9)	N_c	12.76	-0.04	0.00	0.07	-0.03	
												G, V, N [NL](11)	M_y,M_z,V_z	-16.97	0.25	0.24	0.34	0.19	
												G, V, N [NL](13)	V_y	-17.25	-0.03	0.23	0.34	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	6.4	1.8	8.6	0.8	0.8	13.3	13.3	G, V, N [NL](14)	N_t	-5.27	-0.02	-0.27	0.44	0.03	Cumple
												G, G, V, V(9)	N_c	7.35	0.01	0.10	-0.16	-0.02	
												G, V, N [NL](4)	M_y,V_z	0.66	-0.12	-0.08	-0.05	0.17	
												G, V, N [NL](10)	M_z,V_y,NM_yM_z	-5.03	-0.02	-0.27	0.45	0.03	
		Pie	Cumple	4.5	6.5	4.5	8.3	0.8	0.6	12.8	12.8	G, V, N [NL](14)	N_t	-5.16	0.06	0.04	-0.18	0.03	Cumple
												G, G, V, V(9)	N_c	7.42	-0.04	-0.02	0.06	-0.02	
												G, V, N [NL](4)	M_y,M_z,V_z	0.77	0.30	0.26	0.33	0.17	
												G, V, N [NL](13)	V_y	-0.85	-0.05	0.26	0.33	-0.03	
												G, V, N [NL](11)	NM_yM_z	-0.07	0.30	0.26	0.33	0.17	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·Q [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.79. P135

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	24.1	81.0	4.2	16.9	2.4	90.4	1.6	90.4	G, V [NL](2)	N_t	-34.39	0.12	1.84	-0.91	-0.07	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	98.96	-0.25	-5.22	2.57	0.15	
												G, V, N [NL](4)	M_y	68.95	-0.55	-3.60	1.77	0.30	
												G, Q [NL](5)	M_z,V_y	98.75	-0.25	-5.23	2.58	0.15	
												G, V, N [NL](6)	M_yV_y	68.74	-0.55	-3.61	1.77	0.30	
		Pie	Cumple	17.1	57.8	1.5	3.9	2.4	60.8	1.6	60.8	G, V [NL](2)	N_t	-34.26	-0.05	-0.44	-0.91	-0.07	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	99.19	0.12	1.21	2.57	0.15	
												G, V, N [NL](4)	M_y	69.18	0.20	0.82	1.77	0.30	
												G, Q [NL](5)	M_z,V_y	98.98	0.12	1.22	2.58	0.15	
												G, V, N [NL](6)	M_yV_y	68.97	0.20	0.82	1.77	0.30	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	11.7	41.0	2.2	1.6	0.4	42.5	N.P.(1)	42.5	G, G, V, V(7)	N_t	-25.41	0.04	-0.13	0.13	-0.04	Cumple
												G, Q [NL](5)	N_t,M_z,NM_yM_z	74.49	-0.07	0.50	-0.46	0.08	
												G, V, N [NL](6)	M_y	51.93	-0.29	0.34	-0.33	0.25	
												G, Q [NL](5)	V_y	74.14	-0.07	0.50	-0.46	0.08	
		Pie	Cumple	12.0	42.0	2.6	2.1	0.4	44.2	N.P.(1)	44.2	G, G, V, V(7)	N_t	-25.27	-0.06	0.19	0.13	-0.04	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	74.72	0.13	-0.65	-0.46	0.08	
												G, V, N [NL](4)	M_y	52.51	0.34	-0.48	-0.33	0.25	
												G, Q [NL](5)	M_z,V_y	74.36	0.13	-0.65	-0.46	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.4	31.9	0.7	3.9	1.4	34.1	N.P.(1)	34.1	G, G, V, V(7)	N_t	-17.14	0.00	0.40	-0.45	-0.03	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	49.22	0.00	-1.21	1.52	0.06	
												G, V, N [NL](8)	M_y	31.17	-0.10	-0.81	1.04	0.27	
												G, Q [NL](5)	M_z,V_y	48.73	0.00	-1.21	1.53	0.06	
		Pie	Cumple	11.0	39.3	4.2	8.0	1.4	44.7	N.P.(1)	44.7	G, V [NL](2)	N_t	-15.19	-0.08	-0.88	-0.55	-0.03	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	49.44	0.14	2.48	1.52	0.06	
												G, V, N [NL](6)	M_y	34.35	0.55	1.81	1.11	0.27	
												G, Q [NL](5)	V_y	48.95	0.14	2.48	1.53	0.06	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.80. P136

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	26.5	81.0	4.2	16.9	2.4	90.4	1.6	90.4	G, G, V, V[2]	N_t	-38.10	0.12	-2.01	0.99	-0.07	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	98.96	-0.24	5.22	-2.57	0.14	
												G, V, N [NL][4]	M_y,M_yV_y	68.75	-0.54	3.61	-1.77	0.29	
												G, Q [NL][5]	M_z,V_y	98.76	-0.24	5.23	-2.58	0.14	
		Pie	Cumple	18.8	57.8	1.5	3.9	2.4	60.7	1.6	60.7	G, G, V, V[2]	N_t	-37.97	-0.06	0.45	0.99	-0.07	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	99.19	0.11	-1.21	-2.57	0.14	
												G, V, N [NL][4]	M_y,M_yV_y	68.97	0.19	-0.82	-1.77	0.29	
												G, Q [NL][5]	M_z,V_y	98.98	0.11	-1.22	-2.58	0.14	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.6	41.0	2.3	1.6	0.4	42.5	N.P.[1]	42.5	G, G, V, V[2]	N_t	-27.63	0.04	0.12	-0.16	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	74.50	-0.07	-0.50	0.46	0.08	
												G, V, N [NL][4]	M_y	51.94	-0.30	-0.34	0.33	0.26	
												G, Q [NL][5]	V_y	74.14	-0.07	-0.50	0.46	0.08	
		Pie	Cumple	13.3	42.0	2.6	2.1	0.4	44.1	N.P.[1]	44.1	G, G, V, V[2]	N_t	-27.50	-0.07	-0.27	-0.16	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	74.73	0.12	0.65	0.46	0.08	
												G, V, N [NL][4]	M_y	52.16	0.34	0.48	0.33	0.26	
												G, Q [NL][5]	M_z,V_y	74.37	0.12	0.65	0.46	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.7	31.9	0.8	3.9	1.4	34.2	N.P.[1]	34.2	G, G, V, V[2]	N_t	-15.62	0.01	-0.59	0.77	-0.04	Cumple
												G, Q [NL][3]	N_t,NM_yM_z	49.23	-0.01	1.21	-1.52	0.07	
												G, V, N [NL][6]	M_y	34.64	-0.10	0.87	-1.10	0.28	
												G, Q [NL][5]	M_z,V_y	48.74	-0.01	1.21	-1.53	0.07	
		Pie	Cumple	13.0	39.3	4.4	8.0	1.4	44.9	N.P.[1]	44.9	G, G, V, V[2]	N_t	-15.49	-0.09	1.26	0.77	-0.04	Cumple
												G, Q [NL][3]	N_t,M_z,NM_yM_z	49.45	0.16	-2.48	-1.52	0.07	
												G, V, N [NL][6]	M_y	34.86	0.57	-1.81	-1.10	0.28	
												G, Q [NL][5]	V_y	48.96	0.16	-2.48	-1.53	0.07	

Notas:
[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.81. P137

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.6	14.5	0.2	1.3	14.9	14.9	G, G, V, V, N[1]	N_t	-0.84	0.00	0.24	-0.60	0.00	Cumple
												G, V, N [NL][2]	N_c	0.61	0.02	-0.25	0.20	-0.03	
												G, Q [NL][3]	M_y,M_z,V_z,NM_yM_z	0.04	0.04	-0.46	0.37	-0.05	
												G, G, V, V[4]	V_y	-0.80	-0.02	0.38	-0.71	0.02	
		Pie	Cumple	0.7	0.6	1.3	19.8	0.2	1.7	21.1	21.1	G, G, V, V, N[5]	N_t	-0.75	0.02	0.14	0.52	0.01	Cumple
												G, V, N [NL][6]	N_c	0.70	-0.06	0.35	0.27	-0.04	
												G, V, N [NL][7]	M_y	0.05	-0.08	0.24	0.05	-0.04	
												G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.49	-0.06	0.63	0.89	-0.04	
												G, Q [NL][3]	V_z	0.16	-0.08	0.48	0.37	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.6	21.9	5.3	16.8	1.1	1.4	61.1	61.1	G, Q [NL][9]	N_t,NM_yM_z	-52.40	-0.16	0.41	-0.27	0.11	Cumple
												G, G, V, V[10]	N_c	20.28	0.08	0.07	-0.45	-0.05	
												G, V, N [NL][7]	M_y,V_z	-36.57	-0.35	0.20	0.01	0.22	
												G, V, N [NL][11]	M_z,V_y	-40.31	-0.12	0.54	-0.75	0.08	
		Pie	Cumple	45.5	22.0	3.0	10.0	1.1	1.2	54.9	54.9	G, Q [NL][9]	N_t,NM_yM_z	-52.28	0.10	-0.25	-0.27	0.11	Cumple
												G, G, V, V[10]	N_c,M_z,V_y	20.35	-0.05	0.32	0.65	-0.05	
												G, V, N [NL][7]	M_y,V_z	-36.45	0.20	-0.25	-0.38	0.22	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.2	9.9	3.4	13.4	0.9	1.3	32.8	32.8	G, Q [NL][9]	N_t	-25.54	-0.06	0.29	-0.20	0.06	Cumple
												G, V [NL][12]	N_c	11.42	0.04	-0.10	0.07	-0.03	
												G, V, N [NL][7]	M_y,V_z	-17.43	-0.22	0.12	0.05	0.19	
												G, V, N [NL][11]	M_z,V_y,NM_yM_z	-21.54	-0.05	0.43	-0.68	0.04	
		Pie	Cumple	22.1	10.0	3.8	9.4	0.9	1.1	30.1	30.1	G, Q [NL][9]	N_t,NM_yM_z	-25.42	0.08	-0.22	-0.20	0.06	Cumple
												G, V [NL][12]	N_c	11.49	-0.05	0.07	0.07	-0.03	
												G, V, N [NL][7]	M_y,V_z	-17.32	0.25	-0.23	-0.34	0.19	
												G, G, V, V[10]	M_z,V_y	9.47	-0.05	0.30	0.60	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	6.4	1.9	10.6	0.9	1.1	16.8	16.8	G, V, N [NL][13]	N_t	-6.89	-0.03	0.33	-0.61	0.04	Cumple
												G, V [NL][14]	N_c	7.32	0.01	-0.01	0.00	-0.01	
												G, V, N [NL][15]	M_y,V_z	0.01	-0.12	0.07	0.05	0.18	
												G, V, N [NL][11]	M_z,V_y,NM_yM_z	-6.66	-0.03	0.34	-0.61	0.04	
		Pie	Cumple	5.9	6.4	4.8	10.1	0.9	1.1	13.5	13.5	G, V, N [NL][13]	N_t	-6.78	0.07	0.05	0.37	0.04	Cumple
												G, V [NL][14]	N_c	7.38	-0.02	0.00	0.00	-0.01	
												G, V, N [NL][15]	M_y,V_z	0.12	0.31	-0.26	-0.33	0.18	
												G, G, V, V[4]	M_z	-1.41	-0.05	0.32	0.57	-0.03	
												G, G, V, V[10]	V_y	-0.57	-0.05	0.32	0.57	-0.03	
												G, V, N [NL][7]	NM_yM_z	-0.72	0.31	-0.26	-0.33	0.18	

Notas:
[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·Q [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[12] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[13] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[14] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[15] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.82. P138

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.7	14.5	0.2	1.1	14.9	14.9	G, V, N [NL](1)	N_t	-0.72	0.01	0.11	-0.08	-0.01	Cumple
												G, V, N [NL](2)	N_c	0.61	0.03	0.25	-0.20	-0.03	
												G, Q [NL](3)	M_y,M_z,V_z,NM_yM_z	0.04	0.04	0.46	-0.37	-0.05	
												G, V, N [NL](4)	V_y	-0.07	0.03	0.45	-0.60	-0.03	
		Pie	Cumple	0.5	0.6	1.3	17.2	0.2	1.3	18.6	18.6	G, V, N [NL](5)	N_t	-0.62	0.00	-0.01	-0.01	0.00	Cumple
												G, V, N [NL](6)	N_c	0.70	-0.06	-0.35	-0.27	-0.04	
												G, V, N [NL](7)	M_y	0.05	-0.09	-0.24	-0.05	-0.04	
												G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.55	-0.06	-0.55	-0.70	-0.04	
												G, Q [NL](3)	V_z	0.16	-0.08	-0.48	-0.37	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.6	22.1	5.3	14.5	1.1	1.1	61.2	61.2	G, Q [NL](9)	N_t,NM_yM_z	-52.40	-0.17	-0.41	0.27	0.11	Cumple
												G, G, V, V(10)	N_c	20.46	0.07	0.18	-0.21	-0.05	
												G, V, N [NL](7)	M_y	-36.46	-0.35	-0.20	-0.01	0.22	
												G, V, N [NL](11)	M_z,V_y	-40.51	-0.12	-0.46	0.57	0.08	
												G, V, N [NL](12)	V_z	-36.57	-0.35	-0.20	-0.01	0.22	
		Pie	Cumple	45.5	22.2	3.1	9.4	1.1	0.9	55.0	55.0	G, Q [NL](9)	N_t,NM_yM_z	-52.28	0.11	0.25	0.27	0.11	Cumple
												G, G, V, V(10)	N_c	20.53	-0.04	-0.02	0.05	-0.05	
												G, V, N [NL](12)	M_y,V_z	-36.45	0.20	0.25	0.38	0.22	
												G, V, N [NL](13)	M_z,V_y	-34.71	0.01	0.30	0.51	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	22.2	11.6	3.3	11.2	0.9	0.9	32.2	32.2	G, Q [NL](9)	N_t,NM_yM_z	-25.54	-0.06	-0.29	0.20	0.06	Cumple
												G, G, V, V(10)	N_c	13.29	0.04	0.13	-0.18	-0.03	
												G, V, N [NL](12)	M_y,V_z	-17.43	-0.22	-0.12	-0.05	0.19	
												G, V, N [NL](11)	M_z,V_y	-21.05	-0.05	-0.36	0.50	0.04	
		Pie	Cumple	22.1	11.6	3.8	8.7	0.9	0.9	30.2	30.2	G, Q [NL](9)	N_t,NM_yM_z	-25.42	0.09	0.22	0.20	0.06	Cumple
												G, G, V, V(10)	N_c	13.36	-0.05	-0.01	0.06	-0.03	
												G, V, N [NL](12)	M_y,V_z	-17.31	0.25	0.23	0.34	0.19	
												G, V, N [NL](13)	M_z,V_y	-16.32	-0.03	0.28	0.46	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	6.7	1.8	8.5	0.8	0.8	13.4	13.4	G, V, N [NL](14)	N_t	-5.46	-0.02	-0.27	0.44	0.03	Cumple
												G, G, V, V(10)	N_c	7.69	0.01	0.10	-0.16	-0.02	
												G, V, N [NL](7)	M_y,V_z	0.02	-0.12	-0.07	-0.05	0.17	
												G, V, N [NL](11)	M_z,V_y,NM_yM_z	-5.23	-0.02	-0.27	0.44	0.03	
		Pie	Cumple	4.7	6.8	4.5	9.4	0.8	0.8	13.3	13.3	G, V, N [NL](14)	N_t	-5.35	0.06	0.04	-0.18	0.03	Cumple
												G, G, V, V(10)	N_c	7.75	-0.04	-0.02	0.06	-0.02	
												G, V, N [NL](7)	M_y,V_z	0.13	0.30	0.26	0.33	0.17	
												G, V, N [NL](4)	M_z	0.71	-0.05	0.30	0.43	-0.03	
												G, V, N [NL](13)	V_y	-0.13	-0.05	0.30	0.43	-0.03	
												G, V, N [NL](12)	NM_yM_z	-0.71	0.30	0.26	0.33	0.17	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(2) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·Q [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]

2.2.2.1.83. P139

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	25.0	80.1	4.3	16.7	2.4	89.6	1.7	89.6	G, V [NL](2)	N_t	-35.68	0.13	1.91	-0.94	-0.08	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	97.93	-0.28	-5.16	2.54	0.17	
												G, V, N [NL](4)	M_y	68.16	-0.57	-3.54	1.74	0.31	
												G, Q [NL](5)	M_z,V_y	97.72	-0.28	-5.16	2.54	0.17	
												G, V, N [NL](6)	M_yV_y	69.65	-0.42	-3.71	1.82	0.24	
		Pie	Cumple	17.7	57.2	1.6	3.9	2.4	60.3	1.7	60.3	G, V [NL](2)	N_t	-35.55	-0.06	-0.45	-0.94	-0.08	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	98.16	0.14	1.20	2.54	0.17	
												G, V, N [NL](4)	M_y	68.39	0.22	0.80	1.74	0.31	
												G, Q [NL](5)	M_z,V_y	97.95	0.14	1.20	2.54	0.17	
												G, V, N [NL](6)	M_yV_y	69.88	0.17	0.85	1.82	0.24	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	12.2	40.6	2.2	1.6	0.4	42.0	N.P.(1)	42.0	G, G, V, V(7)	N_t	-26.42	0.04	-0.14	0.14	-0.04	Cumple
												G, Q [NL](3)	N_c,M_z,NM_yM_z	73.82	-0.06	0.49	-0.45	0.08	
												G, V, N [NL](8)	M_y	51.52	-0.29	0.33	-0.32	0.25	
												G, Q [NL](5)	V_y	73.46	-0.06	0.49	-0.45	0.08	
		Pie	Cumple	12.4	41.6	2.6	2.1	0.4	43.9	N.P.(1)	43.9	G, G, V, V(7)	N_t	-26.28	-0.07	0.20	0.14	-0.04	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	74.05	0.14	-0.64	-0.45	0.08	
												G, V, N [NL](4)	M_y	52.11	0.34	-0.48	-0.32	0.25	
												G, Q [NL](5)	M_z,V_y	73.69	0.14	-0.64	-0.45	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	9.8	31.6	0.7	3.9	1.4	33.9	N.P.(1)	33.9	G, G, V, V(7)	N_t	-17.85	0.00	0.41	-0.46	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	48.90	0.00	-1.19	1.50	0.05	
												G, V [NL](9)	M_y	17.82	-0.09	-0.45	0.57	0.25	
												G, Q [NL](5)	M_z,V_y	48.41	0.00	-1.20	1.50	0.05	
		Pie	Cumple	11.4	38.9	4.2	7.9	1.4	44.4	N.P.(1)	44.4	G, V [NL](2)	N_t	-15.89	-0.08	-0.91	-0.57	-0.03	Cumple
												G, Q [NL](3)	N_c,M_z,NM_yM_z	49.12	0.14	2.44	1.50	0.05	
												G, V, N [NL](8)	M_y	34.31	0.55	1.77	1.08	0.27	
												G, Q [NL](5)	V_y	48.63	0.14	2.44	1.50	0.05	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(3) 1.35·PP+1.35·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(R)2 [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.1199.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	27.4	80.1	4.3	16.7	2.4	89.8	1.7	89.8	G, G, V, V(2)	N_t	-39.38	0.14	-2.08	1.02	-0.08	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	97.93	-0.27	5.16	-2.54	0.16	
												G, V, N [NL](4)	M_y	68.16	-0.57	3.54	-1.74	0.31	
												G, Q [NL](5)	M_z,V_y	97.72	-0.27	5.16	-2.54	0.16	
												G, V, N [NL](6)	M_yV_y	69.66	-0.42	3.71	-1.82	0.24	
		Pie	Cumple	19.4	57.2	1.6	3.9	2.4	60.2	1.7	60.2	G, G, V, V(2)	N_t	-39.24	-0.06	0.47	1.02	-0.08	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	98.16	0.13	-1.20	-2.54	0.16	
												G, V, N [NL](4)	M_y	68.39	0.21	-0.80	-1.74	0.31	
												G, Q [NL](5)	M_z,V_y	97.95	0.13	-1.20	-2.54	0.16	
												G, V, N [NL](6)	M_yV_y	69.88	0.17	-0.85	-1.82	0.24	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	13.1	40.6	2.3	1.6	0.4	42.0	N.P.(1)	42.0	G, G, V, V(2)	N_t	-28.62	0.04	0.12	-0.16	-0.05	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	73.82	-0.07	-0.49	0.45	0.08	
												G, V, N [NL](7)	M_y	51.53	-0.30	-0.33	0.32	0.26	
												G, Q [NL](5)	V_y	73.47	-0.07	-0.49	0.45	0.08	
		Pie	Cumple	13.8	41.6	2.6	2.1	0.4	43.8	N.P.(1)	43.8	G, G, V, V(2)	N_t	-28.49	-0.07	-0.28	-0.16	-0.05	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	74.05	0.13	0.64	0.45	0.08	
												G, V, N [NL](7)	M_y	51.75	0.35	0.48	0.32	0.26	
												G, Q [NL](5)	M_z,V_y	73.69	0.13	0.64	0.45	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.1	31.6	0.8	3.9	1.4	33.9	N.P.(1)	33.9	G, G, V, V(2)	N_t	-16.30	0.00	-0.61	0.78	-0.04	Cumple
												G, Q [NL](3)	N_t,NM_yM_z	48.91	-0.01	1.19	-1.50	0.07	
												G, V, N [NL](4)	M_y	34.59	-0.10	0.86	-1.08	0.28	
												G, Q [NL](5)	M_z,V_y	48.42	-0.01	1.20	-1.50	0.07	
		Pie	Cumple	13.4	38.9	4.4	7.9	1.4	44.5	N.P.(1)	44.5	G, G, V, V(2)	N_t	-16.17	-0.09	1.29	0.78	-0.04	Cumple
												G, Q [NL](3)	N_t,M_z,NM_yM_z	49.13	0.15	-2.44	-1.50	0.07	
												G, V, N [NL](4)	M_y	34.81	0.57	-1.76	-1.08	0.28	
												G, Q [NL](5)	V_y	48.64	0.15	-2.44	-1.50	0.07	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(3) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(4) 1.35·PP+1.35·CM1+1.5·Q [NL]

(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(6) 1.35·PP+0.8·CM1+1.5·Q [NL]

(7) 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(R)1 [NL]

(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1200.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.8	14.4	0.3	1.3	14.8	14.8	G, G, V, V, N[1]	N_t	-0.81	0.00	0.26	-0.61	0.00	Cumple
												G, V, N [NL][2]	N_c	0.57	0.03	-0.26	0.21	-0.04	
												G, Q [NL][3]	M_y,M_z,V_z,NM_yM_z	0.05	0.05	-0.46	0.36	-0.06	
												G, G, V, V[4]	V_y	-0.77	-0.02	0.39	-0.72	0.03	
		Pie	Cumple	0.6	0.6	1.5	19.7	0.3	1.6	21.2	21.2	G, G, V, V, N[5]	N_t	-0.72	0.03	0.13	0.50	0.02	Cumple
												G, V, N [NL][6]	N_c	0.67	-0.08	0.37	0.28	-0.05	
												G, V, N [NL][7]	M_y	0.10	-0.10	0.33	0.17	-0.05	
												G, V, N [NL][8]	M_z,V_y,NM_yM_z	-0.48	-0.07	0.63	0.89	-0.04	
												G, Q [NL][3]	V_z	0.17	-0.09	0.47	0.36	-0.06	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.1	23.6	5.4	17.0	1.1	1.4	60.5	60.5	G, Q [NL][9]	N_t,NM_yM_z	-51.76	-0.17	0.41	-0.26	0.11	Cumple
												G, G, V, V[10]	N_c	21.82	0.08	0.06	-0.45	-0.05	
												G, V, N [NL][11]	M_y,V_z	-36.14	-0.35	0.20	0.01	0.22	
												G, G, V, V, N[12]	M_z,V_y	-38.88	-0.11	0.55	-0.76	0.07	
		Pie	Cumple	45.0	23.6	3.1	10.2	1.1	1.2	54.4	54.4	G, Q [NL][9]	N_t,NM_yM_z	-51.65	0.11	-0.25	-0.26	0.11	Cumple
												G, G, V, V[10]	N_c,M_z,V_y	21.89	-0.05	0.33	0.65	-0.05	
												G, V, N [NL][11]	M_y,V_z	-36.02	0.20	-0.25	-0.38	0.22	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	21.9	10.6	3.4	13.5	0.9	1.3	32.6	32.6	G, Q [NL][9]	N_t	-25.19	-0.06	0.29	-0.20	0.06	Cumple
												G, V [NL][13]	N_c	12.20	0.04	-0.10	0.07	-0.03	
												G, V, N [NL][14]	M_y	-16.73	-0.22	0.12	0.05	0.19	
												G, G, V, V, N[12]	M_z,V_y	-19.62	-0.05	0.43	-0.68	0.04	
												G, V, N [NL][11]	V_z	-17.20	-0.22	0.12	0.05	0.19	
												G, V, N [NL][15]	NM_yM_z	-21.29	-0.05	0.43	-0.68	0.04	
		Pie	Cumple	21.8	10.7	3.9	9.6	0.9	1.1	29.8	29.8	G, Q [NL][9]	N_t,NM_yM_z	-25.08	0.09	-0.21	-0.20	0.06	Cumple
												G, V [NL][13]	N_c	12.27	-0.05	0.07	0.07	-0.03	
												G, V, N [NL][11]	M_y,V_z	-17.08	0.25	-0.23	-0.34	0.19	
												G, G, V, V[10]	M_z,V_y	10.25	-0.05	0.31	0.61	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	6.7	1.9	10.6	0.9	1.2	16.7	16.7	G, V, N [NL][16]	N_t	-6.82	-0.03	0.33	-0.61	0.04	Cumple
												G, V [NL][17]	N_c	7.66	0.01	-0.01	0.01	-0.01	
												G, V, N [NL][14]	M_y,V_z	0.07	-0.12	0.07	0.05	0.18	
												G, G, V, V, N[12]	M_z,V_y	-4.31	-0.03	0.34	-0.62	0.04	
												G, V, N [NL][15]	NM_yM_z	-6.60	-0.03	0.34	-0.61	0.04	
		Pie	Cumple	5.8	6.7	4.7	10.3	0.9	1.1	13.4	13.4	G, V, N [NL][16]	N_t	-6.71	0.07	0.05	0.37	0.04	Cumple
												G, V [NL][17]	N_c	7.73	-0.02	0.00	0.01	-0.01	
												G, V, N [NL][14]	M_y,V_z	0.18	0.31	-0.26	-0.33	0.18	
												G, G, V, V[4]	M_z	-1.27	-0.05	0.33	0.58	-0.03	
												G, G, V, V[10]	V_y	-0.43	-0.05	0.33	0.58	-0.03	
												G, V, N [NL][11]	NM_yM_z	-0.66	0.31	-0.26	-0.33	0.18	

Notas:

[1] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·Q [NL]
[4] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·Q [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[14] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[15] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[16] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
[17] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

2.2.2.1.86. P142

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.5	0.8	14.4	0.3	1.1	14.8	14.8	G, V, N [NL](1)	N_t	-0.70	0.04	0.20	0.13	-0.04	Cumple
												G, V, N [NL](2)	N_c	0.57	0.03	0.26	-0.21	-0.04	
												G, Q [NL](3)	M_y,M_z,V_z,NM_yM_z	0.05	0.05	0.46	-0.36	-0.06	
												G, V, N [NL](4)	V_y	-0.01	0.04	0.43	-0.58	-0.03	
		Pie	Cumple	0.5	0.6	1.5	17.1	0.3	1.3	18.7	18.7	G, V, N [NL](5)	N_t	-0.61	-0.05	-0.44	-0.61	-0.03	Cumple
												G, V, N [NL](6)	N_c	0.67	-0.08	-0.37	-0.28	-0.05	
												G, V, N [NL](7)	M_y	0.10	-0.10	-0.33	-0.17	-0.05	
												G, V, N [NL](8)	M_z,V_y,NM_yM_z	-0.54	-0.07	-0.55	-0.69	-0.04	
												G, Q [NL](3)	V_z	0.17	-0.10	-0.47	-0.36	-0.06	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	45.1	23.8	5.4	14.4	1.1	1.1	60.6	60.6	G, Q [NL](9)	N_t,NM_yM_z	-51.76	-0.18	-0.41	0.26	0.12	Cumple
												G, G, V, V(10)	N_c	22.00	0.08	0.20	-0.22	-0.05	
												G, V, N [NL](11)	M_y,V_z	-36.14	-0.35	-0.20	-0.01	0.22	
												G, V, N [NL](12)	M_z,V_y	-40.05	-0.13	-0.46	0.57	0.09	
		Pie	Cumple	45.0	23.8	3.2	9.0	1.1	0.9	54.5	54.5	G, Q [NL](9)	N_t,NM_yM_z	-51.65	0.11	0.25	0.26	0.12	Cumple
												G, G, V, V(10)	N_c	22.07	-0.05	-0.03	0.04	-0.05	
												G, V, N [NL](11)	M_y,V_z	-36.02	0.21	0.25	0.38	0.22	
												G, V, N [NL](13)	M_z,V_y	-31.74	0.03	0.29	0.50	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	21.9	12.3	3.3	11.1	0.9	0.9	31.8	31.8	G, Q [NL](9)	N_t,NM_yM_z	-25.19	-0.06	-0.29	0.20	0.06	Cumple
												G, G, V, V(10)	N_c	14.08	0.04	0.14	-0.18	-0.03	
												G, V, N [NL](14)	M_y	-16.73	-0.22	-0.12	-0.05	0.19	
												G, V, N [NL](12)	M_z,V_y	-20.81	-0.05	-0.35	0.49	0.05	
												G, V, N [NL](11)	V_z	-17.20	-0.22	-0.12	-0.05	0.19	
		Pie	Cumple	21.8	12.3	3.8	8.4	0.9	0.8	29.9	29.9	G, Q [NL](9)	N_t,NM_yM_z	-25.08	0.09	0.21	0.20	0.06	Cumple
												G, G, V, V(10)	N_c	14.15	-0.05	-0.01	0.06	-0.03	
												G, V, N [NL](11)	M_y,V_z	-17.08	0.25	0.23	0.34	0.19	
												G, V, N [NL](13)	M_z,V_y	-14.74	-0.02	0.27	0.45	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.7	6.8	1.7	8.5	0.8	0.8	13.3	13.3	G, V, N [NL](15)	N_t	-5.39	-0.02	-0.26	0.44	0.03	Cumple
												G, G, V, V(10)	N_c	7.84	0.01	0.11	-0.17	-0.02	
												G, V, N [NL](14)	M_y,V_z	0.07	-0.11	-0.07	-0.05	0.17	
												G, V, N [NL](12)	M_z,V_y,NM_yM_z	-5.16	-0.02	-0.27	0.44	0.04	
		Pie	Cumple	4.6	6.9	4.5	9.1	0.8	0.8	13.2	13.2	G, V, N [NL](15)	N_t	-5.28	0.06	0.04	-0.18	0.03	Cumple
												G, G, V, V(10)	N_c	7.91	-0.04	-0.03	0.05	-0.02	
												G, V, N [NL](14)	M_y,V_z	0.18	0.30	0.26	0.32	0.17	
												G, V, N [NL](4)	M_z	1.14	-0.05	0.29	0.43	-0.03	
												G, V, N [NL](13)	V_y	0.31	-0.05	0.29	0.43	-0.03	
												G, V, N [NL](11)	NM_yM_z	-0.66	0.30	0.26	0.33	0.17	

Notas:
(1) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]*
(2) *0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(4) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(5) *0.8·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]*
(6) *1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
(7) *1.35·PP+1.35·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]*
(8) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(9) *1.35·PP+0.8·CM1+1.5·Q [NL]*
(10) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(11) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(12) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(14) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(15) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)1 [NL]*

2.2.2.1.87. P143

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	26.9	79.4	4.6	16.5	2.3	89.4	2.3	89.4	G, V [NL](2)	N_t	-38.55	0.14	2.06	-1.02	-0.08	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	97.17	-0.31	-5.11	2.52	0.19	
												G, V, N [NL](4)	M_y	67.69	-0.60	-3.51	1.72	0.33	
												G, Q [NL](5)	M_z,V_y,M_tV_y	96.97	-0.31	-5.11	2.52	0.19	
		Pie	Cumple	19.1	56.7	1.8	3.8	2.3	60.0	2.3	60.0	G, V [NL](2)	N_t	-38.42	-0.07	-0.48	-1.02	-0.08	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	97.40	0.17	1.18	2.52	0.19	
												G, V, N [NL](4)	M_y	67.92	0.24	0.79	1.72	0.33	
												G, Q [NL](5)	M_z,V_y,M_tV_y	97.19	0.17	1.19	2.52	0.19	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	13.2	40.4	2.1	1.6	0.4	41.7	N.P.(1)	41.7	G, G, V, V(6)	N_t	-28.57	0.03	-0.15	0.15	-0.04	Cumple
												G, Q [NL](3)	N_c,M_z	73.33	-0.05	0.49	-0.45	0.08	
												G, V, N [NL](7)	M_y	51.24	-0.28	0.32	-0.32	0.25	
												G, Q [NL](5)	V_y	72.98	-0.06	0.48	-0.45	0.08	
												G, V, N [NL](8)	NM_yM_z	73.14	-0.07	0.48	-0.45	0.09	
		Pie	Cumple	13.5	41.4	2.7	2.1	0.4	43.6	N.P.(1)	43.6	G, G, V, V(6)	N_t	-28.43	-0.07	0.22	0.15	-0.04	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	73.56	0.14	-0.64	-0.45	0.08	
												G, V, N [NL](4)	M_y	51.82	0.35	-0.47	-0.32	0.25	
												G, Q [NL](5)	M_z,V_y	73.20	0.14	-0.64	-0.45	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.6	31.5	0.7	3.8	1.4	33.7	N.P.(1)	33.7	G, G, V, V(6)	N_t	-19.26	0.00	0.45	-0.51	-0.03	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	48.70	0.01	-1.18	1.49	0.05	
												G, V [NL](9)	M_y	17.81	-0.09	-0.45	0.57	0.24	
												G, Q [NL](5)	M_z,V_y	48.21	0.01	-1.18	1.49	0.05	
		Pie	Cumple	12.4	38.7	4.2	7.8	1.4	44.1	N.P.(1)	44.1	G, V [NL](2)	N_t	-17.30	-0.08	-0.98	-0.61	-0.03	Cumple
												G, Q [NL](3)	N_c,M_z	48.92	0.14	2.42	1.49	0.05	
												G, V, N [NL](7)	M_y	34.22	0.55	1.75	1.07	0.26	
												G, Q [NL](5)	V_y	48.43	0.14	2.42	1.49	0.05	
												G, V, N [NL](8)	NM_yM_z	48.93	0.16	2.40	1.48	0.07	

Notas:
(1) *No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.*
(2) *0.8·PP+0.8·CM1+1.5·VH6 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(4) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(5) *1.35·PP+0.8·CM1+1.5·Q [NL]*
(6) *0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(7) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(8) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(9) *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*

2.2.2.1.1202.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	2xHE 140 B([])	Cabeza	Cumple	29.4	79.4	4.6	16.5	2.3	89.4	2.3	89.4	G, G, V, V(2)	N_t	-42.25	0.15	-2.22	1.09	-0.09	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	97.17	-0.31	5.11	-2.52	0.19	
												G, V, N [NL](4)	M_y	67.69	-0.60	3.51	-1.72	0.33	
												G, Q [NL](5)	M_z,V_y,M_tV_y	96.97	-0.31	5.11	-2.52	0.19	
		Pie	Cumple	20.8	56.7	1.8	3.8	2.3	60.0	2.3	60.0	G, G, V, V(2)	N_t	-42.12	-0.08	0.50	1.09	-0.09	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	97.40	0.16	-1.18	-2.52	0.19	
												G, V, N [NL](4)	M_y	67.92	0.23	-0.79	-1.72	0.33	
												G, Q [NL](5)	M_z,V_y,M_tV_y	97.20	0.16	-1.19	-2.52	0.19	
INICIO CUBIERTA (242 - 492 cm)	2xHE 140 B([])	Cabeza	Cumple	14.1	40.4	2.2	1.6	0.4	41.7	N.P.(1)	41.7	G, G, V, V(2)	N_t	-30.77	0.04	0.14	-0.17	-0.04	Cumple
												G, Q [NL](3)	N_c,M_z	73.33	-0.06	-0.49	0.45	0.08	
												G, V, N [NL](6)	M_y	51.24	-0.29	-0.32	0.32	0.26	
												G, Q [NL](5)	V_y	72.98	-0.06	-0.48	0.45	0.08	
												G, V, N [NL](7)	NM_yM_z	73.16	-0.07	-0.48	0.45	0.09	
		Pie	Cumple	14.8	41.4	2.7	2.1	0.4	43.6	N.P.(1)	43.6	G, G, V, V(2)	N_t	-30.64	-0.08	-0.30	-0.17	-0.04	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	73.56	0.14	0.64	0.45	0.08	
												G, V, N [NL](6)	M_y	51.47	0.35	0.47	0.32	0.26	
												G, Q [NL](5)	M_z,V_y	73.21	0.14	0.64	0.45	0.08	
INICIO CUBIERTA (0 - 242 cm)	2xHE 140 B([])	Cabeza	Cumple	10.9	31.5	0.7	3.8	1.4	33.7	N.P.(1)	33.7	G, G, V, V(2)	N_t	-17.70	0.00	-0.64	0.83	-0.04	Cumple
												G, Q [NL](3)	N_c,NM_yM_z	48.70	0.00	1.18	-1.49	0.06	
												G, V, N [NL](8)	M_y	31.58	-0.09	0.79	-1.01	0.27	
												G, Q [NL](5)	M_z,V_y	48.21	0.00	1.18	-1.49	0.06	
		Pie	Cumple	14.4	38.7	4.3	7.8	1.4	44.2	N.P.(1)	44.2	G, G, V, V(2)	N_t	-17.57	-0.09	1.36	0.83	-0.04	Cumple
												G, Q [NL](3)	N_c,M_z	48.92	0.15	-2.42	-1.49	0.06	
												G, V, N [NL](4)	M_y	34.71	0.57	-1.75	-1.07	0.27	
												G, Q [NL](5)	V_y	48.43	0.15	-2.42	-1.49	0.06	
												G, V, N [NL](7)	NM_yM_z	48.95	0.18	-2.40	-1.48	0.08	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(3) 1.35·PP+1.35·CM1+1.5·Q [NL]

(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(5) 1.35·PP+0.8·CM1+1.5·Q [NL]

(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(7) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1203.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.6	0.8	16.5	0.3	1.4	17.2	0.9	17.2	G, G, V, V, N[2]	N_t	-0.80	-0.01	0.29	-0.64	0.01	Cumple
													G, V, N [NL][3]	N_c	0.64	0.04	-0.32	0.26	-0.04	
													G, V, N [NL][4]	M_y,M_z,V_z,NM_yM_z	0.37	0.05	-0.53	0.42	-0.06	
													G, G, V, V[5]	V_y	-0.78	-0.03	0.43	-0.75	0.03	
													G, V, N [NL][6]	M_yV_y	-0.02	0.04	-0.42	0.48	-0.04	
		Pie	Cumple	0.6	0.6	1.5	20.7	0.3	1.7	22.2	1.3	22.2	G, G, V, V, N[7]	N_t	-0.72	0.04	0.09	0.48	0.02	Cumple
													G, V, N [NL][8]	N_c	0.74	-0.09	0.43	0.33	-0.05	
													G, Q [NL][9]	M_y	0.21	-0.10	0.48	0.37	-0.06	
													G, G, V, V, N[10]	M_z,V_y,NM_yM_z	-0.51	-0.07	0.66	0.91	-0.04	
													G, V, N [NL][4]	V_z	0.49	-0.10	0.55	0.42	-0.06	
													G, G, V, V, N[11]	M_yV_y	-0.22	-0.08	0.59	0.69	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	54.1	28.7	5.5	18.3	1.1	1.5	71.7	N.P.[1]	71.7	G, V, N [NL][12]	N_t,NM_yM_z	-62.15	-0.17	0.48	-0.31	0.11	Cumple
													G, G, V, V[13]	N_c	26.54	0.09	0.02	-0.43	-0.06	
													G, V, N [NL][14]	M_y,V_z	-38.10	-0.36	0.21	0.01	0.23	
													G, G, V, V, N[15]	M_z,V_y	-43.30	-0.12	0.58	-0.79	0.08	
		Pie	Cumple	54.0	28.7	3.2	10.8	1.1	1.3	64.7	N.P.[1]	64.7	G, V, N [NL][12]	N_t,NM_yM_z	-62.03	0.10	-0.29	-0.31	0.11	Cumple
													G, G, V, V[13]	N_c,M_z,V_y	26.60	-0.06	0.34	0.67	-0.06	
													G, V, N [NL][14]	M_y,V_z	-37.99	0.21	-0.26	-0.38	0.23	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	27.1	13.0	3.5	14.3	1.0	1.3	38.6	N.P.[1]	38.6	G, V, N [NL][12]	N_t,NM_yM_z	-31.06	-0.07	0.33	-0.23	0.07	Cumple
													G, V [NL][16]	N_c	14.87	0.04	-0.13	0.09	-0.04	
													G, V, N [NL][14]	M_y,V_z	-18.56	-0.23	0.13	0.05	0.19	
													G, G, V, V, N[15]	M_z,V_y	-21.50	-0.05	0.46	-0.70	0.04	
		Pie	Cumple	27.0	13.0	3.9	10.0	1.0	1.2	36.1	N.P.[1]	36.1	G, V, N [NL][12]	N_t,NM_yM_z	-30.95	0.10	-0.25	-0.23	0.07	Cumple
													G, V [NL][16]	N_c	14.94	-0.05	0.09	0.09	-0.04	
													G, V, N [NL][14]	M_y,V_z	-18.45	0.26	-0.24	-0.34	0.19	
													G, G, V, V[13]	M_z,V_y	12.91	-0.05	0.32	0.62	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.8	7.8	1.9	11.2	0.9	1.2	17.7	N.P.[1]	17.7	G, V, N [NL][17]	N_t	-7.79	-0.03	0.33	-0.61	0.04	Cumple
													G, V [NL][18]	N_c	8.97	0.01	-0.02	0.01	-0.01	
													G, V, N [NL][19]	M_y,V_z	-0.81	-0.12	0.08	0.05	0.18	
													G, G, V, V, N[15]	M_z,V_y	-4.07	-0.03	0.36	-0.64	0.04	
													G, V, N [NL][20]	NM_yM_z	-7.60	-0.03	0.34	-0.62	0.04	
		Pie	Cumple	6.7	7.9	4.7	10.9	0.9	1.1	14.9	N.P.[1]	14.9	G, V, N [NL][17]	N_t	-7.68	0.07	0.05	0.36	0.04	Cumple
													G, V [NL][18]	N_c	9.03	-0.02	0.01	0.01	-0.01	
													G, V, N [NL][19]	M_y,V_z	-0.70	0.31	-0.26	-0.33	0.18	
													G, G, V, V[5]	M_z	-0.33	-0.05	0.35	0.59	-0.03	
													G, G, V, V[13]	V_y	0.51	-0.05	0.35	0.59	-0.03	
													G, V, N [NL][12]	NM_yM_z	-4.73	0.11	-0.29	-0.22	0.06	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]

[3] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[6] 1.35·PP+1.35·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]

[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]

[8] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

[9] 1.35·PP+1.35·CM1+1.5·Q [NL]

[10] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[11] 1.35·PP+1.35·CM 1+0.9·V H1+0.9·V(0°) H2+1.5·N(EI) [NL]

[12] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

[13] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[14] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[15] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[16] 0.8·PP+1.35·CM1+1.5·VH6 [NL]

[17] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]

[18] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

[19] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[20] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.90. P146

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	0.6	0.9	16.5	0.3	1.0	17.2	0.9	17.2	G, V, N [NL](2)	N_t	-0.70	0.01	0.08	-0.06	-0.01	Cumple
													G, V, N [NL](3)	N_c	0.64	0.04	0.32	-0.26	-0.04	
													G, V, N [NL](4)	M_y,M_z,V_z,NM_yM_z	0.37	0.06	0.53	-0.42	-0.06	
													G, V, N [NL](5)	V_y	-0.10	0.04	0.39	-0.55	-0.03	
													G, V, N [NL](6)	M_yV_y	-0.02	0.04	0.42	-0.48	-0.05	
		Pie	Cumple	0.5	0.6	1.5	17.5	0.3	1.3	19.1	1.1	19.1	G, V, N [NL](7)	N_t	-0.62	0.01	0.03	0.01	0.01	Cumple
													G, V, N [NL](8)	N_c	0.74	-0.09	-0.43	-0.33	-0.05	
													G, Q [NL](9)	M_y	0.21	-0.10	-0.48	-0.37	-0.06	
													G, V, N [NL](10)	M_z,V_y,NM_yM_z	-0.52	-0.08	-0.56	-0.70	-0.05	
													G, V, N [NL](4)	V_z	0.49	-0.10	-0.55	-0.42	-0.06	
													G, V, N [NL](11)	M_yV_y	-0.23	-0.09	-0.53	-0.57	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	54.1	28.8	5.6	15.0	1.1	1.1	71.8	N.P.(1)	71.8	G, V, N [NL](12)	N_t,M_z,NM_yM_z	-62.14	-0.17	-0.48	0.31	0.11	Cumple
													G, G, V, V(13)	N_c	26.67	0.08	0.23	-0.24	-0.06	
													G, V, N [NL](14)	M_y,V_z	-38.10	-0.36	-0.21	-0.01	0.23	
													G, V, N [NL](15)	V_y	-42.19	-0.14	-0.47	0.57	0.09	
		Pie	Cumple	54.0	28.9	3.3	9.0	1.1	0.9	64.7	N.P.(1)	64.7	G, V, N [NL](12)	N_t,M_z,NM_yM_z	-62.02	0.11	0.29	0.31	0.11	Cumple
													G, G, V, V(13)	N_c	26.73	-0.05	-0.04	0.02	-0.06	
													G, V, N [NL](14)	M_y,V_z	-37.98	0.21	0.26	0.38	0.23	
													G, V, N [NL](16)	V_y	-28.09	0.03	0.27	0.48	0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	27.1	18.1	3.4	11.3	0.9	0.9	38.6	N.P.(1)	38.6	G, V, N [NL](12)	N_t,NM_yM_z	-31.06	-0.07	-0.33	0.23	0.07	Cumple
													G, G, V, V(13)	N_c	16.76	0.04	0.16	-0.20	-0.04	
													G, V, N [NL](14)	M_y,V_z	-18.56	-0.22	-0.13	-0.05	0.19	
													G, V, N [NL](15)	M_z,V_y	-22.32	-0.05	-0.36	0.50	0.05	
		Pie	Cumple	27.0	18.2	3.9	7.9	0.9	0.8	36.2	N.P.(1)	36.2	G, V, N [NL](12)	N_t,NM_yM_z	-30.95	0.10	0.25	0.23	0.07	Cumple
													G, G, V, V(13)	N_c	16.83	-0.05	-0.03	0.04	-0.04	
													G, V, N [NL](14)	M_y,V_z	-18.44	0.26	0.24	0.34	0.19	
													G, V, N [NL](16)	M_z,V_y	-13.15	-0.02	0.25	0.44	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.7	7.8	1.7	8.6	0.8	0.8	14.3	N.P.(1)	14.3	G, V, N [NL](17)	N_t	-7.67	-0.03	-0.18	0.16	0.05	Cumple
													G, V [NL](18)	N_c	8.98	0.00	0.02	-0.01	-0.01	
													G, V, N [NL](19)	M_y,V_z	-0.80	-0.11	-0.08	-0.05	0.17	
													G, V, N [NL](15)	M_z,V_y,NM_yM_z	-6.16	-0.02	-0.28	0.45	0.04	
		Pie	Cumple	6.6	7.9	4.5	9.1	0.8	0.8	14.7	N.P.(1)	14.7	G, V, N [NL](17)	N_t	-7.56	0.08	0.21	0.16	0.05	Cumple
													G, V [NL](18)	N_c	9.04	-0.02	-0.01	-0.01	-0.01	
													G, V, N [NL](19)	M_y,V_z	-0.69	0.30	0.26	0.33	0.17	
													G, V, N [NL](4)	M_z	-3.90	0.10	0.29	0.22	0.06	
													G, V, N [NL](16)	V_y	0.17	-0.04	0.27	0.41	-0.03	
													G, V, N [NL](12)	NM_yM_z	-4.74	0.10	0.29	0.22	0.05	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]

(3) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(5) 1.35·PP+1.35·CM1+1.5·V(90º)H1+0.75·N(EI) [NL]

(6) 1.35·PP+1.35·CM1+0.9·V(90º)H1+1.5·N(EI) [NL]

(7) 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]

(8) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

(9) 1.35·PP+1.35·CM1+1.5·Q [NL]

(10) 1.35·PP+1.35·CM1+1.5·V(180º)H1+0.75·N(EI) [NL]

(11) 1.35·PP+1.35·CM1+0.9·V(180º)H1+1.5·N(EI) [NL]

(12) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

(13) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]

(14) 1.35·PP+0.8·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]

(15) 1.35·PP+0.8·CM1+1.5·V(180º)H1+0.75·N(EI) [NL]

(16) 1.35·PP+0.8·CM1+1.5·V(90º)H1+0.75·N(EI) [NL]

(17) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]

(18) 0.8·PP+1.35·CM1+1.5·VH4 [NL]

(19) 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]

2.2.2.1.1206.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.5	0.7	17.6	0.3	1.4	18.2	0.9	18.2	G, G, V, V, N[2]	N_t	-0.86	-0.01	0.31	-0.65	0.01	Cumple
													G, V, N [NL][3]	N_c	0.63	0.03	-0.34	0.28	-0.04	
													G, Q [NL][4]	M_yV_z	0.09	0.05	-0.44	0.34	-0.06	
													G, V, N [NL][5]	$M_{Z_i}NM_tM_z$	0.31	0.05	-0.56	0.44	-0.06	
													G, G, V, V[6]	V_y	-0.85	-0.03	0.44	-0.75	0.04	
													G, V, N [NL][7]	M_tV_y	-0.27	0.03	-0.33	0.50	-0.03	
		Pie	Cumple	0.7	0.6	1.5	20.7	0.3	1.7	22.3	1.7	22.3	G, G, V, V, N[8]	N_t	-0.78	0.05	0.08	0.46	0.03	Cumple
													G, V, N [NL][9]	N_c	0.72	-0.09	0.45	0.34	-0.05	
													G, Q [NL][4]	M_yV_z	0.21	-0.10	0.45	0.34	-0.06	
													G, G, V, V, N[10]	$M_{Z_i}V_y,NM_tM_{Z_i}M_tV_y$	-0.65	-0.06	0.66	0.91	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	56.4	29.4	5.4	18.1	1.1	1.5	74.7	1.5	74.7	G, V, N [NL][11]	$N_yNM_tM_z$	-64.79	-0.17	0.50	-0.32	0.11	Cumple
													G, G, V, V[12]	N_t	27.26	0.09	0.02	-0.42	-0.06	
													G, V, N [NL][13]	M_yV_z	-35.24	-0.35	0.18	0.03	0.22	
													G, G, V, V, N[14]	$M_{Z_i}V_y,M_tV_y$	-42.37	-0.12	0.58	-0.78	0.08	
		Pie	Cumple	56.3	29.5	3.1	10.9	1.1	1.3	67.4	0.6	67.4	G, V, N [NL][11]	$N_yNM_tM_z$	-64.67	0.11	-0.30	-0.32	0.11	Cumple
													G, G, V, V[12]	$N_yM_{Z_i}V_y$	27.32	-0.06	0.35	0.68	-0.06	
													G, V, N [NL][13]	M_yV_z	-35.12	0.20	-0.23	-0.36	0.22	
													G, G, V, V, N[15]	M_tV_y	-39.83	0.07	0.02	0.33	0.07	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	28.3	16.7	3.6	14.2	1.0	1.3	40.5	N.P.[1]	40.5	G, V, N [NL][11]	$N_yNM_tM_z$	-32.52	-0.08	0.35	-0.24	0.07	Cumple
													G, V [NL][16]	N_c	15.45	0.04	-0.13	0.09	-0.04	
													G, V, N [NL][17]	M_yV_z	-17.40	-0.23	0.11	0.06	0.20	
													G, G, V, V, N[14]	$M_{Z_i}V_y$	-20.85	-0.05	0.45	-0.70	0.05	
		Pie	Cumple	28.2	16.8	4.0	10.1	1.0	1.2	37.8	N.P.[1]	37.8	G, V, N [NL][11]	$N_yNM_tM_z$	-32.40	0.10	-0.26	-0.24	0.07	Cumple
													G, V [NL][16]	N_c	15.51	-0.06	0.09	0.09	-0.04	
													G, V, N [NL][13]	M_t	-17.74	0.26	-0.22	-0.32	0.20	
													G, G, V, V[12]	$M_{Z_i}V_y$	13.20	-0.06	0.32	0.62	-0.04	
													G, V, N [NL][17]	V_z	-17.28	0.26	-0.22	-0.32	0.20	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	7.7	8.1	1.8	11.2	0.9	1.2	17.7	N.P.[1]	17.7	G, V, N [NL][18]	N_t	-8.89	-0.03	0.19	-0.16	0.05	Cumple
													G, V [NL][19]	N_c	9.29	0.01	-0.02	0.02	-0.01	
													G, V, N [NL][17]	M_yV_z	-1.93	-0.12	0.06	0.06	0.18	
													G, G, V, V, N[14]	$M_{Z_i}V_y$	-3.65	-0.03	0.36	-0.64	0.04	
													G, V, N [NL][20]	NM_tM_z	-8.07	-0.03	0.33	-0.60	0.04	
		Pie	Cumple	7.6	8.1	4.7	11.0	0.9	1.1	15.8	N.P.[1]	15.8	G, V, N [NL][18]	N_t	-8.78	0.09	-0.21	-0.16	0.05	Cumple
													G, V [NL][19]	N_c	9.35	-0.02	0.02	0.02	-0.01	
													G, V, N [NL][17]	M_yV_z	-1.82	0.31	-0.24	-0.31	0.18	
													G, G, V, V[6]	M_{Z_i}	-0.40	-0.05	0.35	0.60	-0.03	
													G, G, V, V[12]	V_y	0.43	-0.05	0.35	0.60	-0.03	
													G, V, N [NL][21]	NM_tM_z	-8.68	0.10	-0.22	-0.17	0.05	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]

[3] 0.8·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

[4] 1.35·PP+1.35·CM1+1.5·Q [NL]

[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[7] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[8] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]

[9] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

[10] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[11] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

[12] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[13] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[14] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[15] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]

[16] 0.8·PP+1.35·CM1+1.5·VH6 [NL]

[17] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[18] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]

[19] 0.8·PP+1.35·CM1+1.5·VH5 [NL]

[20] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

[21] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]

2.2.2.1.94. P150

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	0.5	0.8	17.6	0.3	0.9	18.2	0.9	18.2	G, V, N [NL](2)	N_t	-0.77	0.04	0.19	0.13	-0.04	Cumple
													G, V, N [NL](3)	N_c	0.63	0.04	0.34	-0.27	-0.04	
													G, Q [NL](4)	M_y,V_z	0.09	0.05	0.44	-0.34	-0.06	
													G, V, N [NL](5)	M_z,NM_yM_z	0.31	0.05	0.56	-0.44	-0.06	
													G, V, N [NL](6)	V_y,M_yV_y	-0.27	0.04	0.33	-0.50	-0.04	
		Pie	Cumple	0.6	0.6	1.5	18.2	0.3	1.3	19.4	1.3	19.4	G, V, N [NL](7)	N_t	-0.68	-0.05	-0.43	-0.60	-0.03	Cumple
													G, V, N [NL](8)	N_c	0.72	-0.09	-0.45	-0.34	-0.05	
													G, Q [NL](9)	M_y,V_z	0.21	-0.10	-0.45	-0.34	-0.06	
													G, V, N [NL](5)	M_z,NM_yM_z	0.43	-0.10	-0.58	-0.44	-0.06	
													G, V, N [NL](6)	V_y,M_yV_y	-0.60	-0.08	-0.53	-0.68	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	56.4	29.9	5.4	15.6	1.1	1.0	74.7	0.8	74.7	G, V, N [NL](10)	N_t,M_z,NM_yM_z	-64.72	-0.18	-0.50	0.32	0.12	Cumple
													G, G, V, V(11)	N_c	27.71	0.09	0.23	-0.24	-0.06	
													G, V, N [NL](12)	M_y,V_z	-35.22	-0.35	-0.18	-0.03	0.22	
													G, V, N [NL](13)	V_y	-38.88	-0.14	-0.44	0.55	0.09	
													G, V, N [NL](14)	M_yV_y	-43.04	-0.16	-0.41	0.43	0.11	
		Pie	Cumple	56.3	30.0	3.2	9.4	1.1	0.8	67.4	0.6	67.4	G, V, N [NL](10)	N_t,M_z,NM_yM_z	-64.60	0.12	0.30	0.32	0.12	Cumple
													G, G, V, V(11)	N_c	27.78	-0.06	-0.04	0.02	-0.06	
													G, V, N [NL](12)	M_y,V_z	-35.11	0.21	0.23	0.36	0.22	
													G, V, N [NL](13)	V_y	-19.69	0.03	0.23	0.43	0.02	
													G, V, N [NL](16)	M_yV_y	-38.51	0.10	0.24	0.32	0.10	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	28.3	19.0	3.5	10.9	1.0	0.9	40.4	N.P.(1)	40.4	G, V, N [NL](10)	N_t,M_z,NM_yM_z	-32.50	-0.08	-0.35	0.24	0.07	Cumple
													G, G, V, V(11)	N_c	17.59	0.04	0.17	-0.20	-0.04	
													G, V, N [NL](17)	M_y,V_z	-17.40	-0.23	-0.11	-0.06	0.20	
													G, V, N [NL](13)	V_y	-21.02	-0.05	-0.34	0.48	0.05	
		Pie	Cumple	28.2	19.1	4.0	8.0	1.0	0.8	37.8	N.P.(1)	37.8	G, V, N [NL](10)	N_t,M_z,NM_yM_z	-32.38	0.10	0.26	0.24	0.07	Cumple
													G, G, V, V(11)	N_c	17.65	-0.06	-0.03	0.04	-0.04	
													G, V, N [NL](17)	M_y,V_z	-17.29	0.26	0.22	0.32	0.20	
													G, V, N [NL](15)	V_y	-9.07	-0.02	0.22	0.40	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	7.7	8.3	1.7	8.2	0.8	0.8	14.3	N.P.(1)	14.3	G, V, N [NL](18)	N_t	-8.89	-0.03	-0.19	0.16	0.05	Cumple
													G, G, V, V(11)	N_c	9.51	0.01	0.13	-0.18	-0.03	
													G, V, N [NL](17)	M_y,V_z	-1.95	-0.11	-0.06	-0.06	0.17	
													G, V, N [NL](13)	M_z,V_y,NM_yM_z	-6.57	-0.02	-0.26	0.43	0.04	
		Pie	Cumple	7.6	8.3	4.5	9.4	0.8	0.7	15.7	N.P.(1)	15.7	G, V, N [NL](18)	N_t	-8.78	0.08	0.21	0.16	0.05	Cumple
													G, G, V, V(11)	N_c	9.57	-0.05	-0.05	0.04	-0.03	
													G, V, N [NL](17)	M_y,V_z	-1.84	0.30	0.24	0.31	0.17	
													G, V, N [NL](5)	M_z	-4.39	0.10	0.30	0.23	0.06	
													G, V, N [NL](15)	V_y	0.63	-0.04	0.23	0.38	-0.03	
													G, V, N [NL](19)	NM_yM_z	-8.69	0.09	0.22	0.17	0.05	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]

(3) 0.8·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

(4) 1.35·PP+1.35·CM1+1.5·Q [NL]

(5) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(6) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(7) 0.8·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]

(8) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

(9) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(10) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(12) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(14) 1.35·PP+0.8·CM1+0.9·V(180°)H1+1.5·N(EI) [NL]

(15) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(16) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

(17) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(18) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]

(19) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]

2.2.2.1.1209.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.9	0.3	1.0	16.8	0.1	1.4	17.9	1.4	17.9	G, G, V, V, N[2]	N_t	-1.02	-0.04	-0.14	-0.32	0.00	Cumple
													G, V, N [NL][3]	N_c	0.32	0.02	-0.02	0.02	-0.02	
													G, V, N [NL][4]	M_y	-0.14	-0.06	-0.52	0.41	0.00	
													G, V, N [NL][5]	M_z,NM$_t$M$_z$	-0.11	-0.06	-0.54	0.43	0.00	
													G, V, N [NL][6]	V_z	0.27	0.01	-0.10	0.08	-0.02	
													G, G, V, V[7]	V_y,M$_t$V$_y$	-0.60	0.02	0.44	-0.77	0.01	
		Pie	Cumple	0.8	0.3	1.3	20.8	0.1	1.7	22.3	1.7	22.3	G, G, V, V, N[8]	N_t	-0.90	-0.05	0.65	0.92	0.00	Cumple
													G, V, N [NL][9]	N_c	0.39	-0.04	0.02	0.02	-0.02	
													G, V, N [NL][10]	M_y	0.33	-0.08	0.44	0.33	-0.02	
													G, G, V, V, N[9]	M_z,V_y,NM$_t$M$_z$,M$_z$M$_t$V$_y$	-0.87	-0.05	0.67	0.93	0.00	
													G, V, N [NL][6]	V_z	0.39	-0.05	0.10	0.08	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	51.9	27.0	4.8	18.5	1.0	1.5	69.1	1.5	69.1	G, V, N [NL][10]	N_t,NM$_t$M$_z$	-59.53	-0.13	0.49	-0.31	0.09	Cumple
													G, V [NL][11]	N_c	25.03	0.11	-0.19	0.12	-0.08	
													G, V, N [NL][12]	M_y,V_z	-31.58	-0.31	0.18	0.03	0.20	
													G, G, V, V, N[13]	M_z,V_y,M$_t$V$_y$	-39.75	-0.07	0.59	-0.81	0.05	
		Pie	Cumple	51.8	27.1	2.9	11.1	1.0	1.3	62.4	1.3	62.4	G, V, N [NL][10]	N_t,NM$_t$M$_z$	-59.41	0.11	-0.29	-0.31	0.09	Cumple
													G, V [NL][11]	N_c	25.09	-0.09	0.11	0.12	-0.08	
													G, V, N [NL][12]	M_y,V_z	-31.47	0.19	-0.24	-0.37	0.20	
													G, G, V, V[14]	M_z,V_y,M$_t$V$_y$	25.03	-0.10	0.36	0.70	-0.09	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	25.0	12.0	3.9	14.4	1.1	1.3	37.5	1.3	37.5	G, V, N [NL][10]	N_t,NM$_t$M$_z$	-28.66	-0.13	0.34	-0.23	0.10	Cumple
													G, V [NL][11]	N_c	13.82	0.08	-0.13	0.09	-0.07	
													G, V, N [NL][12]	M_y,V_z	-14.11	-0.26	0.11	0.07	0.21	
													G, G, V, V, N[13]	M_z,V_y,M$_t$V$_y$	-18.53	-0.08	0.46	-0.72	0.07	
		Pie	Cumple	24.9	12.1	4.2	10.4	1.1	1.2	34.7	0.7	34.7	G, V, N [NL][10]	N_t,NM$_t$M$_z$	-28.54	0.13	-0.25	-0.23	0.10	Cumple
													G, V [NL][11]	N_c	13.89	-0.09	0.09	0.09	-0.07	
													G, V, N [NL][12]	M_y,V_z	-14.00	0.28	-0.23	-0.34	0.21	
													G, G, V, V[14]	M_z,V_y	11.46	-0.10	0.33	0.64	-0.08	
													G, G, V, V, N[15]	M$_t$V$_y$	-17.27	0.08	0.05	0.39	0.06	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	7.8	1.8	11.5	0.9	1.2	16.0	N.P.[1]	16.0	G, V, N [NL][16]	N_t	-6.87	-0.04	0.18	-0.16	0.05	Cumple
													G, V [NL][17]	N_c	9.01	0.02	-0.02	0.01	-0.02	
													G, V, N [NL][12]	M_y,V_z	0.98	-0.12	0.06	0.07	0.17	
													G, G, V, V, N[13]	M_z,V_y	-1.65	-0.03	0.37	-0.66	0.05	
													G, V, N [NL][18]	NM$_t$M$_z$	-5.96	-0.03	0.33	-0.62	0.04	
		Pie	Cumple	5.9	7.9	4.7	11.3	0.9	1.1	13.7	N.P.[1]	13.7	G, V, N [NL][16]	N_t	-6.76	0.10	-0.20	-0.16	0.05	Cumple
													G, V [NL][17]	N_c	9.07	-0.03	0.01	0.01	-0.02	
													G, V, N [NL][12]	M_y,V_z	1.09	0.31	-0.25	-0.33	0.17	
													G, G, V, V[7]	M_z,NM$_t$M$_z$	-1.69	-0.06	0.36	0.62	-0.04	
													G, G, V, V[14]	V_y	-0.83	-0.07	0.36	0.62	-0.04	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[2] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0º) H2+0.75·N(R) 1 [NL]
[3] 0.8·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)1 [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0º) H2+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[11] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[12] 1.35·PP+0.8·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]
[13] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0º) H2+0.75·N(EI) [NL]
[14] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
[15] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0º) H2+0.75·N(R) 1 [NL]
[16] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
[17] 0.8·PP+1.35·CM1+1.5·VH5 [NL]
[18] 1.35·PP+0.8·CM1+1.5·V(0º)H1+0.75·N(EI) [NL]

2.2.2.1.98. P154

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	0.3	1.0	16.9	0.1	1.3	17.9	1.0	17.9	G, V, N [NL][2]	N_t	-0.92	-0.02	0.16	0.16	-0.02	Cumple
													G, V, N [NL][3]	N_c	0.32	0.02	0.02	-0.02	-0.02	
													G, V, N [NL][4]	M_y	-0.14	-0.06	0.52	-0.41	0.00	
													G, V, N [NL][5]	M_z,NM_yM_z	-0.11	-0.06	0.54	-0.43	0.00	
													G, V, N [NL][6]	V_z	0.27	0.01	0.10	-0.08	-0.02	
													G, V, N [NL][7]	V_y	-0.42	0.01	0.38	-0.67	-0.02	
													G, V, N [NL][8]	M_yV_y	-0.31	0.00	0.39	-0.53	-0.02	
		Pie	Cumple	0.7	0.3	1.3	17.6	0.1	1.3	18.2	1.3	18.2	G, V, N [NL][4]	N_t	-0.80	-0.06	-0.50	-0.67	-0.02	Cumple
													G, V, N [NL][3]	N_c	0.39	-0.04	-0.02	-0.02	-0.02	
													G, V, N [NL][4]	M_y	0.33	-0.08	-0.44	-0.33	-0.02	
													G, V, N [NL][5]	M_z,NM_yM_z	0.01	-0.08	-0.56	-0.43	0.00	
													G, V, N [NL][6]	V_z	0.39	-0.05	-0.11	-0.08	-0.02	
													G, V, N [NL][10]	V_y,M_yV_y	-0.77	-0.07	-0.52	-0.69	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	52.0	27.5	4.8	15.3	1.0	1.1	69.3	1.1	69.3	G, V, N [NL][11]	N_t,M_z,NM_yM_z	-59.64	-0.13	-0.49	0.31	0.10	Cumple
													G, G, V, V[12]	N_c	25.48	0.10	0.23	-0.24	-0.08	
													G, V, N [NL][13]	M_y,V_z	-31.65	-0.31	-0.18	-0.03	0.20	
													G, V, N [NL][14]	V_y,M_yV_y	-35.19	-0.10	-0.44	0.57	0.07	
		Pie	Cumple	51.9	27.6	2.9	9.1	1.0	1.1	62.6	1.1	62.6	G, V, N [NL][11]	N_t,NM_yM_z	-59.53	0.11	0.29	0.31	0.10	Cumple
													G, G, V, V[12]	N_c	25.55	-0.09	-0.04	0.02	-0.08	
													G, V, N [NL][13]	M_y,V_z	-31.53	0.19	0.24	0.37	0.20	
													G, V, N [NL][15]	M_z,V_y,M_yV_y	-16.18	0.02	0.29	0.60	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	25.0	17.1	3.8	10.7	1.0	1.0	37.5	0.3	37.5	G, V, N [NL][11]	N_t,NM_yM_z	-28.69	-0.13	-0.34	0.24	0.10	Cumple
													G, G, V, V[12]	N_c	15.88	0.08	0.17	-0.20	-0.07	
													G, V, N [NL][14]	M_y,V_z	-14.15	-0.25	-0.11	-0.07	0.21	
													G, V, N [NL][16]	M_z	-18.13	-0.07	-0.34	0.50	0.06	
													G, V [NL][9]	V_y	0.87	0.07	0.21	-0.51	-0.05	
													G, V, N [NL][17]	M_yV_y	-16.14	-0.09	-0.25	0.18	0.07	
		Pie	Cumple	24.9	17.2	4.2	8.9	1.0	1.1	34.7	0.3	34.7	G, V, N [NL][11]	N_t,NM_yM_z	-28.57	0.14	0.25	0.24	0.10	Cumple
													G, G, V, V[12]	N_c	15.94	-0.09	-0.02	0.05	-0.07	
													G, V, N [NL][14]	M_y,V_z	-14.03	0.27	0.23	0.34	0.21	
													G, V, N [NL][16]	M_z,V_y	-6.88	-0.02	0.28	0.58	-0.02	
													G, V, N [NL][17]	M_yV_y	-16.03	0.09	0.20	0.18	0.07	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	7.8	1.7	8.3	0.8	0.9	12.5	N.P.[1]	12.5	G, V, N [NL][18]	N_t	-6.86	-0.03	-0.18	0.16	0.05	Cumple
													G, V [NL][19]	N_c	8.96	0.02	0.02	-0.01	-0.02	
													G, V, N [NL][13]	M_y,V_z	0.98	-0.11	-0.06	-0.07	0.17	
													G, V, N [NL][14]	M_z,NM_yM_z	-4.45	-0.02	-0.27	0.44	0.04	
													G, V [NL][16]	V_y	3.55	0.04	0.18	-0.47	-0.05	
		Pie	Cumple	5.9	7.9	4.5	9.3	0.8	1.0	13.6	N.P.[1]	13.6	G, V, N [NL][18]	N_t	-6.75	0.09	0.20	0.16	0.05	Cumple
													G, V [NL][19]	N_c	9.03	-0.03	-0.01	-0.01	-0.02	
													G, V, N [NL][13]	M_y,V_z	1.09	0.30	0.25	0.33	0.17	
													G, V, N [NL][5]	M_z	-1.73	0.11	0.30	0.23	0.06	
													G, V, N [NL][15]	V_y	1.98	-0.04	0.29	0.55	-0.03	
													G, V, N [NL][20]	NM_yM_z	-6.54	0.09	0.21	0.16	0.05	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]

[3] 0.8·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]

[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)2 [NL]

[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[6] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]

[7] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[8] 1.35·PP+1.35·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]

[9] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]

[10] 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

[11] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

[12] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[13] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[14] 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

[15] 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[16] 0.8·PP+1.35·CM1+1.5·V(90°)H1 [NL]

[17] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]

[18] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]

[19] 0.8·PP+1.35·CM1+1.5·VH4 [NL]

[20] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]

Listados

2.2.2.1.1212.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_z (%)	M_zV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 280 B	Cabeza	Cumple	< 0.1	0.4	2.6	1.1	0.9	3.0	1.1	0.9	3.0	G, V [NL][1]	N_c	0.16	0.01	0.03	-0.13	0.02	Cumple
													G, V, N [NL][2]	M_y	-0.02	0.17	-0.47	1.39	-0.50	
													G, V, N [NL][3]	M_z,V_y,NM_yM_z,M_zV_y	-0.03	0.17	-0.48	1.41	-0.51	
													G, V, N [NL][4]	V_z,M_yV_z	-0.08	0.03	-0.35	1.03	-0.69	
		Pie	Cumple	0.2	4.4	17.1	1.1	0.9	18.6	1.1	0.9	18.6	G, V [NL][5]	N_c	0.51	-0.24	0.18	0.09	-0.10	Cumple
													G, V, N [NL][6]	M_y,V_z,M_yV_z	0.28	-1.74	2.03	0.81	-0.69	
													G, V, N [NL][3]	M_z,NM_yM_z	0.33	-1.14	3.15	1.41	-0.51	
													G, G, V, V, N[6]	V_y,M_yV_y	-0.12	-0.70	2.47	1.45	-0.30	
INICIO CUBIERTA (492 - 742 cm)	HE 280 B	Cabeza	Cumple	0.6	4.6	16.8	1.1	1.2	18.6	1.1	1.2	18.6	G, V [NL][7]	N_c	1.90	0.26	-0.68	0.39	-0.09	Cumple
													G, V, N [NL][8]	M_y,V_z,M_yV_z	1.67	-1.83	2.06	-1.17	0.69	
													G, V, N [NL][9]	M_z,V_y,NM_yM_z,M_yV_y	1.60	-1.09	3.10	-1.87	0.51	
		Pie	Cumple	0.7	0.9	8.5	1.1	1.2	9.3	1.1	1.2	9.3	G, V [NL][7]	N_c	2.25	0.03	0.29	0.39	-0.09	Cumple
													G, V, N [NL][10]	M_y	1.78	0.34	-0.65	-0.88	0.29	
													G, V, N [NL][9]	M_z,V_y,NM_yM_z,M_yV_y	1.94	0.18	-1.56	-1.87	0.51	
													G, V, N [NL][8]	V_z,M_yV_z	2.01	-0.12	-1.13	-1.38	0.69	
INICIO CUBIERTA (242 - 492 cm)	HE 280 B	Cabeza	Cumple	1.1	1.4	5.3	1.0	0.3	6.2	1.0	0.3	6.2	G, V, N [NL][11]	N_c	3.69	-0.54	-0.63	0.26	0.60	Cumple
													G, V [NL][11]	M_y	3.29	-0.56	-0.37	0.18	0.56	
													G, V, N [NL][12]	M_z	2.49	-0.02	-0.98	0.29	0.18	
													G, V, N [NL][8]	V_z,M_yV_z	3.68	-0.54	-0.66	0.27	0.60	
													G, G, V, V[12]	V_y,M_yV_y	2.79	-0.23	0.52	-0.48	0.05	
													G, V, N [NL][2]	NM_yM_z	3.54	-0.06	-0.95	0.27	0.21	
		Pie	Cumple	1.2	2.4	1.7	1.0	0.3	4.5	1.0	0.3	4.5	G, V, N [NL][13]	N_c	4.03	0.95	-0.24	0.05	0.60	Cumple
													G, V, N [NL][8]	M_y,V_z,NM_yM_z,M_yV_z	4.03	0.96	-0.25	0.06	0.60	
													G, V, N [NL][14]	M_z	3.90	0.37	-0.32	0.13	0.19	
													G, V, N [NL][14]	V_y,M_yV_y	2.34	0.33	-0.11	0.49	0.14	
INICIO CUBIERTA (0 - 242 cm)	HE 280 B	Cabeza	Cumple	1.7	1.5	0.8	1.5	0.1	3.2	1.5	0.1	3.2	G, V, N [NL][10]	N_c	5.60	0.54	-0.04	0.05	0.89	Cumple
													G, V, N [NL][4]	M_y	4.03	0.59	-0.08	0.06	0.87	
													G, V [NL][15]	M_z	4.72	-0.29	0.15	-0.06	-0.04	
													G, V, N [NL][8]	V_z,NM_yM_z,M_yV_z	5.60	0.54	-0.04	0.04	0.90	
													G, V, N [NL][16]	V_y	5.38	-0.11	0.03	-0.19	0.10	
													G, V, N [NL][17]	M_yV_y	4.79	-0.16	0.05	-0.19	0.06	
		Pie	Cumple	1.8	6.9	3.3	1.5	0.3	9.3	1.5	0.3	9.3	G, V, N [NL][10]	N_c	5.94	2.69	-0.17	-0.16	0.89	Cumple
													G, V, N [NL][8]	M_y,V_z,NM_yM_z,M_yV_z	5.93	2.71	-0.19	-0.16	0.90	
													G, G, V, V, N[18]	M_z	2.88	-0.30	0.62	0.48	-0.04	
													G, V, N [NL][19]	V_y,M_yV_y	3.62	0.51	0.54	0.50	0.17	

Notas:

[1] 0.8·PP+1.35·CM1+1.5·VH4 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH4 [NL]
[6] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH6 [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(R)2 [NL]
[10] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
[11] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[12] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[13] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
[14] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[15] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[16] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[17] 0.8·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[18] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[19] 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1213.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_yV_z (%)	M_zV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 280 B	Cabeza	Cumple	< 0.1	0.4	2.6	1.1	0.9	3.0	1.1	0.9	3.0	G, V [NL](1)	N_c	0.16	0.01	-0.03	0.13	0.02	Cumple
													G, V, N [NL](2)	M_y	-0.02	0.17	0.47	-1.39	-0.50	
													G, V, N [NL](3)	M_z,V_y,NM_yM_z,M_zV_y	-0.03	0.17	0.48	-1.40	-0.51	
													G, V, N [NL](4)	V_z,M_yV_z	-0.08	0.03	0.35	-1.03	-0.69	
		Pie	Cumple	0.2	4.4	17.0	1.1	0.9	18.6	1.1	0.9	18.6	G, V [NL](5)	N_c	0.51	-0.25	-0.18	-0.09	-0.11	Cumple
													G, V, N [NL](6)	M_y,V_z,M_yV_z	0.28	-1.74	-2.03	-0.81	-0.69	
													G, V, N [NL](3)	M_z,V_y,NM_yM_z,M_zV_y	0.33	-1.16	-3.14	-1.40	-0.51	
INICIO CUBIERTA (492 - 742 cm)	HE 280 B	Cabeza	Cumple	0.6	4.6	16.8	1.1	1.2	18.7	1.1	1.2	18.7	G, G, V, V(6)	N_c	1.95	0.26	0.71	-0.49	-0.09	Cumple
													G, V, N [NL](7)	M_y,V_z,M_yV_z	1.67	-1.83	-2.06	1.17	0.70	
													G, V, N [NL](4)	M_z,V_y,NM_yM_z,M_zV_y	1.61	-1.11	-3.10	1.87	0.53	
		Pie	Cumple	0.7	0.9	8.5	1.1	1.2	9.3	1.1	1.2	9.3	G, G, V, V(6)	N_c	2.30	0.04	-0.35	-0.35	-0.09	Cumple
													G, V, N [NL](8)	M_y	1.78	0.36	0.65	0.89	0.30	
													G, V, N [NL](4)	M_z,V_y,NM_yM_z,M_zV_y	1.95	0.21	1.56	1.87	0.53	
													G, V, N [NL](7)	V_z,M_yV_z	2.02	-0.09	1.13	1.38	0.70	
INICIO CUBIERTA (242 - 492 cm)	HE 280 B	Cabeza	Cumple	1.1	1.4	5.3	1.0	0.2	6.2	1.0	0.2	6.2	G, V, N [NL](9)	N_c	3.69	-0.51	0.63	-0.27	0.59	Cumple
													G, V [NL](10)	M_y	3.30	-0.54	0.37	-0.18	0.55	
													G, V, N [NL](3)	M_z	2.50	0.00	0.98	-0.30	0.18	
													G, V, N [NL](7)	V_z,M_yV_z	3.68	-0.51	0.66	-0.27	0.59	
													G, V, N [NL](11)	V_y,M_yV_y	2.15	0.18	0.36	-0.34	-0.04	
													G, V, N [NL](4)	NM_yM_z	3.55	-0.04	0.95	-0.27	0.22	
		Pie	Cumple	1.2	2.5	1.7	1.0	0.2	4.6	1.0	0.2	4.6	G, V, N [NL](9)	N_c	4.04	0.96	0.23	-0.05	0.59	Cumple
													G, V, N [NL](7)	M_y,V_z,NM_yM_z,M_zV_z	4.03	0.97	0.25	-0.06	0.59	
													G, V, N [NL](12)	M_z	3.90	0.37	0.32	-0.11	0.19	
													G, V, N [NL](13)	V_y,M_yV_y	2.36	0.35	0.14	-0.38	0.15	
INICIO CUBIERTA (0 - 242 cm)	HE 280 B	Cabeza	Cumple	1.7	1.5	1.0	1.4	0.1	3.2	1.4	0.1	3.2	G, V, N [NL](9)	N_c	5.60	0.55	0.03	-0.05	0.84	Cumple
													G, V, N [NL](4)	M_y	4.02	0.60	0.07	-0.06	0.82	
													G, G, V, V(14)	M_z	4.84	-0.30	-0.19	0.18	-0.02	
													G, V, N [NL](7)	V_z,NM_yM_z,M_zV_z	5.60	0.56	0.04	-0.04	0.85	
													G, V, N [NL](15)	V_y	5.38	-0.10	-0.03	0.18	0.09	
													G, V, N [NL](16)	M_yV_y	4.79	-0.16	-0.05	0.18	0.05	
		Pie	Cumple	1.8	6.6	2.7	1.4	0.3	9.1	1.4	0.3	9.1	G, V, N [NL](9)	N_c	5.94	2.59	0.17	0.16	0.84	Cumple
													G, V, N [NL](7)	M_y,V_z,NM_yM_z,M_zV_z	5.93	2.62	0.19	0.16	0.85	
													G, V, N [NL](17)	M_z	5.79	0.48	0.51	0.29	0.17	
													G, V, N [NL](18)	V_y,M_yV_y	4.54	-0.53	0.32	0.39	-0.16	

Notas:

(1) 0.8·PP+1.35·CM1+1.5·VH5 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH5 [NL]
(6) 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(R)1 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(12) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(14) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(15) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(16) 0.8·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(17) 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(18) 0.8·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(R)2 [NL]

2.2.2.1.1214.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_tM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 280 B	Cabeza	Cumple	< 0.1	0.3	1.2	0.9	1.3	0.9	1.3	G, V [NL](1)	N_c	0.17	0.00	0.09	-0.30	-0.07	Cumple
											G, V, N [NL](2)	M_y	0.01	0.12	-0.22	0.96	0.00	
											G, V, N [NL](3)	M_z,NM_tM_z	0.00	0.11	-0.22	0.96	0.01	
											G, V [NL](4)	V_z,M_tV_z	0.12	-0.03	0.08	-0.05	-0.56	
		Pie	Cumple	0.2	2.6	12.3	0.4	12.6	0.4	12.6	G, V [NL](1)	N_c	0.53	-0.19	-0.68	-0.30	-0.07	Cumple
											G, V [NL](4)	M_y,V_z,M_tV_z	0.34	-1.04	-0.74	-0.58	-0.23	
											G, V, N [NL](3)	M_z,NM_tM_z	0.36	0.13	2.27	0.96	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 280 B	Cabeza	Cumple	0.6	2.7	12.3	0.8	13.2	0.8	13.2	G, V [NL](5)	N_c	1.93	0.12	0.28	-0.16	-0.07	Cumple
											G, V, N [NL](6)	M_y,V_z,M_tV_z	1.78	1.06	1.74	-1.02	-0.47	
											G, V, N [NL](2)	M_z,NM_tM_z	1.75	0.35	2.27	-1.43	-0.33	
		Pie	Cumple	0.7	1.4	7.0	1.0	8.2	1.0	8.2	G, V [NL](5)	N_c	2.28	-0.06	-0.12	-0.16	-0.07	Cumple
											G, V, N [NL](7)	M_y	2.11	-0.55	-0.29	-0.43	0.22	
											G, V, N [NL](2)	M_z,NM_tM_z	2.10	-0.47	-1.29	-1.43	-0.33	
											G, V, N [NL](6)	V_z,M_tV_z	2.13	-0.27	-1.06	-1.22	-0.60	
INICIO CUBIERTA (242 - 492 cm)	HE 280 B	Cabeza	Cumple	1.1	1.4	4.4	0.5	5.5	0.5	5.5	G, V, N [NL](8)	N_c	3.75	-0.09	-0.44	0.05	-0.01	Cumple
											G, V, N [NL](9)	M_y,V_z,M_tV_z	2.33	-0.56	-0.06	0.20	0.31	
											G, V, N [NL](3)	M_z	2.63	-0.26	-0.80	0.23	0.07	
											G, V, N [NL](2)	NM_tM_z	3.64	-0.23	-0.77	0.20	0.05	
		Pie	Cumple	1.2	1.6	1.7	1.0	3.4	1.0	3.4	G, V, N [NL](8)	N_c	4.10	-0.12	-0.31	0.05	-0.01	Cumple
											G, V [NL](10)	M_y	2.07	0.62	-0.10	-0.36	0.57	
											G, V, N [NL](11)	M_z	4.09	-0.13	-0.31	0.07	-0.01	
											G, V, N [NL](9)	V_z,M_tV_z	2.68	0.58	-0.16	-0.28	0.60	
											G, V, N [NL](6)	NM_tM_z	4.05	-0.50	-0.25	0.05	-0.29	
INICIO CUBIERTA (0 - 242 cm)	HE 280 B	Cabeza	Cumple	1.6	1.5	0.8	1.1	3.1	1.1	3.1	G, V, N [NL](8)	N_c	5.50	0.08	-0.05	-0.11	0.03	Cumple
											G, V [NL](4)	M_y	4.22	0.58	0.09	0.08	0.63	
											G, V [NL](12)	M_z	4.51	0.14	0.15	-0.09	-0.13	
											G, V, N [NL](9)	V_z,M_tV_z	3.39	0.52	0.01	0.12	0.68	
											G, V [NL](13)	NM_tM_z	4.87	0.57	0.07	0.09	0.64	
		Pie	Cumple	1.7	6.3	3.0	1.5	8.9	1.5	8.9	G, V, N [NL](8)	N_c	5.84	0.15	-0.33	-0.11	0.03	Cumple
											G, V, N [NL](9)	M_y,V_z,M_tV_z	3.72	2.50	-0.24	-0.33	0.95	
											G, V, N [NL](14)	M_z	3.94	0.05	0.56	0.49	0.02	
											G, V, N [NL](15)	NM_tM_z	5.23	2.47	-0.28	-0.37	0.92	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH5 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(11) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(12) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(13) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(15) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.1215.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 280 B	Cabeza	Cumple	0.1	0.3	1.2	0.9	1.3	0.9	1.3	G, G, V, V[1]	N_c	0.19	0.01	-0.12	0.28	-0.08	Cumple
											G, V, N [NL][2]	M_y	0.01	0.11	0.21	-0.95	0.02	
											G, V, N [NL][3]	M_z,NM_yM_z	0.01	0.11	0.21	-0.96	0.03	
											G, V [NL][4]	V_z	0.12	-0.03	-0.08	0.05	-0.55	
											G, V, N [NL][5]	M_yV_z	0.11	-0.02	-0.05	-0.05	-0.53	
		Pie	Cumple	0.2	2.6	12.3	0.4	12.6	0.4	12.6	G, G, V, V[1]	N_c	0.55	-0.20	0.79	0.42	-0.08	Cumple
											G, V [NL][4]	M_y	0.33	-1.02	0.74	0.58	-0.22	
											G, V, N [NL][3]	M_z,NM_yM_z	0.37	0.18	-2.27	-0.96	0.03	
											G, V, N [NL][6]	V_z,M_yV_z	0.37	0.88	-1.68	-0.61	0.23	
INICIO CUBIERTA (492 - 742 cm)	HE 280 B	Cabeza	Cumple	0.6	2.8	12.2	0.8	13.2	0.8	13.2	G, V [NL][7]	N_c	1.93	0.13	-0.28	0.16	-0.08	Cumple
											G, V, N [NL][8]	M_y,V_z,M_yV_z	1.77	1.09	-1.73	1.03	-0.48	
											G, V, N [NL][2]	M_z,NM_yM_z	1.74	0.40	-2.25	1.43	-0.36	
		Pie	Cumple	0.7	1.4	7.2	1.0	8.4	1.0	8.4	G, V [NL][7]	N_c	2.28	-0.07	0.11	0.16	-0.08	Cumple
											G, V, N [NL][9]	M_y	2.12	-0.54	0.29	0.43	0.21	
											G, V, N [NL][2]	M_z,NM_yM_z	2.09	-0.49	1.33	1.43	-0.36	
											G, V, N [NL][8]	V_z,M_yV_z	2.12	-0.29	1.09	1.22	-0.61	
INICIO CUBIERTA (242 - 492 cm)	HE 280 B	Cabeza	Cumple	1.1	1.4	4.6	0.5	5.8	0.5	5.8	G, V, N [NL][10]	N_c	3.74	-0.10	0.47	-0.07	-0.02	Cumple
											G, V, N [NL][11]	M_y,V_z,M_yV_z	2.34	-0.54	0.06	-0.21	0.29	
											G, V, N [NL][3]	M_z	2.62	-0.27	0.84	-0.25	0.06	
											G, V, N [NL][2]	NM_yM_z	3.62	-0.24	0.81	-0.22	0.03	
		Pie	Cumple	1.2	1.5	1.6	1.0	3.4	1.0	3.4	G, V, N [NL][10]	N_c,M_z	4.09	-0.15	0.30	-0.07	-0.02	Cumple
											G, V [NL][12]	M_y	2.09	0.61	0.10	0.36	0.56	
											G, V, N [NL][11]	V_z,M_yV_z	2.69	0.55	0.16	0.28	0.58	
											G, V, N [NL][8]	NM_yM_z	4.05	-0.53	0.24	-0.06	-0.30	
INICIO CUBIERTA (0 - 242 cm)	HE 280 B	Cabeza	Cumple	1.6	1.4	1.0	1.1	3.1	1.1	3.1	G, V, N [NL][10]	N_c	5.49	0.05	0.05	0.10	0.04	Cumple
											G, V [NL][4]	M_y	4.24	0.57	-0.09	-0.08	0.61	
											G, G, V, V[13]	M_z	4.65	0.15	-0.18	0.20	-0.13	
											G, V, N [NL][11]	V_z,M_yV_z	3.40	0.50	-0.01	-0.13	0.67	
											G, V [NL][14]	NM_yM_z	4.88	0.55	-0.07	-0.09	0.63	
		Pie	Cumple	1.7	6.2	2.5	1.5	8.7	1.5	8.7	G, V, N [NL][10]	N_c	5.83	0.15	0.29	0.10	0.04	Cumple
											G, V, N [NL][11]	M_y,V_z,M_yV_z	3.74	2.43	0.23	0.33	0.93	
											G, G, V, V, N[15]	M_z	4.89	-0.15	0.46	0.31	-0.11	
											G, V, N [NL][16]	NM_yM_z	5.25	2.41	0.28	0.36	0.90	

Notas:

[1] *1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
[2] *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
[3] *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
[4] *0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]*
[5] *0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]*
[6] *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
[7] *1.35·PP+1.35·CM1+1.5·VH4 [NL]*
[8] *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
[9] *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
[10] *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
[11] *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
[12] *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
[13] *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
[14] *1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]*
[15] *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]*
[16] *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]*

Listados

2.2.2.1.1216.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	0.3	1.4	1.0	1.0	2.0	0.7	2.0	G, V, N [NL][2]	N_t	-0.52	0.08	0.01	0.15	-0.08	Cumple
												G, G, V, V[3]	N_t,V_y	0.33	-0.05	-0.03	-0.52	0.05	
												G, Q [NL][*9]	M_y	-0.37	0.09	0.01	0.11	-0.09	
												G, G, V, V[5]	M_z	0.33	-0.05	-0.03	-0.52	0.05	
												G, V, N [NL][*6]	NM_yM_z	-0.27	0.07	-0.03	-0.35	-0.06	
												G, G, V, V[*7]	M_yV_y	-0.19	0.02	-0.03	-0.38	-0.02	
		Pie	Cumple	0.4	0.3	2.3	20.0	1.6	21.4	1.6	21.4	G, V, N [NL][8]	N_t	-0.41	-0.10	0.34	0.13	-0.06	Cumple
												G, G, V, V[*3]	N_t	0.40	0.08	0.17	0.67	0.05	
												G, V, N [NL][9]	M_y	-0.12	-0.15	0.08	-0.17	-0.08	
												G, G, V, V, N[10]	M_z,V_y,NM_yM_z,M_yV_y	-0.19	-0.08	0.64	0.85	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.9	4.4	4.1	13.3	1.2	17.8	N.P.[1]	17.8	G, G, V, V[3]	N_t	-2.16	0.09	0.24	-0.56	-0.06	Cumple
												G, V, N [NL][2]	N_t	5.11	-0.15	0.21	-0.12	0.10	
												G, V, N [NL][*9]	M_y	3.30	-0.27	0.02	0.13	0.17	
												G, G, V, V, N[*10]	M_z,V_y,NM_yM_z	4.05	-0.10	0.43	-0.67	0.06	
		Pie	Cumple	1.8	4.5	2.4	6.9	1.0	9.6	N.P.[1]	9.6	G, G, V, V[*3]	N_t,M_z,V_y,NM_yM_z	-2.09	-0.06	0.22	0.54	-0.06	Cumple
												G, V, N [NL][2]	N_t	5.22	0.09	-0.08	-0.12	0.10	
												G, V, N [NL][11]	M_y	3.05	0.16	-0.13	-0.25	0.17	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.0	18.5	3.6	8.2	1.1	21.7	N.P.[1]	21.7	G, G, V, V[3]	N_t	-6.86	0.04	0.18	-0.50	-0.04	Cumple
												G, V, N [NL][*4]	N_t	13.99	-0.08	0.07	-0.05	0.07	
												G, V, N [NL][*9]	M_y	8.85	-0.23	-0.03	0.16	0.20	
												G, G, V, V, N[12]	M_z,V_y	9.06	-0.05	0.26	-0.57	0.05	
												G, G, V, V, N[*10]	NM_yM_z	9.79	-0.05	0.26	-0.56	0.05	
		Pie	Cumple	5.9	18.6	4.0	7.6	1.0	21.3	N.P.[1]	21.3	G, G, V, V[3]	N_t	-6.79	-0.05	0.24	0.55	-0.04	Cumple
												G, V, N [NL][*4]	N_t,NM_yM_z	14.10	0.10	-0.06	-0.05	0.07	
												G, V, N [NL][9]	M_y	8.96	0.26	-0.12	-0.23	0.20	
												G, G, V, V[5]	M_z,V_y	-6.07	-0.05	0.24	0.55	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	11.3	31.1	1.7	8.2	1.0	34.9	N.P.[1]	34.9	G, G, V, V[3]	N_t	-12.96	0.01	0.15	-0.43	-0.03	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	24.12	-0.04	0.11	-0.11	0.06	
												G, V, N [NL][9]	M_y	15.40	-0.11	-0.01	0.12	0.17	
												G, G, V, V, N[12]	M_z	14.40	-0.03	0.26	-0.55	0.04	
												G, G, V, V, N[10]	V_y	15.48	-0.03	0.26	-0.55	0.04	
		Pie	Cumple	11.2	31.3	4.6	9.1	1.0	37.2	N.P.[1]	37.2	G, G, V, V[5]	N_t,M_z,V_y	-12.90	-0.05	0.29	0.54	-0.03	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	24.23	0.11	-0.15	-0.11	0.06	
												G, V, N [NL][9]	M_y	15.51	0.30	-0.17	-0.25	0.17	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[3] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[4] 1.35·PP+1.35·CM1+1.5·Q [NL]

[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[6] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

[7] 0.8·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2 [NL]

[8] 0.8·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[9] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[10] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[12] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

2.2.2.1.1217.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	0.3	1.2	1.0	0.4	1.0	1.9	1.9	G, V, N [NL](1)	N_t	-0.57	0.04	0.01	0.15	-0.06	Cumple
												G, G, V, V(2)	N_c,M_z,V_y	0.35	-0.03	-0.03	-0.52	0.03	
												G, V, N [NL](3)	M_y	-0.27	0.08	0.01	0.24	-0.07	
												G, Q [NL](4)	V_z	-0.45	0.07	0.01	0.12	-0.08	
												G, V, N [NL](5)	NM_yM_z	-0.32	0.05	-0.02	-0.34	-0.06	
		Pie	Cumple	0.4	0.4	2.2	19.9	0.4	1.6	21.3	21.3	G, V, N [NL](1)	N_t	-0.45	-0.10	0.38	0.15	-0.06	Cumple
												G, G, V, V(2)	N_c	0.42	0.06	0.18	0.67	0.03	
												G, V, N [NL](6)	M_y	-0.17	-0.14	0.09	-0.17	-0.07	
												G, G, V, V, N(7)	M_z,V_y,NM_yM_z	-0.23	-0.08	0.64	0.84	-0.05	
												G, Q [NL](4)	V_z	-0.33	-0.13	0.31	0.12	-0.08	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.9	4.5	4.5	13.2	1.0	1.2	17.8	17.8	G, G, V, V(2)	N_t	-2.15	0.09	0.24	-0.56	-0.06	Cumple
												G, V, N [NL](1)	N_c	5.17	-0.16	0.20	-0.11	0.11	
												G, V, N [NL](6)	M_y,V_z	3.09	-0.30	0.03	0.13	0.19	
												G, G, V, V, N(7)	M_z,V_y,NM_yM_z	4.03	-0.11	0.42	-0.66	0.07	
		Pie	Cumple	1.8	4.6	2.9	6.9	1.0	1.0	9.6	9.6	G, G, V, V(2)	N_t,M_z,V_y,NM_yM_z	-2.09	-0.06	0.22	0.54	-0.06	Cumple
												G, V, N [NL](1)	N_c	5.28	0.10	-0.08	-0.11	0.11	
												G, V, N [NL](6)	M_y,V_z	3.20	0.19	-0.13	-0.26	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.0	18.6	3.7	8.2	1.0	1.1	21.7	21.7	G, G, V, V(2)	N_t	-6.85	0.04	0.18	-0.50	-0.04	Cumple
												G, V, N [NL](1)	N_c	14.10	-0.08	0.07	-0.05	0.07	
												G, V, N [NL](8)	M_y	9.30	-0.24	-0.03	0.16	0.20	
												G, G, V, V, N(9)	M_z,V_y	9.09	-0.05	0.26	-0.57	0.05	
												G, V, N [NL](6)	V_z	8.54	-0.24	-0.03	0.16	0.20	
												G, G, V, V, N(7)	NM_yM_z	9.82	-0.05	0.26	-0.57	0.05	
		Pie	Cumple	5.9	18.8	4.1	7.7	1.0	1.0	21.5	21.5	G, G, V, V(2)	N_t	-6.78	-0.05	0.24	0.55	-0.04	Cumple
												G, V, N [NL](1)	N_c,NM_yM_z	14.21	0.10	-0.06	-0.05	0.07	
												G, V, N [NL](6)	M_y,V_z	8.65	0.27	-0.12	-0.23	0.20	
												G, G, V, V(10)	M_z,V_y	-6.06	-0.06	0.24	0.55	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	11.3	31.3	1.8	8.2	0.9	1.0	35.0	35.0	G, G, V, V(2)	N_t	-12.92	0.02	0.15	-0.43	-0.03	Cumple
												G, V, N [NL](1)	N_c,NM_yM_z	24.22	-0.04	0.10	-0.11	0.06	
												G, V, N [NL](8)	M_y,V_z	16.13	-0.12	-0.01	0.12	0.18	
												G, G, V, V, N(9)	M_z	14.44	-0.03	0.26	-0.55	0.04	
												G, G, V, V, N(7)	V_y	15.52	-0.03	0.26	-0.55	0.04	
		Pie	Cumple	11.2	31.4	4.7	9.1	0.9	1.0	37.2	37.2	G, G, V, V(2)	N_t,M_z,V_y	-12.86	-0.05	0.29	0.54	-0.03	Cumple
												G, V, N [NL](1)	N_c,NM_yM_z	24.33	0.11	-0.15	-0.11	0.06	
												G, V, N [NL](8)	M_y,V_z	16.24	0.31	-0.17	-0.26	0.18	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1218.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.9	1.0	0.9	1.7	0.9	1.7	G, V, N [NL][2]	N_t	-0.50	0.01	0.01	0.13	-0.03	Cumple
												G, G, V, V[3]	N_t,M_z,V_y,M_yV_y	0.32	-0.01	-0.03	-0.51	0.02	
												G, V, N [NL][4]	M_y,NM_yM_z	-0.22	0.06	0.02	0.33	-0.05	
		Pie	Cumple	0.3	0.3	2.1	19.6	1.6	21.1	1.6	21.1	G, V, N [NL][+]	N_t	-0.38	-0.08	0.34	0.13	-0.03	Cumple
												G, G, V, V[+]	N_t	0.39	0.04	0.20	0.68	0.02	
												G, V, N [NL][5]	M_y	-0.18	-0.14	0.09	-0.17	-0.06	
												G, V, N [NL][6]	M_z,V_y,NM_yM_z,M_yV_y	-0.21	-0.08	0.63	0.84	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.7	4.3	4.4	13.0	1.2	17.4	N.P.[1]	17.4	G, G, V, V[3]	N_t	-1.99	0.08	0.25	-0.56	-0.06	Cumple
												G, V, N [NL][2]	N_t	4.95	-0.16	0.19	-0.10	0.10	
												G, V, N [NL][5]	M_y	3.34	-0.29	0.03	0.13	0.19	
												G, G, V, V, N[+]	M_z,V_y,NM_yM_z	3.82	-0.10	0.42	-0.66	0.07	
		Pie	Cumple	1.7	4.4	2.8	6.8	1.0	9.4	N.P.[1]	9.4	G, G, V, V[3]	N_t,M_z,V_y,NM_yM_z	-1.93	-0.06	0.22	0.53	-0.06	Cumple
												G, V, N [NL][2]	N_t	5.06	0.10	-0.08	-0.10	0.10	
												G, V, N [NL][5]	M_y	3.46	0.18	-0.13	-0.26	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.6	17.5	3.6	8.1	1.0	20.9	N.P.[1]	20.9	G, G, V, V[3]	N_t	-6.38	0.04	0.18	-0.51	-0.04	Cumple
												G, V, N [NL][2]	N_t	13.27	-0.08	0.07	-0.05	0.07	
												G, V, N [NL][5]	M_y	9.88	-0.24	-0.03	0.16	0.20	
												G, G, V, V, N[9]	M_z,V_y	8.51	-0.05	0.26	-0.56	0.05	
												G, G, V, V, N[7]	NM_yM_z	9.24	-0.05	0.26	-0.56	0.05	
		Pie	Cumple	5.5	17.7	4.0	7.6	1.0	20.3	N.P.[1]	20.3	G, G, V, V[3]	N_t	-6.31	-0.05	0.24	0.55	-0.04	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	13.38	0.10	-0.06	-0.05	0.07	
												G, V, N [NL][5]	M_y	9.26	0.26	-0.12	-0.23	0.20	
												G, G, V, V[10]	M_z,V_y	-5.59	-0.05	0.24	0.55	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	10.5	29.2	1.8	8.1	1.0	32.7	N.P.[1]	32.7	G, G, V, V[3]	N_t	-12.09	0.02	0.15	-0.44	-0.03	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	22.65	-0.04	0.10	-0.10	0.06	
												G, V, N [NL][8]	M_y	17.07	-0.12	-0.01	0.12	0.18	
												G, G, V, V, N[9]	M_z	13.46	-0.03	0.26	-0.55	0.04	
												G, G, V, V, N[7]	V_y	14.54	-0.03	0.26	-0.55	0.04	
		Pie	Cumple	10.5	29.4	4.7	8.9	1.0	34.8	N.P.[1]	34.8	G, G, V, V[3]	N_t,M_z,V_y	-12.02	-0.05	0.28	0.54	-0.03	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	22.76	0.11	-0.14	-0.10	0.06	
												G, V, N [NL][8]	M_y	17.18	0.31	-0.18	-0.26	0.18	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[3] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[4] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[6] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

[7] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[9] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1219.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.8	1.0	0.9	1.7	1.7	G, Q [NL][1]	N_t,M_y	-0.45	0.05	0.01	0.12	-0.06	Cumple
											G, G, V, V[2]	N_c,M_z,V_y	0.29	-0.01	-0.03	-0.50	0.02	
											G, V, N [NL][3]	NM_yM_z	-0.32	0.04	-0.02	-0.35	-0.05	
		Pie	Cumple	0.3	0.3	2.2	19.4	1.6	20.9	20.9	G, Q [NL][1]	N_t	-0.33	-0.11	0.31	0.12	-0.06	Cumple
											G, G, V, V[2]	N_c	0.36	0.04	0.22	0.69	0.02	
											G, V, N [NL][4]	M_y	-0.17	-0.14	0.08	-0.17	-0.07	
											G, V, N [NL][3]	M_z,V_y,NM_yM_z	-0.20	-0.08	0.62	0.84	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.6	4.2	4.3	12.9	1.2	16.8	16.8	G, G, V, V[2]	N_t	-1.81	0.07	0.25	-0.57	-0.05	Cumple
											G, Q [NL][1]	N_c	4.81	-0.14	0.17	-0.10	0.09	
											G, V, N [NL][4]	M_y	3.39	-0.28	0.03	0.13	0.18	
											G, V, N [NL][3]	M_z,V_y	3.12	-0.10	0.41	-0.66	0.07	
											G, G, V, V, N[5]	NM_yM_z	3.50	-0.10	0.41	-0.66	0.06	
		Pie	Cumple	1.5	4.3	2.7	6.8	1.0	9.1	9.1	G, G, V, V[2]	N_t,M_z,V_y	-1.74	-0.05	0.22	0.53	-0.05	Cumple
											G, Q [NL][1]	N_c	4.92	0.10	-0.07	-0.10	0.09	
											G, V, N [NL][4]	M_y	3.51	0.18	-0.13	-0.26	0.18	
											G, V, N [NL][6]	NM_yM_z	3.73	0.01	-0.18	-0.39	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.1	16.8	3.6	8.0	1.0	19.6	19.6	G, G, V, V[2]	N_t	-5.84	0.04	0.18	-0.51	-0.04	Cumple
											G, Q [NL][1]	N_c	12.71	-0.07	0.07	-0.05	0.06	
											G, V, N [NL][4]	M_y	9.21	-0.23	-0.03	0.15	0.20	
											G, G, V, V, N[7]	M_z,V_y	7.65	-0.05	0.26	-0.56	0.04	
											G, G, V, V, N[5]	NM_yM_z	8.38	-0.05	0.26	-0.56	0.04	
		Pie	Cumple	5.0	17.0	3.9	7.5	1.0	19.4	19.4	G, G, V, V[2]	N_t	-5.78	-0.05	0.24	0.55	-0.04	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	12.83	0.09	-0.05	-0.05	0.06	
											G, V, N [NL][4]	M_y	9.32	0.26	-0.12	-0.23	0.20	
											G, G, V, V[8]	M_z,V_y	-5.05	-0.05	0.24	0.55	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.7	27.9	1.8	7.9	1.0	31.1	31.1	G, G, V, V[2]	N_t	-11.14	0.02	0.16	-0.44	-0.03	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.60	-0.04	0.09	-0.09	0.06	
											G, V, N [NL][9]	M_y	17.12	-0.12	-0.01	0.12	0.18	
											G, G, V, V, N[7]	M_z	11.99	-0.03	0.25	-0.54	0.04	
											G, G, V, V, N[5]	V_y	13.08	-0.03	0.25	-0.54	0.04	
		Pie	Cumple	9.7	28.0	4.7	8.7	1.0	33.1	33.1	G, G, V, V[2]	N_t,M_z,V_y	-11.08	-0.05	0.28	0.53	-0.03	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.71	0.10	-0.13	-0.09	0.06	
											G, V, N [NL][9]	M_y	17.23	0.31	-0.18	-0.26	0.18	

Notas:
[1] 1.35·PP+1.35·CM1+1.5·Q [NL]
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[8] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1220.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.7	1.0	0.9	1.6	1.6	G, Q [NL](1)	N_t,M_y	-0.46	0.04	0.01	0.12	-0.05	Cumple
											G, G, V, V(4)	N_c,M_z,V_y	0.28	-0.01	-0.03	-0.49	0.02	
											G, V, N [NL](3)	NM_yM_z	-0.32	0.03	-0.02	-0.34	-0.04	
		Pie	Cumple	0.3	0.3	2.0	19.5	1.6	20.8	20.8	G, Q [NL](1)	N_t	-0.34	-0.10	0.31	0.12	-0.05	Cumple
											G, G, V, V(2)	N_c	0.35	0.04	0.23	0.69	0.02	
											G, V, N [NL](4)	M_y	-0.17	-0.13	0.08	-0.17	-0.06	
											G, V, N [NL](3)	M_z,V_y,NM_yM_z	-0.21	-0.07	0.62	0.84	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.3	4.2	12.9	1.2	16.6	16.6	G, G, V, V(2)	N_t	-1.75	0.07	0.25	-0.57	-0.04	Cumple
											G, Q [NL](1)	N_c	4.89	-0.13	0.17	-0.10	0.09	
											G, V, N [NL](4)	M_y	3.50	-0.27	0.03	0.13	0.18	
											G, V, N [NL](3)	M_z,V_y,NM_yM_z	3.18	-0.09	0.41	-0.66	0.06	
		Pie	Cumple	1.5	4.4	2.6	6.7	1.0	9.0	9.0	G, G, V, V(4)	N_t,M_z,V_y	-1.68	-0.04	0.22	0.53	-0.04	Cumple
											G, Q [NL](1)	N_c	5.00	0.09	-0.07	-0.10	0.09	
											G, V, N [NL](4)	M_y	3.61	0.17	-0.13	-0.26	0.18	
											G, V, N [NL](5)	NM_yM_z	3.98	0.17	-0.13	-0.26	0.18	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.9	17.1	3.6	8.0	1.0	19.7	19.7	G, G, V, V(2)	N_t	-5.66	0.04	0.18	-0.51	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.91	-0.07	0.07	-0.05	0.06	
											G, V, N [NL](4)	M_y	9.46	-0.24	-0.02	0.15	0.20	
											G, G, V, V, N(5)	M_z,V_y	7.46	-0.05	0.26	-0.56	0.04	
		Pie	Cumple	4.9	17.2	3.9	7.5	1.0	19.7	19.7	G, G, V, V(4)	N_t	-5.59	-0.05	0.24	0.54	-0.03	Cumple
											G, Q [NL](1)	N_c	13.03	0.08	-0.05	-0.05	0.06	
											G, V, N [NL](4)	M_y	9.57	0.25	-0.13	-0.23	0.20	
											G, G, V, V(7)	M_z,V_y	-4.87	-0.05	0.24	0.55	-0.04	
											G, V, N [NL](5)	NM_yM_z	10.30	0.25	-0.13	-0.23	0.20	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.4	28.3	1.9	7.9	1.0	31.6	31.6	G, G, V, V(2)	N_t	-10.82	0.02	0.16	-0.44	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.93	-0.04	0.09	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.52	-0.12	0.00	0.12	0.18	
											G, V, N [NL](8)	M_z	11.16	-0.03	0.25	-0.54	0.04	
											G, V, N [NL](3)	V_y	12.25	-0.03	0.25	-0.54	0.04	
		Pie	Cumple	9.4	28.4	4.7	8.6	1.0	33.6	33.6	G, G, V, V(2)	N_t,M_z,V_y	-10.75	-0.05	0.28	0.53	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.04	0.10	-0.13	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.63	0.31	-0.18	-0.26	0.18	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(7) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1221.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.6	1.0	0.9	1.5	1.5	G, Q [NL](1)	N_t,M_y	-0.46	0.04	0.01	0.12	-0.05	Cumple
											G, G, V, V(2)	N_c,M_z,V_y	0.27	-0.01	-0.03	-0.49	0.02	
											G, V, N [NL](3)	NM_yM_z	-0.33	0.03	-0.02	-0.34	-0.04	
		Pie	Cumple	0.3	0.3	2.0	19.5	1.6	20.7	20.7	G, Q [NL](1)	N_t	-0.34	-0.09	0.32	0.12	-0.05	Cumple
											G, G, V, V(2)	N_c	0.34	0.04	0.24	0.69	0.02	
											G, V, N [NL](4)	M_y	-0.17	-0.13	0.09	-0.17	-0.06	
											G, V, N [NL](3)	M_z,V_y,NM_yM_z	-0.21	-0.06	0.63	0.84	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.3	3.9	13.0	1.2	16.5	16.5	G, G, V, V(2)	N_t	-1.69	0.06	0.25	-0.57	-0.04	Cumple
											G, Q [NL](1)	N_c	4.90	-0.11	0.18	-0.10	0.07	
											G, V, N [NL](4)	M_y	3.45	-0.26	0.03	0.13	0.16	
											G, V, N [NL](3)	M_z,V_y,NM_yM_z	3.19	-0.08	0.41	-0.66	0.05	
		Pie	Cumple	1.4	4.4	2.4	6.7	1.0	8.8	8.8	G, G, V, V(2)	N_t,M_z,V_y	-1.63	-0.04	0.22	0.53	-0.04	Cumple
											G, Q [NL](1)	N_c	5.02	0.07	-0.07	-0.10	0.07	
											G, V, N [NL](4)	M_y	3.57	0.16	-0.13	-0.26	0.16	
											G, V, N [NL](5)	NM_yM_z	3.94	0.15	-0.13	-0.26	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.8	17.1	3.5	8.0	1.0	19.7	19.7	G, G, V, V(2)	N_t	-5.51	0.04	0.18	-0.51	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.95	-0.06	0.07	-0.05	0.05	
											G, V, N [NL](4)	M_y	9.36	-0.23	-0.02	0.15	0.19	
											G, V, N [NL](6)	M_z	7.07	-0.05	0.26	-0.56	0.04	
											G, G, V, V, N(7)	V_y	7.28	-0.05	0.26	-0.56	0.04	
		Pie	Cumple	4.7	17.3	3.7	7.5	1.0	19.6	19.6	G, G, V, V(2)	N_t	-5.44	-0.04	0.24	0.54	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	13.06	0.07	-0.05	-0.05	0.05	
											G, V, N [NL](4)	M_y	9.47	0.25	-0.13	-0.23	0.19	
											G, G, V, V(8)	M_z,V_y	-4.71	-0.04	0.24	0.54	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.2	28.4	1.9	8.0	1.0	31.7	31.7	G, G, V, V(2)	N_t	-10.56	0.02	0.16	-0.44	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.98	-0.04	0.09	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.37	-0.12	0.00	0.12	0.18	
											G, V, N [NL](6)	M_z	11.18	-0.03	0.25	-0.54	0.04	
											G, V, N [NL](3)	V_y	12.27	-0.03	0.25	-0.54	0.04	
		Pie	Cumple	9.1	28.5	4.7	8.6	1.0	33.6	33.6	G, G, V, V(2)	N_t,M_z,V_y	-10.49	-0.05	0.27	0.53	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.09	0.10	-0.13	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.48	0.31	-0.18	-0.26	0.18	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(8) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1222.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.5	1.0	0.9	1.4	1.4	G, Q [NL][1]	N_t,M_y	-0.46	0.03	0.01	0.12	-0.04	Cumple
											G, G, V, V[4]	N_c,M_z,V_y	0.27	-0.01	-0.03	-0.49	0.02	
											G, V, N [NL][3]	NM_yM_z	-0.32	0.02	-0.02	-0.34	-0.03	
		Pie	Cumple	0.3	0.3	1.8	19.5	1.6	20.5	20.5	G, Q [NL][1]	N_t	-0.34	-0.07	0.31	0.12	-0.04	Cumple
											G, G, V, V[2]	N_c	0.34	0.03	0.24	0.69	0.02	
											G, V, N [NL][4]	M_y	-0.18	-0.12	0.09	-0.17	-0.05	
											G, V, N [NL][3]	M_z,V_y,NM_yM_z	-0.21	-0.05	0.62	0.84	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.2	3.9	12.9	1.2	16.4	16.4	G, G, V, V[2]	N_t	-1.63	0.05	0.26	-0.57	-0.04	Cumple
											G, Q [NL][1]	N_c	4.84	-0.10	0.17	-0.10	0.07	
											G, V, N [NL][5]	M_y	3.35	-0.26	0.03	0.13	0.16	
											G, V, N [NL][3]	M_z,V_y,NM_yM_z	3.14	-0.08	0.41	-0.66	0.05	
		Pie	Cumple	1.4	4.3	2.4	6.7	1.0	8.7	8.7	G, G, V, V[4]	N_t,M_z,V_y	-1.56	-0.03	0.22	0.53	-0.04	Cumple
											G, Q [NL][1]	N_c	4.96	0.07	-0.07	-0.10	0.07	
											G, V, N [NL][5]	M_y	3.47	0.16	-0.13	-0.26	0.16	
											G, V, N [NL][4]	NM_yM_z	3.84	0.16	-0.13	-0.26	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.0	3.6	8.0	1.0	19.6	19.6	G, G, V, V[2]	N_t	-5.36	0.04	0.19	-0.51	-0.03	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	12.82	-0.06	0.07	-0.05	0.05	
											G, V, N [NL][5]	M_y	9.15	-0.23	-0.03	0.15	0.19	
											G, V, N [NL][6]	M_z	6.97	-0.04	0.26	-0.56	0.04	
											G, G, V, V, N[7]	V_y	7.11	-0.05	0.25	-0.56	0.04	
		Pie	Cumple	4.6	17.1	3.7	7.5	1.0	19.4	19.4	G, G, V, V[2]	N_t	-5.29	-0.04	0.24	0.54	-0.03	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	12.94	0.07	-0.05	-0.05	0.05	
											G, V, N [NL][5]	M_y	9.26	0.25	-0.12	-0.23	0.19	
											G, G, V, V[8]	M_z,V_y	-4.57	-0.04	0.24	0.54	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	28.1	1.9	7.9	1.0	31.4	31.4	G, G, V, V[2]	N_t	-10.32	0.02	0.16	-0.44	-0.03	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.79	-0.04	0.09	-0.09	0.06	
											G, V, N [NL][4]	M_y	17.04	-0.13	-0.01	0.12	0.18	
											G, V, N [NL][6]	M_z	11.02	-0.03	0.25	-0.54	0.04	
											G, V, N [NL][3]	V_y	12.10	-0.03	0.25	-0.54	0.04	
		Pie	Cumple	8.9	28.3	4.8	8.5	1.0	33.4	33.4	G, G, V, V[2]	N_t,M_z,V_y	-10.26	-0.05	0.27	0.53	-0.03	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.90	0.10	-0.13	-0.09	0.06	
											G, V, N [NL][4]	M_y	17.15	0.31	-0.18	-0.26	0.18	

Notas:

[1] 1.35·PP+1.35·CM1+1.5·Q [NL]
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[8] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1223.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	1.0	0.9	1.4	1.4	G, Q [NL](1)	N_t	-0.46	0.03	0.01	0.12	-0.04	Cumple
											G, G, V, V(4)	N_c,M_z,V_y	0.27	-0.01	-0.03	-0.49	0.02	
											G, Q [NL](3)	M_y	-0.46	0.03	0.01	0.12	-0.04	
											G, V, N [NL](4)	NM_yM_z	-0.32	0.02	-0.02	-0.34	-0.03	
		Pie	Cumple	0.3	0.3	1.7	19.5	1.6	20.4	20.4	G, Q [NL](1)	N_t	-0.34	-0.07	0.31	0.12	-0.04	Cumple
											G, G, V, V(2)	N_c	0.34	0.03	0.24	0.69	0.02	
											G, V, N [NL](5)	M_y	-0.18	-0.11	0.09	-0.17	-0.05	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.21	-0.05	0.62	0.84	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.2	3.7	12.9	1.2	16.3	16.3	G, G, V, V(2)	N_t	-1.64	0.05	0.26	-0.57	-0.03	Cumple
											G, Q [NL](1)	N_c	4.86	-0.09	0.17	-0.10	0.06	
											G, V, N [NL](5)	M_y	3.79	-0.24	0.03	0.13	0.16	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	3.15	-0.07	0.41	-0.66	0.04	
		Pie	Cumple	1.4	4.3	2.2	6.7	1.0	8.7	8.7	G, G, V, V(2)	N_t,M_z,V_y	-1.58	-0.03	0.22	0.53	-0.03	Cumple
											G, Q [NL](1)	N_c	4.98	0.06	-0.07	-0.10	0.06	
											G, V, N [NL](5)	M_y,NM_yM_z	3.90	0.15	-0.13	-0.26	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.0	3.5	8.0	1.0	19.6	19.6	G, G, V, V(2)	N_t	-5.38	0.03	0.19	-0.51	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.86	-0.05	0.07	-0.05	0.04	
											G, V, N [NL](6)	M_y	9.28	-0.23	-0.03	0.15	0.19	
											G, V, N [NL](7)	M_z	7.00	-0.04	0.26	-0.56	0.03	
											G, G, V, V, N(8)	V_y	7.17	-0.04	0.25	-0.56	0.04	
		Pie	Cumple	4.6	17.2	3.7	7.5	1.0	19.4	19.4	G, G, V, V(2)	N_t	-5.31	-0.04	0.24	0.54	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.97	0.06	-0.05	-0.05	0.04	
											G, V, N [NL](6)	M_y	9.40	0.24	-0.13	-0.23	0.19	
											G, G, V, V(9)	M_z,V_y	-4.59	-0.04	0.24	0.54	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	28.2	2.0	7.9	1.0	31.5	31.5	G, G, V, V(2)	N_t	-10.35	0.02	0.16	-0.44	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.84	-0.05	0.09	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.24	-0.13	0.00	0.12	0.18	
											G, V, N [NL](7)	M_z	11.05	-0.03	0.25	-0.54	0.04	
											G, V, N [NL](4)	V_y	12.14	-0.03	0.25	-0.54	0.04	
		Pie	Cumple	9.0	28.3	4.8	8.5	1.0	33.4	33.4	G, G, V, V(2)	N_t,M_z,V_y	-10.28	-0.05	0.27	0.53	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.95	0.10	-0.13	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.35	0.31	-0.18	-0.26	0.18	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1224.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	1.0	0.9	1.3	1.3	G, Q [NL](1)	N_t	-0.46	0.02	0.01	0.12	-0.03	Cumple
											G, G, V, V(4)	N_c,M_z,V_y	0.27	-0.01	-0.03	-0.49	0.01	
											G, V, N [NL](3)	M_y	-0.37	0.02	0.00	0.10	-0.03	
											G, V, N [NL](4)	NM_yM_z	-0.32	0.02	-0.02	-0.35	-0.02	
		Pie	Cumple	0.3	0.3	1.7	19.5	1.6	20.3	20.3	G, Q [NL](1)	N_t	-0.34	-0.06	0.31	0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.34	0.03	0.24	0.69	0.01	
											G, V, N [NL](5)	M_y	-0.18	-0.11	0.09	-0.17	-0.05	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.21	-0.04	0.62	0.84	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.3	3.6	12.9	1.2	16.3	16.3	G, G, V, V(2)	N_t	-1.66	0.04	0.26	-0.57	-0.03	Cumple
											G, Q [NL](1)	N_c	4.88	-0.08	0.17	-0.10	0.05	
											G, V, N [NL](5)	M_y	3.81	-0.24	0.03	0.13	0.15	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	3.17	-0.06	0.41	-0.66	0.04	
		Pie	Cumple	1.4	4.4	2.2	6.7	1.0	8.7	8.7	G, G, V, V(2)	N_t,M_z,V_y	-1.59	-0.03	0.22	0.53	-0.03	Cumple
											G, Q [NL](1)	N_c	5.00	0.05	-0.07	-0.10	0.05	
											G, V, N [NL](5)	M_y,NM_yM_z	3.93	0.14	-0.13	-0.26	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.0	3.5	8.0	1.0	19.5	19.5	G, G, V, V(2)	N_t	-5.40	0.03	0.19	-0.51	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.89	-0.05	0.07	-0.05	0.04	
											G, V, N [NL](6)	M_y	9.33	-0.23	-0.02	0.15	0.19	
											G, V, N [NL](7)	M_z	7.02	-0.04	0.26	-0.56	0.03	
											G, G, V, V, N(8)	V_y	7.20	-0.04	0.25	-0.56	0.03	
		Pie	Cumple	4.6	17.2	3.6	7.5	1.0	19.4	19.4	G, G, V, V(2)	N_t	-5.34	-0.03	0.24	0.54	-0.02	Cumple
											G, Q [NL](1)	N_c	13.01	0.05	-0.05	-0.05	0.04	
											G, V, N [NL](6)	M_y	9.44	0.24	-0.13	-0.23	0.19	
											G, G, V, V(9)	M_z,V_y	-4.61	-0.03	0.24	0.54	-0.03	
											G, V, N [NL](5)	NM_yM_z	10.17	0.23	-0.13	-0.23	0.18	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	28.2	2.0	7.9	1.0	31.6	31.6	G, G, V, V(2)	N_t	-10.38	0.02	0.16	-0.44	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.89	-0.05	0.09	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.31	-0.13	0.00	0.12	0.19	
											G, V, N [NL](7)	M_z	11.08	-0.04	0.25	-0.54	0.05	
											G, V, N [NL](4)	V_y	12.17	-0.04	0.25	-0.54	0.05	
		Pie	Cumple	9.0	28.4	4.8	8.5	1.0	33.5	33.5	G, G, V, V(2)	N_t,M_z,V_y	-10.31	-0.05	0.27	0.53	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.00	0.10	-0.13	-0.09	0.06	
											G, V, N [NL](5)	M_y	17.42	0.32	-0.18	-0.26	0.19	

Notas:
(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1225.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.2	1.0	0.9	1.3	1.3	G, Q [NL][1]	N_t	-0.45	0.02	0.01	0.12	-0.02	
											G, G, V, V[2]	N_c,M_z,V_y,NM_yM_z	0.26	0.00	-0.03	-0.49	0.01	Cumple
											G, V, N [NL][3]	M_y	-0.37	0.02	0.00	0.10	-0.03	
		Pie	Cumple	0.3	0.3	1.5	19.5	1.6	20.2	20.2	G, Q [NL][1]	N_t	-0.34	-0.05	0.31	0.12	-0.02	
											G, G, V, V[2]	N_c	0.33	0.02	0.24	0.69	0.01	Cumple
											G, V, N [NL][4]	M_y	-0.17	-0.10	0.09	-0.17	-0.04	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	-0.20	-0.04	0.62	0.84	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.4	3.6	12.9	1.2	16.4	16.4	G, G, V, V[2]	N_t	-1.75	0.04	0.26	-0.57	-0.03	
											G, Q [NL][1]	N_c	5.04	-0.08	0.17	-0.10	0.05	Cumple
											G, V, N [NL][4]	M_y	3.98	-0.24	0.03	0.13	0.15	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	3.27	-0.06	0.41	-0.66	0.04	
		Pie	Cumple	1.5	4.5	2.2	6.7	1.0	8.9	8.9	G, G, V, V[2]	N_t,M_z,V_y	-1.69	-0.03	0.21	0.53	-0.03	
											G, Q [NL][1]	N_c	5.16	0.05	-0.07	-0.10	0.05	Cumple
											G, V, N [NL][4]	M_y,NM_yM_z	4.09	0.14	-0.13	-0.26	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.9	17.5	3.5	8.0	1.0	20.1	20.1	G, G, V, V[2]	N_t	-5.62	0.03	0.18	-0.51	-0.02	
											G, Q [NL][1]	N_c,NM_yM_z	13.27	-0.04	0.07	-0.05	0.03	
											G, V, N [NL][6]	M_y	9.70	-0.23	-0.02	0.15	0.19	Cumple
											G, V, N [NL][7]	M_z	7.26	-0.03	0.26	-0.56	0.02	
											G, G, V, V, N[8]	V_y	7.46	-0.04	0.26	-0.56	0.03	
		Pie	Cumple	4.8	17.7	3.6	7.5	1.0	19.9	19.9	G, G, V, V[2]	N_t	-5.55	-0.03	0.24	0.54	-0.02	
											G, Q [NL][1]	N_c	13.38	0.04	-0.06	-0.05	0.03	
											G, V, N [NL][6]	M_y	9.82	0.23	-0.13	-0.24	0.19	Cumple
											G, G, V, V[9]	M_z,V_y	-4.83	-0.03	0.24	0.55	-0.02	
											G, V, N [NL][4]	NM_yM_z	10.55	0.23	-0.13	-0.24	0.18	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.3	29.0	2.1	8.0	1.0	32.5	32.5	G, G, V, V[2]	N_t	-10.72	0.03	0.16	-0.44	-0.03	
											G, Q [NL][1]	N_c,NM_yM_z	22.49	-0.06	0.09	-0.09	0.07	
											G, V, N [NL][4]	M_y	17.92	-0.14	0.00	0.11	0.19	Cumple
											G, V, N [NL][7]	M_z	11.48	-0.04	0.25	-0.54	0.05	
											G, V, N [NL][5]	V_y	12.57	-0.04	0.25	-0.54	0.05	
		Pie	Cumple	9.3	29.2	4.9	8.6	1.0	34.4	34.4	G, G, V, V[2]	N_t,M_z,V_y	-10.66	-0.05	0.27	0.53	-0.03	
											G, Q [NL][1]	N_c,NM_yM_z	22.60	0.10	-0.14	-0.09	0.07	Cumple
											G, V, N [NL][4]	M_y	18.03	0.32	-0.18	-0.26	0.19	

Notas:
(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1226.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.5	1.0	0.2	0.9	1.5	1.5	G, Q [NL](1)	N_t	-0.47	0.03	0.01	0.11	-0.03	Cumple
												G, G, V, V(2)	N_c,M_z,V_y	0.23	0.01	-0.03	-0.48	0.00	
												G, V, N [NL](3)	M_y	-0.39	0.03	0.00	0.09	-0.03	
												G, V, N [NL](4)	V_z	-0.31	0.02	0.01	0.22	-0.05	
												G, G, V, V, N(5)	NM_yM_z	-0.29	0.03	-0.03	-0.37	-0.03	
		Pie	Cumple	0.3	0.3	1.6	18.6	0.2	1.5	19.4	19.4	G, Q [NL](1)	N_t	-0.35	-0.04	0.28	0.11	-0.03	Cumple
												G, G, V, V(2)	N_c	0.30	0.01	0.26	0.70	0.00	
												G, V, N [NL](4)	M_y,V_z	-0.20	-0.10	0.06	-0.18	-0.05	
												G, V, N [NL](6)	M_z,V_y,NM_yM_z	-0.22	-0.04	0.60	0.83	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.0	3.4	12.3	0.7	1.2	15.3	15.3	G, G, V, V(2)	N_t	-1.65	0.03	0.26	-0.57	-0.02	Cumple
												G, Q [NL](1)	N_c	4.58	-0.07	0.15	-0.09	0.05	
												G, V, N [NL](4)	M_y,V_z	3.65	-0.22	0.02	0.14	0.14	
												G, V, N [NL](6)	M_z,V_y,NM_yM_z	2.80	-0.05	0.39	-0.65	0.03	
		Pie	Cumple	1.4	4.1	1.9	6.7	0.7	1.0	8.5	8.5	G, G, V, V(2)	N_t,M_z,V_y,NM_yM_z	-1.59	-0.02	0.21	0.53	-0.02	Cumple
												G, Q [NL](1)	N_c	4.69	0.04	-0.06	-0.09	0.05	
												G, V, N [NL](4)	M_y,V_z	3.76	0.12	-0.12	-0.25	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	16.3	3.3	8.0	0.9	1.0	18.7	18.7	G, G, V, V(2)	N_t	-5.24	0.03	0.19	-0.51	-0.02	Cumple
												G, Q [NL](1)	N_c,NM_yM_z	12.33	-0.02	0.07	-0.05	0.02	
												G, V, N [NL](7)	M_y,V_z	9.00	-0.22	-0.02	0.15	0.18	
												G, V, N [NL](8)	M_z	6.37	-0.02	0.26	-0.56	0.02	
												G, G, V, V, N(9)	V_y	6.51	-0.02	0.25	-0.56	0.02	
		Pie	Cumple	4.5	16.5	3.6	7.4	0.9	1.0	19.0	19.0	G, G, V, V(2)	N_t	-5.17	-0.02	0.24	0.54	-0.02	Cumple
												G, Q [NL](1)	N_c	12.44	0.03	-0.05	-0.05	0.02	
												G, V, N [NL](4)	M_y,NM_yM_z	9.91	0.23	-0.12	-0.23	0.18	
												G, G, V, V(10)	M_z,V_y	-4.40	-0.02	0.24	0.54	-0.02	
												G, V, N [NL](7)	V_z	9.11	0.23	-0.12	-0.23	0.18	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	8.8	27.3	2.4	7.9	1.0	1.0	30.9	30.9	G, G, V, V(2)	N_t	-10.10	0.02	0.16	-0.45	-0.03	Cumple
												G, Q [NL](1)	N_c,NM_yM_z	21.16	-0.08	0.09	-0.09	0.08	
												G, V, N [NL](4)	M_y,V_z	17.05	-0.16	0.00	0.12	0.20	
												G, V, N [NL](6)	M_z,V_y	11.37	-0.06	0.25	-0.54	0.06	
		Pie	Cumple	8.7	27.5	5.1	8.5	1.0	1.0	32.6	32.6	G, G, V, V(2)	N_t,M_z,V_y	-10.03	-0.05	0.27	0.53	-0.03	Cumple
												G, Q [NL](1)	N_c,NM_yM_z	21.27	0.12	-0.13	-0.09	0.08	
												G, V, N [NL](4)	M_y,V_z	17.16	0.33	-0.18	-0.26	0.20	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1227.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.6	1.0	0.9	1.5	1.5	G, Q [NL](1)	N_t	-0.46	0.03	0.01	0.10	-0.03	Cumple
											G, G, V, V(2)	N_c,M_z,V_y	0.23	-0.03	-0.03	-0.48	0.03	
											G, G, V, V(3)	M_y,NM_yM_z	0.21	-0.04	-0.03	-0.48	0.03	
		Pie	Cumple	0.3	0.3	1.6	18.5	1.5	19.4	19.4	G, Q [NL](1)	N_t	-0.34	-0.06	0.27	0.10	-0.03	Cumple
											G, G, V, V(2)	N_c	0.30	0.04	0.27	0.70	0.03	
											G, V, N [NL](4)	M_y	-0.18	-0.10	0.06	-0.18	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.05	0.59	0.83	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.0	3.2	12.2	1.2	15.0	15.0	G, G, V, V(2)	N_t	-1.56	0.03	0.26	-0.57	-0.02	Cumple
											G, Q [NL](1)	N_c	4.54	-0.03	0.15	-0.08	0.02	
											G, V, N [NL](6)	M_y	3.80	-0.21	0.02	0.14	0.13	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	2.77	-0.03	0.39	-0.64	0.02	
		Pie	Cumple	1.3	4.1	1.8	6.7	1.0	8.3	8.3	G, G, V, V(2)	N_t,M_z,V_y	-1.49	-0.01	0.21	0.53	-0.02	Cumple
											G, Q [NL](1)	N_c	4.65	0.01	-0.06	-0.08	0.02	
											G, V [NL](7)	M_y	3.40	0.12	-0.12	-0.24	0.13	
											G, V, N [NL](6)	NM_yM_z	3.91	0.12	-0.12	-0.25	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.4	16.3	3.8	8.0	1.0	19.0	19.0	G, G, V, V(2)	N_t	-5.07	0.03	0.19	-0.51	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.30	-0.07	0.07	-0.05	0.06	
											G, V, N [NL](6)	M_y	10.13	-0.25	-0.02	0.15	0.20	
											G, V, N [NL](8)	M_z	6.32	-0.05	0.26	-0.56	0.04	
											G, G, V, V, N(9)	V_y	6.49	-0.05	0.25	-0.56	0.04	
		Pie	Cumple	4.4	16.4	3.8	7.4	1.0	19.6	19.6	G, G, V, V(2)	N_t	-5.00	-0.04	0.24	0.54	-0.03	Cumple
											G, Q [NL](1)	N_c	12.42	0.07	-0.05	-0.05	0.06	
											G, V, N [NL](6)	M_y,NM_yM_z	10.24	0.25	-0.13	-0.24	0.20	
											G, G, V, V(3)	M_z,V_y	-4.24	-0.04	0.24	0.54	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	8.6	27.3	1.5	7.9	1.0	30.5	30.5	G, G, V, V(2)	N_t	-9.85	0.00	0.16	-0.45	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.13	0.04	0.09	-0.09	-0.01	
											G, V [NL](10)	M_y	10.09	-0.10	-0.03	0.15	0.15	
											G, V, N [NL](5)	M_z,V_y	11.30	0.03	0.25	-0.54	-0.01	
		Pie	Cumple	8.5	27.4	4.2	8.4	1.0	31.6	31.6	G, G, V, V(2)	N_t,M_z,V_y	-9.79	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.24	0.00	-0.13	-0.09	-0.01	
											G, V, N [NL](4)	M_y	16.48	0.27	-0.18	-0.26	0.15	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.1228.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	1.0	0.9	1.4	1.4	G, Q [NL](1)	N_t	-0.46	0.02	0.01	0.12	-0.03	Cumple
											G, G, V, V(2)	N_c,M_z,V_y	0.27	-0.01	-0.03	-0.49	0.02	
											G, V, N [NL](3)	M_y	-0.37	0.03	0.00	0.10	-0.03	
											G, V, N [NL](4)	NM_yM_z	-0.32	0.02	-0.02	-0.34	-0.02	
		Pie	Cumple	0.3	0.3	1.7	19.6	1.6	20.4	20.4	G, Q [NL](1)	N_t	-0.35	-0.04	0.32	0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.33	0.03	0.24	0.69	0.02	
											G, V, N [NL](5)	M_y	-0.18	-0.11	0.09	-0.17	-0.05	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	-0.21	-0.04	0.63	0.84	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.2	3.3	13.0	1.2	16.1	16.1	G, G, V, V(2)	N_t	-1.65	0.03	0.25	-0.57	-0.02	Cumple
											G, Q [NL](1)	N_c	4.87	-0.05	0.18	-0.10	0.03	
											G, V, N [NL](5)	M_y	3.81	-0.21	0.03	0.13	0.13	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	3.15	-0.04	0.41	-0.66	0.02	
		Pie	Cumple	1.4	4.3	1.8	6.7	1.0	8.5	8.5	G, G, V, V(2)	N_t,M_z,V_y	-1.58	-0.01	0.22	0.53	-0.02	Cumple
											G, Q [NL](1)	N_c	4.98	0.02	-0.07	-0.10	0.03	
											G, V, N [NL](5)	M_y,NM_yM_z	3.93	0.12	-0.13	-0.26	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.1	3.6	8.0	1.0	19.6	19.6	G, G, V, V(2)	N_t	-5.38	0.03	0.19	-0.51	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.90	-0.06	0.07	-0.05	0.05	
											G, V, N [NL](5)	M_y	10.10	-0.23	-0.03	0.15	0.19	
											G, V, N [NL](4)	M_z	7.01	-0.04	0.26	-0.56	0.04	
											G, G, V, V, N(7)	V_y	7.18	-0.04	0.25	-0.56	0.04	
		Pie	Cumple	4.6	17.2	3.7	7.5	1.0	19.5	19.5	G, G, V, V(2)	N_t	-5.32	-0.03	0.24	0.54	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	13.01	0.07	-0.05	-0.05	0.05	
											G, V, N [NL](5)	M_y	10.21	0.25	-0.13	-0.23	0.19	
											G, G, V, V(8)	M_z,V_y	-4.58	-0.03	0.24	0.54	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	28.3	1.6	7.9	1.0	31.3	31.3	G, G, V, V(2)	N_t	-10.35	0.00	0.16	-0.44	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.93	0.01	0.09	-0.09	0.00	
											G, V [NL](9)	M_y	9.74	-0.10	-0.04	0.15	0.15	
											G, V, N [NL](4)	M_z	11.09	0.01	0.25	-0.54	0.00	
											G, V, N [NL](6)	V_y	12.18	0.01	0.25	-0.54	0.00	
		Pie	Cumple	9.0	28.4	4.2	8.5	1.0	32.9	32.9	G, G, V, V(2)	N_t,M_z,V_y	-10.28	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.04	0.02	-0.13	-0.09	0.00	
											G, V, N [NL](10)	M_y	16.42	0.28	-0.18	-0.26	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(8) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(9) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1229.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	1.0	0.9	1.3	1.3	G, Q [NL](1)	N_t	-0.46	0.01	0.01	0.12	-0.02	Cumple
											G, G, V, V(2)	N_c,M_z,V_y,NM_yM_z	0.27	-0.01	-0.03	-0.49	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.02	0.00	0.10	-0.02	
		Pie	Cumple	0.3	0.3	1.5	19.6	1.6	20.1	20.1	G, Q [NL](1)	N_t	-0.35	-0.03	0.32	0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.34	0.02	0.24	0.69	0.01	
											G, V, N [NL](4)	M_y	-0.18	-0.10	0.09	-0.17	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.03	0.63	0.84	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.2	3.5	12.9	1.2	16.1	16.1	G, G, V, V(2)	N_t	-1.61	0.03	0.26	-0.57	-0.02	Cumple
											G, Q [NL](1)	N_c	4.80	-0.05	0.17	-0.10	0.03	
											G, V, N [NL](4)	M_y	3.70	-0.23	0.03	0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.11	-0.04	0.41	-0.66	0.02	
		Pie	Cumple	1.3	4.3	2.0	6.7	1.0	8.5	8.5	G, G, V, V(2)	N_t,M_z,V_y	-1.55	-0.01	0.21	0.53	-0.02	Cumple
											G, Q [NL](1)	N_c	4.92	0.02	-0.07	-0.10	0.03	
											G, V, N [NL](4)	M_y,NM_yM_z	3.81	0.13	-0.13	-0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	16.9	3.6	8.0	1.0	19.4	19.4	G, G, V, V(2)	N_t	-5.32	0.03	0.19	-0.51	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.75	-0.05	0.07	-0.05	0.04	
											G, V, N [NL](4)	M_y	9.84	-0.23	-0.03	0.15	0.19	
											G, V, N [NL](6)	M_z	6.91	-0.04	0.25	-0.56	0.03	
											G, G, V, V, N(7)	V_y	7.06	-0.04	0.25	-0.56	0.04	
		Pie	Cumple	4.6	17.0	3.7	7.5	1.0	19.2	19.2	G, G, V, V(2)	N_t	-5.25	-0.03	0.24	0.54	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.86	0.06	-0.05	-0.05	0.04	
											G, V, N [NL](4)	M_y	9.96	0.24	-0.12	-0.23	0.19	
											G, G, V, V(8)	M_z,V_y	-4.52	-0.03	0.24	0.54	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	8.9	28.0	1.7	7.9	1.0	30.9	30.9	G, G, V, V(2)	N_t	-10.24	0.00	0.16	-0.45	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.69	0.00	0.09	-0.09	0.01	
											G, V, N [NL](9)	M_y	11.71	-0.11	-0.03	0.14	0.16	
											G, V, N [NL](6)	M_z	10.93	0.00	0.25	-0.54	0.01	
											G, V, N [NL](5)	V_y	12.02	0.00	0.25	-0.54	0.01	
		Pie	Cumple	8.9	28.1	4.3	8.5	1.0	32.6	32.6	G, G, V, V(2)	N_t,M_z,V_y	-10.18	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.80	0.02	-0.13	-0.09	0.01	
											G, V, N [NL](10)	M_y	16.03	0.28	-0.18	-0.26	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(8) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(9) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1230.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	1.0	0.9	1.3	1.3	G, Q [NL](1)	N_t	-0.46	0.02	0.01	0.12	-0.02	Cumple
											G, G, V, V(2)	N_c,M_z,V_y,NM_yM_z	0.27	-0.01	-0.03	-0.49	0.01	
											G, V, N [NL](3)	M_y	-0.37	0.02	0.00	0.10	-0.02	
		Pie	Cumple	0.3	0.3	1.6	19.5	1.6	20.1	20.1	G, Q [NL](1)	N_t	-0.34	-0.03	0.32	0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.34	0.02	0.24	0.69	0.01	
											G, V, N [NL](4)	M_y	-0.18	-0.10	0.09	-0.17	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.02	0.62	0.84	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.2	3.4	12.9	1.2	16.1	16.1	G, G, V, V(2)	N_t	-1.64	0.02	0.26	-0.57	-0.01	Cumple
											G, Q [NL](1)	N_c	4.87	-0.03	0.17	-0.10	0.02	
											G, V, N [NL](4)	M_y	3.80	-0.22	0.03	0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.16	-0.03	0.41	-0.66	0.02	
		Pie	Cumple	1.4	4.3	2.0	6.7	1.0	8.6	8.6	G, G, V, V(2)	N_t,M_z,V_y	-1.57	-0.01	0.22	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c	4.98	0.01	-0.07	-0.10	0.02	
											G, V, N [NL](4)	M_y,NM_yM_z	3.91	0.13	-0.13	-0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.0	3.5	8.0	1.0	19.5	19.5	G, G, V, V(2)	N_t	-5.37	0.02	0.19	-0.51	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.88	-0.04	0.07	-0.05	0.04	
											G, V, N [NL](4)	M_y	10.05	-0.23	-0.03	0.15	0.19	
											G, V, N [NL](6)	M_z	7.03	-0.03	0.26	-0.56	0.03	
											G, G, V, V, N(7)	V_y	7.18	-0.04	0.25	-0.56	0.03	
		Pie	Cumple	4.6	17.2	3.6	7.5	1.0	19.4	19.4	G, G, V, V(2)	N_t	-5.31	-0.02	0.24	0.54	-0.02	Cumple
											G, Q [NL](1)	N_c	13.00	0.05	-0.05	-0.05	0.04	
											G, V, N [NL](4)	M_y,NM_yM_z	10.16	0.24	-0.13	-0.23	0.19	
											G, G, V, V(8)	M_z,V_y	-4.58	-0.02	0.24	0.54	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	28.2	1.7	7.9	1.0	31.2	31.2	G, G, V, V(2)	N_t	-10.34	0.01	0.16	-0.44	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.89	0.00	0.09	-0.09	0.01	
											G, V, N [NL](9)	M_y	16.24	-0.11	0.00	0.12	0.16	
											G, V, N [NL](6)	M_z	11.10	0.00	0.25	-0.54	0.01	
											G, V, N [NL](5)	V_y	12.19	0.00	0.25	-0.54	0.01	
		Pie	Cumple	8.9	28.4	4.3	8.5	1.0	32.9	32.9	G, G, V, V(2)	N_t,M_z,V_y	-10.27	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.00	0.02	-0.13	-0.09	0.01	
											G, V, N [NL](9)	M_y	16.35	0.28	-0.18	-0.26	0.16	

Notas:
(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(8) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1231.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	1.0	0.9	1.3	1.3	G, Q [NL][1]	N_t	-0.46	0.01	0.01	0.12	-0.01	Cumple
											G, G, V, V[2]	N_c,M_z,V_y,NM_yM_z	0.27	-0.01	-0.03	-0.49	0.01	
											G, V, N [NL][3]	M_y	-0.37	0.02	0.00	0.10	-0.02	
		Pie	Cumple	0.3	0.3	1.5	19.5	1.6	20.0	20.0	G, Q [NL][1]	N_t	-0.34	-0.02	0.32	0.12	-0.01	Cumple
											G, G, V, V[2]	N_c	0.34	0.01	0.24	0.69	0.01	
											G, V, N [NL][4]	M_y	-0.18	-0.10	0.09	-0.17	-0.04	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	-0.21	-0.02	0.62	0.84	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.4	4.3	3.4	12.9	1.2	16.0	16.0	G, G, V, V[2]	N_t	-1.65	0.02	0.25	-0.57	-0.01	Cumple
											G, Q [NL][1]	N_c	4.89	-0.02	0.18	-0.10	0.01	
											G, V, N [NL][6]	M_y	3.82	-0.22	0.03	0.13	0.14	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	3.18	-0.02	0.41	-0.66	0.01	
		Pie	Cumple	1.4	4.4	2.0	6.7	1.0	8.6	8.6	G, G, V, V[2]	N_t,M_z,V_Y	-1.58	0.00	0.22	0.53	-0.01	Cumple
											G, Q [NL][1]	N_c	5.00	0.01	-0.07	-0.10	0.01	
											G, V, N [NL][6]	M_y,NM_yM_z	3.93	0.13	-0.13	-0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.1	3.4	8.0	1.0	19.5	19.5	G, G, V, V[2]	N_t	-5.39	0.02	0.19	-0.51	-0.02	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	12.91	-0.04	0.07	-0.05	0.03	
											G, V, N [NL][6]	M_y	10.08	-0.22	-0.03	0.15	0.18	
											G, V, N [NL][7]	M_z	7.05	-0.03	0.26	-0.56	0.02	
											G, G, V, V, N[8]	V_Y	7.21	-0.03	0.25	-0.56	0.03	
		Pie	Cumple	4.6	17.2	3.5	7.5	1.0	19.4	19.4	G, G, V, V[2]	N_t	-5.33	-0.02	0.24	0.54	-0.02	Cumple
											G, Q [NL][1]	N_c	13.03	0.04	-0.05	-0.05	0.03	
											G, V, N [NL][6]	M_y,NM_yM_z	10.20	0.23	-0.13	-0.23	0.18	
											G, G, V, V[9]	M_z,V_Y	-4.60	-0.02	0.24	0.54	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	28.3	1.7	7.9	1.0	31.3	31.3	G, G, V, V[2]	N_t	-10.37	0.01	0.16	-0.44	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.93	0.00	0.09	-0.09	0.01	
											G, V, N [NL][4]	M_y	16.28	-0.11	0.00	0.12	0.16	
											G, V, N [NL][7]	M_z	11.14	0.00	0.25	-0.54	0.01	
											G, V, N [NL][5]	V_Y	12.23	0.00	0.25	-0.54	0.01	
		Pie	Cumple	9.0	28.4	4.3	8.5	1.0	32.9	32.9	G, G, V, V[2]	N_t,M_z,V_Y	-10.30	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	22.04	0.02	-0.13	-0.09	0.01	
											G, V, N [NL][4]	M_y	16.39	0.28	-0.18	-0.26	0.16	

Notas:

[1] 1.35·PP+1.35·CM1+1.5·Q [NL]
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[9] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1232.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.2	1.0	0.9	1.3	1.3	G, Q [NL](1)	N_t	-0.46	0.00	0.01	0.12	-0.01	
											G, G, V, V(2)	N_c,M_z,V_y,NM_yM_z	0.27	-0.01	-0.03	-0.49	0.01	Cumple
											G, V, N [NL](3)	M_y	-0.37	0.01	0.00	0.10	-0.02	
		Pie	Cumple	0.3	0.3	1.4	19.5	1.6	19.8	19.8	G, Q [NL](1)	N_t	-0.34	-0.01	0.31	0.12	-0.01	
											G, G, V, V(2)	N_c	0.34	0.01	0.24	0.69	0.01	Cumple
											G, V, N [NL](4)	M_y	-0.17	-0.09	0.03	-0.27	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.01	0.62	0.84	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.3	3.4	12.9	1.2	16.0	16.0	G, G, V, V(2)	N_t	-1.68	0.01	0.26	-0.57	-0.01	
											G, Q [NL](1)	N_c	4.98	-0.02	0.17	-0.10	0.01	Cumple
											G, V, N [NL](6)	M_y	3.97	-0.22	-0.01	0.21	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.25	-0.01	0.41	-0.66	0.01	
		Pie	Cumple	1.4	4.4	2.0	6.7	1.0	9.6	9.6	G, G, V, V(2)	N_t,M_z,V_Y	-1.62	0.00	0.21	0.53	-0.01	
											G, Q [NL](1)	N_c	5.10	0.00	-0.07	-0.10	0.01	Cumple
											G, V, N [NL](7)	M_y	3.64	0.13	-0.15	-0.32	0.14	
											G, V, N [NL](6)	NM_yM_z	4.09	0.13	-0.16	-0.32	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.8	17.4	3.4	8.0	1.0	19.8	19.8	G, G, V, V(2)	N_t	-5.48	0.02	0.18	-0.51	-0.01	
											G, Q [NL](1)	N_c,NM_yM_z	13.14	-0.03	0.07	-0.05	0.03	
											G, V, N [NL](6)	M_y	10.52	-0.23	-0.05	0.22	0.18	Cumple
											G, V, N [NL](8)	M_z	7.22	-0.03	0.26	-0.56	0.02	
											G, G, V, V, N(9)	V_Y	7.39	-0.03	0.26	-0.56	0.03	
		Pie	Cumple	4.7	17.5	3.5	7.5	1.0	20.9	20.9	G, G, V, V(2)	N_t	-5.41	-0.02	0.24	0.54	-0.01	
											G, Q [NL](1)	N_c	13.25	0.03	-0.06	-0.05	0.03	
											G, V, N [NL](6)	M_y,NM_yM_z	10.64	0.23	-0.15	-0.30	0.18	Cumple
											G, G, V, V(10)	M_z,V_y	-4.68	-0.02	0.24	0.54	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.2	28.8	1.7	8.0	1.0	31.8	31.8	G, G, V, V(2)	N_t	-10.51	0.01	0.16	-0.44	-0.01	
											G, Q [NL](1)	N_c,NM_yM_z	22.28	-0.01	0.09	-0.09	0.01	
											G, V, N [NL](4)	M_y	17.12	-0.11	-0.03	0.17	0.16	Cumple
											G, V, N [NL](8)	M_z	11.41	-0.01	0.25	-0.54	0.01	
											G, V, N [NL](5)	V_Y	12.50	-0.01	0.25	-0.54	0.01	
		Pie	Cumple	9.1	28.9	4.3	8.5	1.0	33.5	33.5	G, G, V, V(2)	N_t,M_z,V_Y	-10.44	-0.02	0.27	0.53	-0.01	
											G, Q [NL](1)	N_c,NM_yM_z	22.39	0.02	-0.14	-0.09	0.01	Cumple
											G, V, N [NL](4)	M_y	17.23	0.28	-0.21	-0.32	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1233.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	1.0	0.9	1.3	1.3	G, Q [NL](1)	N_t	-0.46	0.01	0.01	0.12	-0.01	Cumple
											G, G, V, V(2)	N_c,M_z,V_y,NM_yM_z	0.27	-0.01	-0.03	-0.49	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.02	0.00	0.10	-0.02	
		Pie	Cumple	0.3	0.3	1.6	19.6	1.6	19.9	19.9	G, Q [NL](1)	N_t	-0.35	-0.01	0.32	0.12	-0.01	Cumple
											G, G, V, V(2)	N_c	0.34	0.01	0.24	0.69	0.01	
											G, V, N [NL](4)	M_y	-0.18	-0.10	-0.02	-0.38	-0.05	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.01	0.63	0.84	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.3	3.1	13.0	1.2	16.0	16.0	G, G, V, V(2)	N_t	-1.70	0.00	0.25	-0.57	0.00	Cumple
											G, Q [NL](1)	N_c	4.93	0.01	0.18	-0.10	-0.01	
											G, V, N [NL](6)	M_y	2.61	-0.20	-0.09	0.31	0.13	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.20	0.01	0.41	-0.66	-0.01	
		Pie	Cumple	1.4	4.4	1.8	6.7	1.0	10.2	10.2	G, G, V, V(2)	N_t,M_z,V_y	-1.63	0.01	0.22	0.53	0.00	Cumple
											G, Q [NL](1)	N_c	5.04	-0.02	-0.07	-0.10	-0.01	
											G, V [NL](7)	M_y	2.19	0.12	-0.16	-0.36	0.13	
											G, V, N [NL](8)	NM_yM_z	3.99	0.11	-0.18	-0.39	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.8	17.2	3.3	8.0	1.0	19.5	19.5	G, G, V, V(2)	N_t	-5.51	0.02	0.18	-0.51	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	13.00	-0.02	0.07	-0.05	0.02	
											G, V, N [NL](9)	M_y	10.41	-0.21	-0.08	0.29	0.17	
											G, V, N [NL](9)	M_z	7.11	-0.02	0.26	-0.56	0.01	
											G, G, V, V, N(10)	V_y	7.31	-0.03	0.26	-0.56	0.02	
		Pie	Cumple	4.7	17.3	3.4	7.5	1.0	21.5	21.5	G, G, V, V(2)	N_t	-5.44	-0.01	0.24	0.54	-0.01	Cumple
											G, Q [NL](1)	N_c	13.12	0.02	-0.05	-0.05	0.02	
											G, V, N [NL](8)	M_y,NM_yM_z	10.52	0.22	-0.18	-0.37	0.17	
											G, G, V, V(11)	M_z,V_y	-4.71	-0.01	0.24	0.54	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.2	28.5	1.7	8.0	1.0	31.5	31.5	G, G, V, V(2)	N_t	-10.56	0.01	0.16	-0.44	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.07	-0.01	0.09	-0.09	0.01	
											G, V, N [NL](4)	M_y	17.09	-0.11	-0.05	0.23	0.16	
											G, V, N [NL](9)	M_z	11.24	-0.01	0.25	-0.54	0.01	
											G, V, N [NL](5)	V_y	12.33	0.00	0.25	-0.54	0.01	
		Pie	Cumple	9.1	28.6	4.3	8.5	1.0	33.4	33.4	G, G, V, V(2)	N_t,M_z,V_y	-10.49	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c	22.18	0.02	-0.13	-0.09	0.01	
											G, V, N [NL](4)	M_y	17.20	0.28	-0.23	-0.38	0.16	
											G, V, N [NL](8)	NM_yM_z	18.29	0.28	-0.23	-0.38	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(7) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1234.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.2	1.0	0.9	1.3	1.3	G, Q [NL][1]	N_t	-0.46	-0.01	0.01	0.12	0.01	Cumple
											G, G, V, V[2]	N_c,M_z,V_y,NM_yM_z	0.28	0.00	-0.03	-0.49	0.00	
											G, V, N [NL][3]	M_y	-0.30	-0.01	0.01	0.23	0.03	
		Pie	Cumple	0.3	0.3	1.2	19.6	1.6	20.0	20.0	G, Q [NL][1]	N_t	-0.35	0.02	0.32	0.12	0.01	Cumple
											G, G, V, V[2]	N_c	0.35	0.00	0.23	0.69	0.00	
											G, V, N [NL][4]	M_y	-0.14	-0.08	-0.09	-0.40	-0.03	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	-0.21	0.01	0.63	0.84	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.2	3.3	12.9	1.2	15.8	15.8	G, G, V, V[2]	N_t	-1.68	0.00	0.25	-0.57	0.00	Cumple
											G, Q [NL][1]	N_c	4.79	0.01	0.17	-0.10	-0.01	
											G, V, N [NL][4]	M_y	2.45	-0.22	-0.09	0.31	0.14	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	3.10	0.01	0.41	-0.66	-0.01	
		Pie	Cumple	1.4	4.3	2.0	6.7	1.0	10.1	10.1	G, G, V, V[2]	N_t,M_z,V_Y	-1.61	0.01	0.22	0.53	0.00	Cumple
											G, Q [NL][1]	N_c	4.90	-0.02	-0.07	-0.10	-0.01	
											G, V [NL][6]	M_y	2.10	0.13	-0.16	-0.36	0.14	
											G, V, N [NL][7]	NM_yM_z	3.80	0.12	-0.18	-0.39	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.8	16.8	3.4	8.0	1.0	19.1	19.1	G, G, V, V[2]	N_t	-5.50	0.02	0.18	-0.51	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	12.71	-0.03	0.07	-0.05	0.02	
											G, V, N [NL][7]	M_y	9.98	-0.22	-0.08	0.29	0.18	
											G, G, V, V, N[8]	M_z,V_Y	7.18	-0.03	0.25	-0.56	0.02	
		Pie	Cumple	4.7	17.0	3.4	7.5	1.0	20.9	20.9	G, G, V, V[2]	N_t	-5.43	-0.01	0.24	0.54	-0.01	Cumple
											G, Q [NL][1]	N_c	12.82	0.02	-0.05	-0.05	0.02	
											G, V, N [NL][7]	M_y,NM_yM_z	10.10	0.22	-0.18	-0.36	0.18	
											G, G, V, V[9]	M_z,V_Y	-4.70	-0.01	0.24	0.54	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.2	27.9	1.7	7.9	1.0	30.9	30.9	G, G, V, V[2]	N_t	-10.56	0.01	0.16	-0.44	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.62	-0.01	0.09	-0.09	0.01	
											G, V, N [NL][10]	M_y	16.42	-0.11	-0.05	0.23	0.16	
											G, V, N [NL][11]	M_z	10.90	-0.01	0.25	-0.54	0.01	
											G, V, N [NL][5]	V_Y	11.99	-0.01	0.25	-0.54	0.01	
		Pie	Cumple	9.1	28.0	4.3	8.6	1.0	32.5	32.5	G, G, V, V[2]	N_t,M_z,V_Y	-10.50	-0.02	0.27	0.53	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.73	0.02	-0.13	-0.09	0.01	
											G, V, N [NL][10]	M_y	16.53	0.28	-0.23	-0.38	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1235.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	1.0	0.9	1.3	1.3	G, Q [NL](1)	N_t	-0.46	-0.02	0.01	0.12	0.02	Cumple
											G, G, V, V(2)	N_c,M_z,V_y,NM_yM_z	0.29	0.00	-0.03	-0.50	0.00	
											G, V, N [NL](3)	M_y	-0.29	-0.02	0.01	0.23	0.03	
		Pie	Cumple	0.3	0.3	1.2	19.5	1.6	20.0	20.0	G, Q [NL](1)	N_t	-0.34	0.03	0.31	0.12	0.02	Cumple
											G, G, V, V(2)	N_c	0.36	0.00	0.23	0.69	0.00	
											G, V, N [NL](4)	M_y	-0.12	-0.08	-0.10	-0.41	-0.03	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.20	0.02	0.62	0.84	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.5	4.2	3.2	12.9	1.2	16.0	16.0	G, G, V, V(2)	N_t	-1.76	-0.01	0.25	-0.57	0.01	Cumple
											G, Q [NL](1)	N_c	4.84	0.04	0.17	-0.10	-0.03	
											G, V [NL](6)	M_y	2.02	-0.21	-0.11	0.32	0.13	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.14	0.02	0.41	-0.66	-0.02	
		Pie	Cumple	1.5	4.3	1.9	6.8	1.0	10.1	10.1	G, G, V, V(2)	N_t,M_z,V_y	-1.69	0.01	0.22	0.53	0.01	Cumple
											G, Q [NL](1)	N_c	4.96	-0.04	-0.07	-0.10	-0.03	
											G, V [NL](6)	M_y	2.09	0.12	-0.16	-0.35	0.13	
											G, V, N [NL](7)	NM_yM_z	3.86	0.11	-0.18	-0.39	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.0	16.9	3.3	8.0	1.0	19.2	19.2	G, G, V, V(2)	N_t	-5.71	0.01	0.18	-0.51	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.81	-0.02	0.07	-0.05	0.01	
											G, V, N [NL](7)	M_y	10.05	-0.22	-0.08	0.29	0.17	
											G, G, V, V, N(8)	M_z,V_y	7.43	-0.03	0.26	-0.56	0.02	
		Pie	Cumple	4.9	17.1	3.3	7.5	1.0	20.9	20.9	G, G, V, V(2)	N_t	-5.64	-0.01	0.24	0.54	-0.01	Cumple
											G, Q [NL](1)	N_c	12.92	0.01	-0.05	-0.05	0.01	
											G, V, N [NL](9)	M_y	9.87	0.22	-0.18	-0.36	0.17	
											G, G, V, V(10)	M_z,V_y	-4.91	-0.01	0.24	0.55	-0.01	
											G, V, N [NL](7)	NM_yM_z	10.16	0.22	-0.18	-0.36	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.5	28.1	1.7	7.9	1.0	31.1	31.1	G, G, V, V(2)	N_t	-10.91	0.01	0.16	-0.44	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.76	-0.01	0.09	-0.09	0.01	
											G, V, N [NL](11)	M_y	16.47	-0.11	-0.05	0.23	0.16	
											G, V, N [NL](12)	M_z	11.01	-0.01	0.25	-0.54	0.01	
											G, G, V, V, N(13)	V_y	12.72	-0.01	0.25	-0.54	0.02	
		Pie	Cumple	9.4	28.2	4.3	8.6	1.0	32.7	32.7	G, G, V, V(2)	N_t,M_z,V_y	-10.85	-0.02	0.28	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.87	0.02	-0.13	-0.09	0.01	
											G, V, N [NL](11)	M_y	16.58	0.28	-0.23	-0.38	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(12) 1.35·PP+0.8·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

2.2.2.1.1236.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.4	1.0	0.9	1.4	1.4	G, Q [NL](1)	N_t	-0.45	-0.03	0.01	0.12	0.03	Cumple
											G, G, V, V(2)	N_c,M_z,V_y	0.30	0.00	-0.03	-0.50	0.00	
											G, V, N [NL](3)	M_y	-0.28	-0.03	0.01	0.23	0.04	
											G, V, N [NL](4)	NM_yM_z	-0.31	-0.02	-0.02	-0.35	0.02	
		Pie	Cumple	0.3	0.3	1.2	19.4	1.6	20.1	20.1	G, Q [NL](1)	N_t	-0.33	0.04	0.31	0.12	0.03	Cumple
											G, G, V, V(2)	N_c	0.37	0.00	0.22	0.68	0.00	
											G, V, N [NL](3)	M_y	-0.17	0.08	0.09	-0.17	0.04	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.20	0.03	0.62	0.84	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.6	4.2	3.2	12.9	1.2	16.2	16.2	G, G, V, V(2)	N_t	-1.87	-0.02	0.25	-0.57	0.01	Cumple
											G, Q [NL](1)	N_c	4.78	0.05	0.17	-0.10	-0.04	
											G, V [NL](5)	M_y	1.92	-0.21	-0.12	0.32	0.13	
											G, V, N [NL](4)	M_z,V_y	3.09	0.04	0.41	-0.66	-0.03	
											G, G, V, V, N(6)	NM_yM_z	3.53	0.02	0.41	-0.66	-0.02	
		Pie	Cumple	1.6	4.3	1.9	6.8	1.0	9.8	9.8	G, G, V, V(2)	N_t,M_z,V_y	-1.80	0.02	0.22	0.53	0.01	Cumple
											G, Q [NL](1)	N_c	4.90	-0.05	-0.07	-0.10	-0.04	
											G, V [NL](5)	M_y	1.99	0.12	-0.15	-0.35	0.13	
											G, V, N [NL](7)	NM_yM_z	3.74	0.11	-0.18	-0.39	0.12	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.2	16.7	3.3	8.0	1.0	19.5	19.5	G, G, V, V(2)	N_t	-6.00	0.01	0.18	-0.51	-0.01	Cumple
											G, Q [NL](1)	N_c	12.65	-0.02	0.06	-0.05	0.01	
											G, V, N [NL](7)	M_y	9.65	-0.22	-0.08	0.29	0.17	
											G, G, V, V, N(8)	M_z,V_y	7.71	-0.03	0.26	-0.56	0.02	
											G, G, V, V, N(6)	NM_yM_z	8.44	-0.03	0.26	-0.56	0.02	
		Pie	Cumple	5.2	16.9	3.3	7.5	1.0	20.4	20.4	G, G, V, V(2)	N_t	-5.94	0.00	0.24	0.55	-0.01	Cumple
											G, Q [NL](1)	N_c	12.76	0.00	-0.05	-0.05	0.01	
											G, V, N [NL](9)	M_y	9.48	0.22	-0.18	-0.36	0.17	
											G, G, V, V(10)	M_z,V_y	-5.21	0.00	0.24	0.55	-0.01	
											G, V, N [NL](7)	NM_yM_z	9.77	0.22	-0.18	-0.36	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.9	27.7	1.7	8.0	1.0	30.7	30.7	G, G, V, V(2)	N_t	-11.42	0.01	0.16	-0.44	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.49	-0.01	0.09	-0.09	0.01	
											G, V, N [NL](11)	M_y	15.76	-0.11	-0.06	0.24	0.16	
											G, G, V, V, N(8)	M_z	12.10	-0.01	0.25	-0.54	0.02	
											G, G, V, V, N(6)	V_y	13.19	-0.01	0.25	-0.54	0.02	
		Pie	Cumple	9.9	27.9	4.3	8.7	1.0	32.2	32.2	G, G, V, V(2)	N_t,M_z,V_y	-11.35	-0.02	0.28	0.53	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.60	0.02	-0.13	-0.09	0.01	
											G, V, N [NL](11)	M_y	15.87	0.28	-0.22	-0.37	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(6) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1237.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.7	1.0	0.9	1.7	0.9	1.7	G, V, N [NL](2)	N_t	-0.47	0.00	0.01	0.13	0.00	Cumple
												G, G, V, V(3)	N_c,M_z,V_y,M_yV_y	0.33	0.00	-0.03	-0.51	0.00	
												G, V, N [NL](4)	M_y,NM_yM_z	-0.20	-0.04	0.03	0.42	0.00	
		Pie	Cumple	0.3	0.3	1.4	19.2	1.6	20.1	1.4	20.1	G, V, N [NL](2)	N_t	-0.35	0.01	0.33	0.13	0.00	Cumple
												G, G, V, V(3)	N_c	0.40	-0.01	0.19	0.68	0.00	
												G, V, N [NL](5)	M_y	-0.15	0.09	0.08	-0.17	0.05	
												G, V, N [NL](6)	M_z,V_y,NM_yM_z	-0.18	0.05	0.61	0.84	0.03	
												G, G, V, V, N(7)	M_yV_y	0.30	0.03	0.33	0.73	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.9	4.3	3.3	12.9	1.2	16.5	N.P.(1)	16.5	G, G, V, V(3)	N_t	-2.15	-0.02	0.25	-0.57	0.02	Cumple
												G, V, N [NL](2)	N_c	4.99	0.03	0.18	-0.10	-0.03	
												G, V [NL](8)	M_y	1.98	-0.21	-0.18	0.45	0.14	
												G, G, V, V, N(9)	M_z,V_y,NM_yM_z	3.83	0.02	0.41	-0.66	-0.02	
		Pie	Cumple	1.8	4.4	2.0	6.8	1.0	11.0	N.P.(1)	11.0	G, G, V, V(3)	N_t,M_z,V_y	-2.08	0.02	0.22	0.53	0.02	Cumple
												G, V, N [NL](2)	N_c	5.11	-0.04	-0.08	-0.10	-0.03	
												G, V [NL](8)	M_y	2.04	0.13	-0.20	-0.46	0.14	
												G, V, N [NL](4)	NM_yM_z	3.64	0.11	-0.22	-0.49	0.12	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.9	17.5	3.4	8.1	1.0	20.6	N.P.(1)	20.6	G, G, V, V(3)	N_t	-6.73	0.02	0.18	-0.50	-0.01	Cumple
												G, V, N [NL](2)	N_c	13.26	-0.04	0.07	-0.05	0.03	
												G, V, N [NL](10)	M_y	8.64	-0.22	-0.13	0.40	0.18	
												G, G, V, V, N(11)	M_z,V_y	8.41	-0.03	0.26	-0.56	0.02	
												G, G, V, V, N(9)	NM_yM_z	9.14	-0.03	0.26	-0.56	0.02	
		Pie	Cumple	5.8	17.7	3.4	7.7	1.0	21.4	N.P.(1)	21.4	G, G, V, V(3)	N_t	-6.66	0.00	0.24	0.55	-0.01	Cumple
												G, V, N [NL](2)	N_c	13.38	0.02	-0.06	-0.05	0.03	
												G, V, N [NL](12)	M_y	7.24	0.22	-0.21	-0.46	0.18	
												G, G, V, V(13)	M_z,V_y	-5.94	0.00	0.24	0.55	-0.01	
												G, V, N [NL](4)	NM_yM_z	9.48	0.22	-0.22	-0.47	0.18	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	11.0	29.1	1.7	8.0	1.0	32.3	N.P.(1)	32.3	G, G, V, V(3)	N_t	-12.64	0.01	0.15	-0.44	-0.01	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	22.57	-0.02	0.09	-0.10	0.02	
												G, V, N [NL](10)	M_y	15.39	-0.11	-0.10	0.34	0.16	
												G, G, V, V, N(11)	M_z	13.21	-0.01	0.26	-0.55	0.02	
												G, G, V, V, N(9)	V_y	14.30	-0.01	0.26	-0.55	0.02	
		Pie	Cumple	11.0	29.3	4.3	9.0	1.0	34.0	N.P.(1)	34.0	G, G, V, V(3)	N_t,M_z,V_y	-12.58	-0.02	0.29	0.54	-0.01	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	22.68	0.04	-0.14	-0.10	0.02	
												G, V, N [NL](10)	M_y	15.50	0.28	-0.26	-0.47	0.16	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(3) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(6) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

(7) 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(EI) [NL]

(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

(9) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

(10) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(11) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

(12) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

(13) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

Listados

2.2.2.1.1238.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_zV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.8	1.0	1.0	1.6	1.0	1.6	G, V, N [NL](2)	N_t	-0.47	-0.02	0.01	0.14	0.01	Cumple
												G, G, V, V(3)	N_c,M_z,V_y,M_yV_y	0.33	0.02	-0.03	-0.52	-0.02	
												G, Q [NL](4)	M_y	-0.37	-0.05	0.01	0.11	0.05	
												G, V, N [NL](5)	NM_yM_z	-0.14	-0.04	0.03	0.45	0.00	
		Pie	Cumple	0.3	0.3	1.5	19.1	1.6	19.8	1.6	19.8	G, V, N [NL](6)	N_t	-0.36	0.01	0.32	0.12	0.01	Cumple
												G, G, V, V(7)	N_c	0.40	0.00	0.24	0.69	0.00	
												G, V, N [NL](8)	M_y	-0.11	0.10	0.07	-0.18	0.05	
												G, G, V, V, N(9)	M_z,V_y,M_yV_y	-0.16	0.03	0.61	0.83	0.02	
												G, V, N [NL](10)	NM_yM_z	-0.14	0.05	0.61	0.83	0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.9	4.2	2.8	12.8	1.2	16.6	0.2	16.6	G, G, V, V(3)	N_t	-2.16	-0.04	0.24	-0.56	0.03	Cumple
												G, V, N [NL](2)	N_c,M_yV_y	4.80	0.06	0.20	-0.11	-0.05	
												G, V [NL](11)	M_y	1.54	-0.19	-0.22	0.51	0.12	
												G, G, V, V, N(9)	M_z,V_y,NM_yM_z	3.67	0.05	0.41	-0.66	-0.04	
		Pie	Cumple	1.8	4.3	1.6	7.3	1.0	10.8	0.2	10.8	G, G, V, V(3)	N_t,V_y	-2.10	0.04	0.22	0.54	0.03	Cumple
												G, V, N [NL](2)	N_c,M_yV_y	4.91	-0.06	-0.08	-0.11	-0.05	
												G, V, N [NL](8)	M_y	2.97	-0.11	-0.13	-0.25	-0.10	
												G, V, N [NL](5)	M_z,NM_yM_z	3.15	0.08	-0.23	-0.53	0.10	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.0	17.1	3.3	8.1	1.0	19.9	N.P.(1)	19.9	G, G, V, V(3)	N_t	-6.85	0.02	0.18	-0.50	-0.01	Cumple
												G, V, N [NL](2)	N_c	12.96	-0.03	0.07	-0.05	0.02	
												G, V, N [NL](12)	M_y	7.24	-0.21	-0.15	0.46	0.17	
												G, G, V, V, N(13)	M_z,V_y	8.01	-0.02	0.26	-0.56	0.01	
												G, G, V, V, N(9)	NM_yM_z	8.74	-0.02	0.26	-0.56	0.01	
		Pie	Cumple	5.9	17.3	3.2	7.6	1.0	20.0	N.P.(1)	20.0	G, G, V, V(3)	N_t	-6.79	0.00	0.24	0.55	-0.01	Cumple
												G, V, N [NL](2)	N_c	13.08	0.01	-0.05	-0.05	0.02	
												G, V, N [NL](14)	M_y	5.93	0.21	-0.23	-0.51	0.17	
												G, G, V, V(15)	M_z,V_y	-6.06	0.00	0.24	0.55	-0.01	
												G, V, N [NL](5)	NM_yM_z	8.11	0.21	-0.24	-0.52	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	11.3	28.7	1.6	8.0	1.0	32.0	N.P.(1)	32.0	G, G, V, V(3)	N_t	-12.93	0.01	0.15	-0.43	-0.01	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	22.24	-0.02	0.10	-0.10	0.02	
												G, V, N [NL](12)	M_y	13.06	-0.11	-0.13	0.40	0.16	
												G, G, V, V, N(13)	M_z	12.56	-0.01	0.26	-0.55	0.01	
												G, G, V, V, N(9)	V_y	13.65	-0.01	0.26	-0.55	0.01	
		Pie	Cumple	11.2	28.8	4.2	9.1	1.0	33.6	N.P.(1)	33.6	G, G, V, V(3)	N_t,M_z,V_y	-12.86	-0.02	0.29	0.54	-0.01	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	22.35	0.03	-0.14	-0.10	0.02	
												G, V, N [NL](12)	M_y	13.17	0.27	-0.27	-0.51	0.16	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(3) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(4) 1.35·PP+1.35·CM1+1.5·Q [NL]

(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(6) 0.8·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(7) 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(9) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

(10) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

(12) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(13) 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

(14) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

(15) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.1239.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.2	0.2	2.5	1.0	0.9	2.9	0.9	2.9	G, V, N [NL][2]	N_t,M_y	-0.22	-0.17	0.01	0.11	0.12	Cumple
												G, G, V, V[3]	N_c	0.22	0.04	-0.03	-0.47	-0.03	
												G, G, V, V[4]	M_z,V_y,M_tV_y	0.22	0.07	-0.03	-0.49	-0.06	
												G, V, N [NL][15]	NM_yM_z	-0.08	-0.14	-0.03	-0.37	0.10	
		Pie	Cumple	0.1	0.3	2.2	17.8	1.5	18.8	1.5	18.8	G, V, N [NL][16]	N_t	-0.15	0.11	0.25	0.10	0.10	Cumple
												G, G, V, V[3]	N_c	0.34	-0.04	0.29	0.71	-0.03	
												G, Q [NL][7]	M_y	-0.04	0.15	0.23	0.09	0.12	
												G, G, V, V, N[8]	M_z,V_y,M_tV_y	0.00	0.10	0.57	0.82	0.09	
												G, V, N [NL][5]	NM_yM_z	0.04	0.13	0.57	0.82	0.10	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.0	3.4	3.0	11.9	1.2	14.7	1.2	14.7	G, G, V, V[4]	N_t	-1.14	-0.02	0.25	-0.57	0.02	Cumple
												G, V, N [NL][16]	N_c	3.86	-0.01	0.10	-0.06	0.00	
												G, V [NL][10]	M_y	0.47	-0.19	-0.22	0.51	0.12	
												G, G, V, V, N[8]	M_z,V_y,NM_yM_z,M_tV_y	2.90	-0.02	0.38	-0.64	0.01	
		Pie	Cumple	0.9	3.5	1.7	7.0	1.0	9.4	1.0	9.4	G, G, V, V[4]	N_t,V_y,M_tV_y	-1.07	0.03	0.22	0.53	0.02	Cumple
												G, V, N [NL][16]	N_c	3.97	-0.01	-0.06	-0.06	0.00	
												G, V [NL][16b]	M_y	0.54	0.11	-0.21	-0.50	0.12	
												G, V, N [NL][11]	M_z,NM_yM_z	1.79	0.10	-0.22	-0.51	0.11	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.5	11.7	3.5	7.2	1.0	12.7	N.P.[1]	12.7	G, G, V, V[4]	N_t	-4.07	0.01	0.20	-0.52	0.00	Cumple
												G, V, N [NL][12]	N_z,NM_yM_z	8.86	-0.01	0.03	-0.03	0.01	
												G, V, N [NL][13]	M_y	3.83	-0.23	-0.18	0.47	0.18	
												G, G, V, V, N[14]	M_z,V_y	5.21	-0.02	0.23	-0.55	0.01	
		Pie	Cumple	3.5	11.9	3.4	7.3	1.0	13.2	N.P.[1]	13.2	G, G, V, V[4]	N_t	-4.00	0.01	0.23	0.53	0.00	Cumple
												G, V, N [NL][12]	N_z,NM_yM_z	8.97	0.00	-0.04	-0.03	0.01	
												G, V [NL][10]	M_y	1.88	0.22	-0.21	-0.49	0.18	
												G, G, V, V[15]	M_z,V_y	-3.27	0.01	0.23	0.53	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	7.1	18.3	1.7	6.9	1.0	19.5	1.0	19.5	G, G, V, V[4]	N_t	-8.15	0.00	0.18	-0.46	-0.01	Cumple
												G, V, N [NL][12]	N_z,NM_yM_z	14.17	0.00	0.04	-0.04	0.01	
												G, V, N [NL][13]	M_y	7.44	-0.11	-0.16	0.43	0.16	
												G, G, V, V, N[16]	M_z	7.28	-0.01	0.22	-0.51	0.01	
												G, G, V, V, N[8]	V_y,M_tV_y	8.37	-0.01	0.22	-0.51	0.01	
		Pie	Cumple	7.0	18.4	4.2	7.9	1.0	20.7	1.0	20.7	G, G, V, V[4]	N_t,M_z,V_y,M_tV_y	-8.09	-0.01	0.25	0.51	-0.01	Cumple
												G, V, N [NL][12]	N_z,NM_yM_z	14.28	0.02	-0.07	-0.04	0.01	
												G, V, N [NL][13]	M_y	7.55	0.27	-0.23	-0.48	0.16	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[3] 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[4] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[5] 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

[6] 0.8·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[7] 1.35·PP+1.35·CM1+1.5·Q [NL]

[8] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[9] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

[10] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

[11] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[12] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]

[13] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[14] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]

[15] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

[16] 1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

2.2.2.1.1240.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	0.3	1.4	0.7	0.7	1.9	1.9	G, V, N [NL](1)	N_t,NM_yM_z	-0.52	0.08	-0.01	-0.15	-0.08	Cumple
											G, G, V, V(2)	N_c	0.33	-0.05	0.00	-0.02	0.05	
											G, Q [NL](3)	M_y	-0.37	0.09	-0.01	-0.11	-0.09	
											G, V, N [NL](4)	M_z,V_y	-0.10	0.07	-0.02	-0.36	-0.05	
		Pie	Cumple	0.4	0.3	2.3	15.4	1.1	17.1	17.1	G, V, N [NL](5)	N_t	-0.41	-0.10	-0.34	-0.13	-0.06	Cumple
											G, G, V, V(2)	N_c	0.40	0.08	0.30	0.26	0.05	
											G, V, N [NL](6)	M_y	-0.12	-0.15	-0.08	0.17	-0.08	
											G, V, N [NL](7)	M_z,V_y,NM_yM_z	-0.16	-0.10	-0.49	-0.59	-0.07	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.0	4.5	4.1	9.9	0.9	13.3	13.3	G, V [NL](8)	N_t	-1.15	0.09	0.03	-0.02	-0.06	Cumple
											G, V, N [NL](1)	N_c	5.11	-0.16	-0.21	0.12	0.10	
											G, V, N [NL](6)	M_y	3.30	-0.27	-0.02	-0.13	0.17	
											G, V, N [NL](7)	M_z,V_y,NM_yM_z	2.84	-0.11	-0.32	0.46	0.07	
		Pie	Cumple	0.9	4.6	2.5	5.9	0.8	8.5	8.5	G, V [NL](8)	N_t	-1.08	-0.06	-0.01	-0.02	-0.06	Cumple
											G, V, N [NL](1)	N_c	5.22	0.09	0.08	0.12	0.10	
											G, V, N [NL](6)	M_y	3.41	0.16	0.13	0.25	0.17	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	2.66	0.02	0.19	0.43	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.4	18.5	3.5	5.6	0.7	21.5	21.5	G, V [NL](8)	N_t	-3.85	0.03	0.02	-0.01	-0.03	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	13.99	-0.08	-0.07	0.05	0.07	
											G, V, N [NL](6)	M_y	8.84	-0.23	0.03	-0.16	0.19	
											G, V, N [NL](9)	M_z	6.49	-0.05	-0.18	0.37	0.05	
											G, V [NL](10)	V_y	3.23	0.06	0.15	-0.38	-0.04	
		Pie	Cumple	3.3	18.7	3.9	6.0	0.8	21.3	21.3	G, V [NL](8)	N_t	-3.78	-0.05	-0.01	-0.01	-0.03	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	14.11	0.10	0.06	0.05	0.07	
											G, V, N [NL](6)	M_y	8.96	0.26	0.12	0.23	0.19	
											G, V, N [NL](11)	M_z,V_y	6.03	-0.02	0.19	0.42	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.1	31.1	1.6	5.7	0.7	34.9	34.9	G, V [NL](8)	N_t	-7.04	0.01	0.03	-0.04	-0.02	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	24.13	-0.03	-0.11	0.11	0.06	
											G, V, N [NL](6)	M_y	15.40	-0.11	0.01	-0.12	0.16	
											G, V, N [NL](9)	M_z	10.66	-0.02	-0.18	0.36	0.04	
											G, V, N [NL](7)	V_y	11.74	-0.02	-0.18	0.36	0.04	
		Pie	Cumple	6.1	31.3	4.5	6.7	0.8	37.1	37.1	G, V [NL](8)	N_t	-6.98	-0.05	-0.06	-0.04	-0.02	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	24.24	0.10	0.15	0.11	0.06	
											G, V, N [NL](6)	M_y	15.51	0.29	0.17	0.25	0.16	
											G, V, N [NL](4)	M_z,V_y	11.88	-0.04	0.21	0.41	-0.03	

Notas:

(1) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(2) *0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(4) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(5) *0.8·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(6) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(7) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(8) *0.8·PP+0.8·CM1+1.5·VH6 [NL]*
(9) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(10) *0.8·PP+1.35·CM1+1.5·V(90°)H1 [NL]*
(11) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*

2.2.2.1.1241.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	0.3	1.2	0.6	0.6	1.9	1.9	G, V, N [NL](1)	N_t	-0.56	0.04	-0.01	-0.15	-0.06	Cumple
											G, G, V, V(2)	N_c	0.34	-0.03	0.00	-0.02	0.03	
											G, V, N [NL](3)	M_y	-0.27	0.08	-0.01	-0.24	-0.07	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.16	0.07	-0.02	-0.33	-0.06	
		Pie	Cumple	0.4	0.4	2.2	15.7	1.1	17.4	17.4	G, V, N [NL](1)	N_t	-0.45	-0.11	-0.38	-0.15	-0.06	Cumple
											G, G, V, V(2)	N_c	0.41	0.06	0.30	0.25	0.03	
											G, V, N [NL](5)	M_y	-0.17	-0.14	-0.09	0.17	-0.07	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	-0.21	-0.10	-0.50	-0.60	-0.06	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.0	4.5	4.5	10.0	0.9	13.8	13.8	G, V [NL](7)	N_t	-1.17	0.09	0.03	-0.01	-0.06	Cumple
											G, V, N [NL](1)	N_c	5.16	-0.16	-0.20	0.11	0.11	
											G, V, N [NL](5)	M_y	3.09	-0.30	-0.03	-0.13	0.19	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	3.06	-0.12	-0.32	0.46	0.08	
		Pie	Cumple	1.0	4.6	2.9	5.4	0.7	8.9	8.9	G, V [NL](7)	N_t	-1.10	-0.06	-0.01	-0.01	-0.06	Cumple
											G, V, N [NL](1)	N_c	5.28	0.11	0.08	0.11	0.11	
											G, V, N [NL](5)	M_y	3.20	0.19	0.13	0.26	0.19	
											G, V, N [NL](4)	M_z,V_y	3.09	0.03	0.17	0.38	0.02	
											G, V, N [NL](8)	NM_yM_z	3.59	0.19	0.13	0.26	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.4	18.6	3.6	5.7	0.7	21.6	21.6	G, V [NL](7)	N_t	-3.89	0.04	0.02	-0.02	-0.04	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	14.08	-0.08	-0.07	0.05	0.07	
											G, V, N [NL](8)	M_y	9.30	-0.24	0.03	-0.16	0.20	
											G, V, N [NL](9)	M_z,V_y	7.08	-0.05	-0.18	0.38	0.05	
		Pie	Cumple	3.3	18.8	4.0	5.4	0.7	21.5	21.5	G, V [NL](7)	N_t	-3.82	-0.05	-0.01	-0.02	-0.04	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	14.19	0.10	0.06	0.05	0.07	
											G, V, N [NL](5)	M_y	8.65	0.26	0.12	0.23	0.20	
											G, V, N [NL](10)	M_z,V_y	7.13	-0.02	0.17	0.36	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.2	31.2	1.7	5.8	0.7	34.9	34.9	G, V [NL](7)	N_t	-7.06	0.01	0.03	-0.04	-0.02	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	24.20	-0.03	-0.10	0.11	0.06	
											G, V, N [NL](8)	M_y	16.12	-0.11	0.01	-0.12	0.17	
											G, V, N [NL](9)	M_z	11.64	-0.02	-0.18	0.37	0.04	
											G, V, N [NL](6)	V_y	12.72	-0.02	-0.18	0.37	0.04	
		Pie	Cumple	6.1	31.4	4.5	6.3	0.7	37.1	37.1	G, V [NL](7)	N_t	-7.00	-0.05	-0.06	-0.04	-0.02	Cumple
											G, V, N [NL](1)	N_c,NM_yM_z	24.31	0.10	0.15	0.11	0.06	
											G, V, N [NL](8)	M_y	16.23	0.30	0.17	0.26	0.17	
											G, V, N [NL](4)	M_z,V_y	13.60	-0.04	0.20	0.36	-0.03	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1242.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_yV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.9	0.7	0.6	1.7	0.6	1.7	G, V, N [NL][2]	N_t	-0.50	0.01	-0.01	-0.13	-0.03	Cumple
												G, V [NL][3]	N_c	0.31	-0.01	0.00	0.07	0.02	
												G, V, N [NL][4]	M_y,M_z,V_y,NM_yM_z	-0.22	0.06	-0.02	-0.34	-0.05	
												G, V [NL][5]	M_yV_y	-0.08	0.04	-0.02	-0.30	-0.03	
		Pie	Cumple	0.3	0.3	2.2	15.7	1.1	17.2	1.1	17.2	G, V, N [NL][4]	N_t	-0.38	-0.08	-0.34	-0.13	-0.03	Cumple
												G, V [NL][3]	N_c	0.38	0.04	0.19	0.07	0.02	
												G, V, N [NL][6]	M_y	-0.18	-0.14	-0.09	0.17	-0.06	
												G, V, N [NL][7]	M_z,V_y,NM_yM_z,M_yV_y	-0.21	-0.09	-0.50	-0.60	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.9	4.3	4.5	10.1	0.9	14.1	N.P.[1]	14.1	G, V [NL][3]	N_t	-1.06	0.08	0.02	-0.01	-0.05	Cumple
												G, V, N [NL][4]	N_c	4.95	-0.16	-0.19	0.10	0.11	
												G, V, N [NL][10]	M_y	3.34	-0.29	-0.03	-0.13	0.19	
												G, V, N [NL][7]	M_z,V_y,NM_yM_z	3.33	-0.12	-0.32	0.47	0.08	
		Pie	Cumple	0.9	4.4	2.9	5.5	0.7	9.0	N.P.[1]	9.0	G, V [NL][3]	N_t	-0.99	-0.05	0.00	-0.01	-0.05	Cumple
												G, V, N [NL][2]	N_c	5.06	0.11	0.08	0.10	0.11	
												G, V, N [NL][10]	M_y	3.46	0.19	0.13	0.26	0.19	
												G, V, N [NL][9]	M_z,V_y	3.47	0.03	0.18	0.38	0.02	
												G, V, N [NL][8]	NM_yM_z	3.83	0.19	0.13	0.26	0.19	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.1	17.5	3.5	5.8	0.7	20.4	N.P.[1]	20.4	G, V [NL][3]	N_t	-3.52	0.04	0.02	-0.01	-0.04	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	13.26	-0.08	-0.07	0.05	0.07	
												G, V, N [NL][8]	M_y	9.88	-0.23	0.03	-0.15	0.20	
												G, V, N [NL][9]	M_z,V_y	7.69	-0.05	-0.18	0.38	0.05	
		Pie	Cumple	3.0	17.7	3.9	5.5	0.7	20.3	N.P.[1]	20.3	G, V [NL][3]	N_t	-3.45	-0.05	-0.01	-0.01	-0.04	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	13.38	0.10	0.06	0.05	0.07	
												G, V, N [NL][6]	M_y	9.26	0.26	0.12	0.23	0.20	
												G, V, N [NL][10]	M_z,V_y	8.32	-0.02	0.18	0.36	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.6	29.2	1.7	5.9	0.7	32.6	N.P.[1]	32.6	G, V [NL][3]	N_t	-6.39	0.01	0.03	-0.03	-0.02	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	22.65	-0.03	-0.10	0.10	0.05	
												G, V, N [NL][8]	M_y	17.07	-0.11	0.01	-0.12	0.17	
												G, V, N [NL][9]	M_z	12.61	-0.02	-0.19	0.37	0.04	
												G, V, N [NL][7]	V_y	13.70	-0.02	-0.19	0.37	0.04	
		Pie	Cumple	5.5	29.4	4.5	6.7	0.7	34.7	N.P.[1]	34.7	G, V [NL][3]	N_t	-6.32	-0.05	-0.05	-0.03	-0.02	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	22.76	0.10	0.14	0.10	0.05	
												G, V, N [NL][8]	M_y	17.18	0.30	0.18	0.26	0.17	
												G, V, N [NL][4]	M_z,V_y	15.74	-0.05	0.22	0.37	-0.03	

Notas:

[1] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[3] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

[4] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[5] 0.8·PP+1.35·CM1+1.5·V(90°)H1 [NL]

[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[7] 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[9] 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

[10] 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1243.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.8	0.7	0.6	1.7	1.7	G, Q [NL](1)	N_t,M_y	-0.45	0.05	-0.01	-0.12	-0.07	Cumple
											G, G, V, V(2)	N_c	0.28	-0.02	0.00	-0.04	0.02	
											G, V, N [NL](3)	M_z,V_y,NM_yM_z	-0.26	0.05	-0.02	-0.34	-0.04	
		Pie	Cumple	0.3	0.3	2.2	15.5	1.1	17.0	17.0	G, Q [NL](1)	N_t	-0.33	-0.11	-0.31	-0.12	-0.07	Cumple
											G, G, V, V(2)	N_c	0.35	0.04	0.25	0.24	0.02	
											G, V, N [NL](4)	M_y	-0.17	-0.14	-0.09	0.17	-0.07	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.08	-0.50	-0.60	-0.05	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.8	4.2	4.3	10.0	0.9	14.0	14.0	G, V [NL](6)	N_t	-0.88	0.07	0.02	-0.01	-0.05	Cumple
											G, Q [NL](1)	N_c	4.81	-0.15	-0.17	0.10	0.10	
											G, V, N [NL](7)	M_y	3.39	-0.28	-0.03	-0.13	0.18	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.38	-0.11	-0.32	0.47	0.07	
		Pie	Cumple	0.7	4.3	2.7	5.7	0.7	9.1	9.1	G, V [NL](6)	N_t	-0.82	-0.05	0.00	-0.01	-0.05	Cumple
											G, Q [NL](1)	N_c	4.92	0.10	0.07	0.10	0.10	
											G, V, N [NL](7)	M_y	3.51	0.18	0.13	0.26	0.18	
											G, V, N [NL](3)	M_z,V_y,NM_yM_z	3.74	0.02	0.18	0.39	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.6	16.8	3.5	5.8	0.7	19.5	19.5	G, V [NL](6)	N_t	-3.00	0.04	0.02	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.72	-0.07	-0.07	0.05	0.06	
											G, V, N [NL](7)	M_y	9.21	-0.23	0.03	-0.15	0.19	
											G, V, N [NL](8)	M_z,V_y	7.76	-0.05	-0.18	0.38	0.05	
		Pie	Cumple	2.6	17.0	3.9	5.6	0.7	19.7	19.7	G, V [NL](6)	N_t	-2.93	-0.05	-0.01	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	12.83	0.09	0.05	0.05	0.06	
											G, V, N [NL](7)	M_y	9.32	0.25	0.13	0.23	0.19	
											G, V, N [NL](9)	M_z,V_y	9.08	-0.03	0.18	0.37	-0.03	
											G, V, N [NL](10)	NM_yM_z	12.10	0.07	0.10	0.15	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	27.9	1.7	5.8	0.7	31.0	31.0	G, V [NL](6)	N_t	-5.47	0.01	0.02	-0.03	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.60	-0.03	-0.09	0.09	0.05	
											G, V, N [NL](4)	M_y	17.13	-0.11	0.01	-0.12	0.17	
											G, V, N [NL](8)	M_z	12.67	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](5)	V_y	13.76	-0.02	-0.19	0.37	0.04	
		Pie	Cumple	4.7	28.0	4.5	7.0	0.7	33.0	33.0	G, V [NL](6)	N_t	-5.40	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.71	0.09	0.13	0.09	0.05	
											G, V, N [NL](4)	M_y	17.24	0.30	0.18	0.26	0.17	
											G, V, N [NL](3)	M_z,V_y	17.06	-0.05	0.22	0.37	-0.03	

Notas:

(1) *1.35·PP+1.35·CM1+1.5·Q [NL]*
(2) *0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(5) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(6) *0.8·PP+0.8·CM1+1.5·VH6 [NL]*
(7) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(8) *1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]*
(9) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(10) *1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]*

2.2.2.1.1244.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.7	0.6	0.5	1.4	1.4	G, Q [NL](1)	N_t,M_y	-0.46	0.05	-0.01	-0.12	-0.06	Cumple
											G, G, V, V(2)	N_c	0.27	-0.01	0.00	-0.04	0.02	
											G, V [NL](3)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](4)	NM_yM_z	-0.28	0.04	-0.02	-0.26	-0.03	
		Pie	Cumple	0.3	0.3	2.0	15.6	1.1	16.9	16.9	G, Q [NL](1)	N_t	-0.34	-0.10	-0.31	-0.12	-0.06	Cumple
											G, G, V, V(2)	N_c	0.34	0.04	0.25	0.23	0.02	
											G, V, N [NL](5)	M_y	-0.17	-0.13	-0.09	0.17	-0.06	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	-0.21	-0.07	-0.50	-0.60	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	4.3	4.2	10.1	0.9	14.0	14.0	G, V [NL](7)	N_t	-0.83	0.07	0.02	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	4.89	-0.13	-0.17	0.10	0.09	
											G, V, N [NL](5)	M_y	3.87	-0.28	-0.03	-0.13	0.18	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	3.44	-0.10	-0.32	0.47	0.07	
		Pie	Cumple	0.7	4.4	2.7	4.5	0.6	9.0	9.0	G, V [NL](7)	N_t	-0.76	-0.04	0.00	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	5.01	0.09	0.07	0.10	0.09	
											G, V, N [NL](8)	M_y	3.62	0.17	0.13	0.26	0.18	
											G, V, N [NL](4)	M_z	3.84	0.01	0.14	0.29	0.01	
											G, V [NL](3)	V_y	1.12	0.02	-0.11	-0.31	0.02	
											G, V, N [NL](5)	NM_yM_z	3.99	0.17	0.13	0.26	0.18	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.5	17.1	3.5	5.8	0.7	19.8	19.8	G, V [NL](7)	N_t	-2.82	0.04	0.02	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.92	-0.07	-0.07	0.05	0.06	
											G, V, N [NL](8)	M_y	9.46	-0.23	0.02	-0.15	0.19	
											G, V, N [NL](9)	M_z,V_y	7.92	-0.05	-0.19	0.38	0.05	
		Pie	Cumple	2.4	17.2	3.8	4.4	0.6	19.9	19.9	G, V [NL](7)	N_t	-2.75	-0.05	-0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	13.03	0.09	0.05	0.05	0.06	
											G, V, N [NL](8)	M_y	9.58	0.25	0.13	0.23	0.19	
											G, V, N [NL](10)	M_z	9.25	-0.03	0.14	0.27	-0.03	
											G, V [NL](11)	V_y	3.03	0.02	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.26	0.07	0.10	0.15	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	28.3	1.7	5.9	0.7	31.5	31.5	G, V [NL](7)	N_t	-5.15	0.01	0.02	-0.03	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.94	-0.03	-0.09	0.09	0.05	
											G, V, N [NL](5)	M_y	17.53	-0.11	0.00	-0.12	0.17	
											G, V, N [NL](9)	M_z	12.93	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](6)	V_y	14.02	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	4.4	28.5	4.5	6.0	0.5	33.4	33.4	G, V [NL](7)	N_t	-5.08	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.05	0.08	0.13	0.09	0.05	
											G, V, N [NL](5)	M_y	17.64	0.30	0.18	0.26	0.17	
											G, V, N [NL](4)	M_z,V_y	17.17	-0.05	0.19	0.29	-0.03	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1245.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.6	0.6	0.5	1.3	1.3	G, Q [NL](1)	N_t,M_y	-0.46	0.04	-0.01	-0.12	-0.05	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.04	0.02	
											G, V [NL](3)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](4)	NM_yM_z	-0.33	0.03	0.02	0.21	-0.04	
		Pie	Cumple	0.3	0.3	2.0	15.6	1.1	16.9	16.9	G, Q [NL](1)	N_t	-0.34	-0.09	-0.32	-0.12	-0.05	Cumple
											G, G, V, V(2)	N_c	0.33	0.04	0.24	0.23	0.02	
											G, V, N [NL](5)	M_y	-0.18	-0.13	-0.09	0.17	-0.06	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.21	-0.07	-0.50	-0.60	-0.04	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	4.3	3.9	10.1	0.9	13.9	13.9	G, V [NL](6)	N_t	-0.77	0.06	0.02	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	4.90	-0.12	-0.18	0.10	0.08	
											G, V, N [NL](5)	M_y	3.82	-0.26	-0.03	-0.13	0.17	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	3.45	-0.09	-0.32	0.47	0.06	
		Pie	Cumple	0.6	4.4	2.4	4.1	0.6	8.9	8.9	G, V [NL](6)	N_t	-0.70	-0.04	0.00	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	5.02	0.08	0.07	0.10	0.08	
											G, V, N [NL](5)	M_y,NM_yM_z	3.94	0.16	0.13	0.26	0.17	
											G, V, N [NL](7)	M_z	3.93	0.01	0.13	0.26	0.00	
											G, V [NL](3)	V_y	1.11	0.02	-0.11	-0.31	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.3	17.1	3.4	5.8	0.7	19.8	19.8	G, V [NL](6)	N_t	-2.66	0.04	0.02	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.95	-0.06	-0.07	0.05	0.06	
											G, V, N [NL](8)	M_y	9.36	-0.22	0.02	-0.15	0.19	
											G, V, N [NL](9)	M_z,V_y	7.93	-0.05	-0.19	0.38	0.04	
		Pie	Cumple	2.3	17.3	3.7	4.1	0.6	19.9	19.9	G, V [NL](6)	N_t	-2.59	-0.04	-0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	13.07	0.08	0.05	0.05	0.06	
											G, V, N [NL](8)	M_y	9.48	0.24	0.13	0.23	0.19	
											G, V [NL](10)	M_z,V_y	3.02	0.02	-0.13	-0.33	0.01	
											G, V, N [NL](11)	NM_yM_z	12.28	0.06	0.10	0.15	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.3	28.4	1.7	5.9	0.7	31.6	31.6	G, V [NL](6)	N_t	-4.88	0.01	0.02	-0.03	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.99	-0.03	-0.09	0.09	0.04	
											G, V, N [NL](5)	M_y	17.38	-0.11	0.00	-0.12	0.17	
											G, V, N [NL](9)	M_z	12.95	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](4)	V_y	14.04	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	4.2	28.5	4.5	5.7	0.5	33.5	33.5	G, V [NL](6)	N_t	-4.82	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.10	0.08	0.13	0.09	0.04	
											G, V, N [NL](5)	M_y	17.49	0.29	0.18	0.26	0.17	
											G, V, N [NL](7)	M_z	17.41	-0.05	0.18	0.27	-0.03	
											G, V [NL](3)	V_y	3.15	0.02	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1246.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.5	0.6	0.5	1.2	1.2	G, Q [NL](1)	N_t,M_y	-0.46	0.03	-0.01	-0.12	-0.04	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.04	0.02	
											G, V [NL](3)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](4)	NM_yM_z	-0.33	0.02	0.02	0.21	-0.03	
		Pie	Cumple	0.3	0.3	1.8	15.6	1.1	16.7	16.7	G, Q [NL](1)	N_t	-0.34	-0.08	-0.31	-0.12	-0.04	Cumple
											G, G, V, V(2)	N_c	0.33	0.03	0.24	0.23	0.02	
											G, V, N [NL](5)	M_y	-0.18	-0.12	-0.09	0.17	-0.05	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.21	-0.06	-0.50	-0.60	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.2	4.0	10.1	0.9	13.8	13.8	G, V [NL](6)	N_t	-0.70	0.05	0.01	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	4.85	-0.11	-0.17	0.10	0.07	
											G, V, N [NL](5)	M_y	3.72	-0.26	-0.03	-0.13	0.17	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	3.40	-0.08	-0.32	0.47	0.05	
		Pie	Cumple	0.6	4.3	2.4	4.1	0.6	8.8	8.8	G, V [NL](6)	N_t	-0.63	-0.03	0.00	-0.01	-0.04	Cumple
											G, Q [NL](1)	N_c	4.96	0.07	0.07	0.10	0.07	
											G, V, N [NL](5)	M_y,NM_yM_z	3.84	0.16	0.13	0.26	0.17	
											G, V, N [NL](7)	M_z	3.97	0.00	0.13	0.26	-0.01	
											G, V [NL](3)	V_y	1.09	0.02	-0.11	-0.31	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	17.0	3.5	5.8	0.7	19.6	19.6	G, V [NL](6)	N_t	-2.51	0.03	0.02	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.83	-0.06	-0.07	0.05	0.06	
											G, V, N [NL](8)	M_y	9.14	-0.23	0.03	-0.15	0.19	
											G, V, N [NL](9)	M_z,V_y	7.82	-0.05	-0.18	0.38	0.04	
		Pie	Cumple	2.1	17.1	3.8	4.1	0.6	19.7	19.7	G, V [NL](6)	N_t	-2.45	-0.04	-0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	12.94	0.08	0.05	0.05	0.06	
											G, V, N [NL](8)	M_y	9.26	0.25	0.12	0.23	0.19	
											G, V [NL](10)	M_z,V_y	2.98	0.02	-0.13	-0.33	0.01	
											G, V, N [NL](11)	NM_yM_z	12.17	0.06	0.10	0.15	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.0	28.1	1.8	5.9	0.7	31.3	31.3	G, V [NL](6)	N_t	-4.64	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.80	-0.03	-0.09	0.09	0.04	
											G, V, N [NL](5)	M_y	17.04	-0.11	0.01	-0.12	0.17	
											G, V, N [NL](9)	M_z	12.79	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](4)	V_y	13.88	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	4.0	28.3	4.5	5.7	0.5	33.2	33.2	G, V [NL](6)	N_t	-4.58	-0.04	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.91	0.08	0.13	0.09	0.04	
											G, V, N [NL](5)	M_y	17.15	0.29	0.18	0.26	0.17	
											G, V, N [NL](7)	M_z	17.60	-0.06	0.18	0.27	-0.04	
											G, V [NL](3)	V_y	3.08	0.02	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1247.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.5	0.6	0.5	1.1	1.1	G, Q [NL](1)	N_t,M_y	-0.46	0.03	-0.01	-0.12	-0.04	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.02	
											G, V [NL](3)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](4)	NM_yM_z	-0.33	0.02	0.02	0.21	-0.03	
		Pie	Cumple	0.3	0.3	1.8	15.6	1.1	16.6	16.6	G, Q [NL](1)	N_t	-0.34	-0.07	-0.31	-0.12	-0.04	Cumple
											G, G, V, V(2)	N_c	0.33	0.03	0.24	0.23	0.02	
											G, V, N [NL](5)	M_y	-0.18	-0.12	-0.09	0.17	-0.05	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.21	-0.05	-0.50	-0.60	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.2	3.8	10.1	0.9	13.7	13.7	G, V [NL](6)	N_t	-0.71	0.05	0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	4.86	-0.10	-0.17	0.10	0.06	
											G, V, N [NL](7)	M_y	3.42	-0.25	-0.03	-0.13	0.16	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	3.41	-0.07	-0.32	0.47	0.05	
		Pie	Cumple	0.6	4.3	2.3	4.1	0.6	8.8	8.8	G, V [NL](6)	N_t	-0.64	-0.03	0.00	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	4.98	0.06	0.07	0.10	0.06	
											G, V, N [NL](7)	M_y	3.53	0.15	0.13	0.26	0.16	
											G, V, N [NL](8)	M_z	3.94	-0.01	0.13	0.26	-0.01	
											G, V [NL](3)	V_y	1.10	0.01	-0.11	-0.31	0.01	
											G, V, N [NL](5)	NM_yM_z	3.90	0.15	0.13	0.26	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	17.0	3.5	5.8	0.7	19.6	19.6	G, V [NL](6)	N_t	-2.53	0.03	0.02	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.85	-0.06	-0.07	0.05	0.05	
											G, V, N [NL](7)	M_y	9.27	-0.23	0.02	-0.15	0.19	
											G, V, N [NL](9)	M_z,V_y	7.84	-0.04	-0.18	0.38	0.04	
		Pie	Cumple	2.1	17.1	3.7	4.1	0.6	19.7	19.7	G, V [NL](6)	N_t	-2.46	-0.04	-0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	12.97	0.07	0.05	0.05	0.05	
											G, V, N [NL](7)	M_y	9.39	0.24	0.13	0.23	0.19	
											G, V [NL](10)	M_z,V_y	2.99	0.02	-0.13	-0.33	0.01	
											G, V, N [NL](11)	NM_yM_z	12.19	0.06	0.10	0.15	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.1	28.2	1.7	5.9	0.7	31.3	31.3	G, V [NL](6)	N_t	-4.66	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.83	-0.02	-0.09	0.09	0.04	
											G, V, N [NL](5)	M_y	17.24	-0.11	0.00	-0.12	0.17	
											G, V, N [NL](9)	M_z	12.81	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](4)	V_y	13.90	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	4.0	28.3	4.5	5.7	0.5	33.2	33.2	G, V [NL](6)	N_t	-4.59	-0.04	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.94	0.07	0.13	0.09	0.04	
											G, V, N [NL](5)	M_y	17.35	0.29	0.18	0.26	0.17	
											G, V, N [NL](8)	M_z	17.53	-0.06	0.18	0.27	-0.04	
											G, V [NL](3)	V_y	3.09	0.02	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1248.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	0.6	0.5	1.1	1.1	G, Q [NL](1)	N_t	-0.46	0.03	-0.01	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.37	0.03	0.00	-0.10	-0.04	
											G, V [NL](4)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.02	0.02	0.21	-0.03	
		Pie	Cumple	0.3	0.3	1.7	15.6	1.1	16.5	16.5	G, Q [NL](1)	N_t	-0.34	-0.06	-0.31	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.33	0.03	0.24	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.11	-0.09	0.17	-0.05	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.05	-0.50	-0.60	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.2	3.7	10.1	0.9	13.6	13.6	G, V [NL](7)	N_t	-0.70	0.04	0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	4.84	-0.09	-0.17	0.10	0.06	
											G, V, N [NL](8)	M_y	3.41	-0.24	-0.03	-0.13	0.16	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.39	-0.06	-0.32	0.47	0.04	
		Pie	Cumple	0.6	4.3	2.2	4.1	0.6	8.7	8.7	G, V [NL](7)	N_t	-0.63	-0.03	0.00	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	4.95	0.05	0.07	0.10	0.06	
											G, V, N [NL](8)	M_y	3.53	0.15	0.13	0.26	0.16	
											G, V, N [NL](9)	M_z	3.93	-0.02	0.13	0.26	-0.02	
											G, V [NL](4)	V_y	1.09	0.01	-0.11	-0.31	0.01	
											G, V, N [NL](6)	NM_yM_z	3.89	0.15	0.13	0.26	0.16	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	16.9	3.4	5.8	0.7	19.5	19.5	G, V [NL](7)	N_t	-2.50	0.03	0.02	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.80	-0.06	-0.07	0.05	0.05	
											G, V, N [NL](8)	M_y	9.26	-0.23	0.02	-0.15	0.19	
											G, V, N [NL](10)	M_z,V_y	7.80	-0.04	-0.18	0.38	0.04	
		Pie	Cumple	2.1	17.1	3.6	4.1	0.6	19.6	19.6	G, V [NL](7)	N_t	-2.43	-0.04	-0.01	-0.01	-0.03	Cumple
											G, Q [NL](1)	N_c	12.91	0.07	0.05	0.05	0.05	
											G, V, N [NL](8)	M_y	9.37	0.24	0.13	0.23	0.19	
											G, V [NL](11)	M_z,V_y	2.97	0.02	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.16	0.05	0.10	0.15	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.0	28.1	1.7	5.9	0.7	31.2	31.2	G, V [NL](7)	N_t	-4.61	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.74	-0.02	-0.09	0.09	0.04	
											G, V, N [NL](6)	M_y	17.21	-0.11	0.00	-0.12	0.17	
											G, V, N [NL](10)	M_z	12.75	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](5)	V_y	13.83	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	4.0	28.2	4.5	5.7	0.5	33.0	33.0	G, V [NL](7)	N_t	-4.55	-0.04	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.85	0.07	0.13	0.09	0.04	
											G, V, N [NL](6)	M_y	17.32	0.29	0.18	0.26	0.17	
											G, V, N [NL](9)	M_z	17.49	-0.06	0.18	0.27	-0.04	
											G, V [NL](4)	V_y	3.07	0.02	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1249.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	0.6	0.5	1.1	1.1	G, Q [NL](1)	N_t	-0.46	0.03	-0.01	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, Q [NL](3)	M_y	-0.46	0.03	-0.01	-0.12	-0.03	
											G, V [NL](4)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.02	0.02	0.21	-0.02	
		Pie	Cumple	0.3	0.3	1.7	15.6	1.1	16.5	16.5	G, Q [NL](1)	N_t	-0.34	-0.06	-0.31	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.32	0.03	0.23	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.11	-0.09	0.17	-0.05	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.04	-0.50	-0.60	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.2	3.6	10.0	0.9	13.5	13.5	G, V [NL](7)	N_t	-0.68	0.04	0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	4.78	-0.07	-0.17	0.10	0.05	
											G, V, N [NL](8)	M_y	3.43	-0.24	-0.03	-0.13	0.15	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.34	-0.06	-0.32	0.47	0.04	
		Pie	Cumple	0.5	4.3	2.2	4.1	0.6	8.7	8.7	G, V [NL](7)	N_t	-0.61	-0.02	0.00	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	4.90	0.05	0.07	0.10	0.05	
											G, V, N [NL](8)	M_y	3.54	0.14	0.13	0.26	0.15	
											G, V, N [NL](9)	M_z	3.84	-0.02	0.13	0.26	-0.02	
											G, V [NL](4)	V_y	1.06	0.01	-0.11	-0.31	0.01	
											G, V, N [NL](6)	NM_yM_z	3.91	0.14	0.13	0.26	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.1	16.8	3.4	5.8	0.7	19.3	19.3	G, V [NL](7)	N_t	-2.45	0.03	0.02	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.69	-0.05	-0.07	0.05	0.04	
											G, V, N [NL](8)	M_y	9.31	-0.22	0.02	-0.15	0.18	
											G, V, N [NL](10)	M_z,V_y	7.70	-0.04	-0.18	0.38	0.03	
		Pie	Cumple	2.1	16.9	3.6	4.1	0.6	19.5	19.5	G, V [NL](7)	N_t	-2.38	-0.03	-0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	12.80	0.06	0.05	0.05	0.04	
											G, V, N [NL](8)	M_y	9.42	0.24	0.13	0.23	0.18	
											G, V [NL](11)	M_z,V_y	2.91	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.13	0.05	0.10	0.15	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	3.9	27.8	1.8	5.9	0.7	31.0	31.0	G, V [NL](7)	N_t	-4.53	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.58	-0.02	-0.09	0.09	0.04	
											G, V, N [NL](8)	M_y	16.21	-0.12	0.00	-0.12	0.17	
											G, V, N [NL](10)	M_z	12.60	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](5)	V_y	13.68	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	3.9	28.0	4.4	5.6	0.5	32.8	32.8	G, V [NL](7)	N_t	-4.47	-0.04	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.69	0.06	0.13	0.09	0.04	
											G, V, N [NL](8)	M_y	16.32	0.29	0.18	0.26	0.17	
											G, V, N [NL](9)	M_z	17.22	-0.07	0.18	0.26	-0.04	
											G, V [NL](4)	V_y	2.98	0.02	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1250.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.5	0.6	0.5	1.1	1.1	G, Q [NL](1)	N_t	-0.47	0.03	-0.01	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.03	0.00	-0.10	-0.04	
											G, V [NL](4)	M_z,V_y	-0.09	0.01	0.02	0.27	-0.01	
											G, V, N [NL](5)	NM_yM_z	-0.34	0.02	0.02	0.20	-0.02	
		Pie	Cumple	0.3	0.3	1.8	15.7	1.1	16.5	16.5	G, Q [NL](1)	N_t	-0.35	-0.06	-0.32	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.33	0.02	0.24	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.12	-0.09	0.17	-0.05	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.22	-0.04	-0.50	-0.60	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.5	4.1	3.4	10.1	0.9	13.4	13.4	G, V [NL](7)	N_t	-0.62	0.03	0.02	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	4.65	-0.06	-0.18	0.10	0.04	
											G, V, N [NL](8)	M_y	3.29	-0.22	-0.03	-0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.22	-0.05	-0.32	0.47	0.03	
		Pie	Cumple	0.5	4.2	2.0	4.1	0.6	8.5	8.5	G, V [NL](7)	N_t	-0.55	-0.02	0.00	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	4.77	0.04	0.07	0.10	0.04	
											G, V, N [NL](6)	M_y,NM_yM_z	3.76	0.13	0.13	0.26	0.14	
											G, V, N [NL](9)	M_z	3.77	-0.03	0.13	0.26	-0.03	
											G, V [NL](4)	V_y	1.01	0.01	-0.12	-0.31	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.0	16.4	3.3	5.7	0.7	18.9	18.9	G, V [NL](7)	N_t	-2.32	0.03	0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.42	-0.05	-0.06	0.05	0.04	
											G, V, N [NL](8)	M_y	9.00	-0.22	0.03	-0.15	0.18	
											G, V, N [NL](10)	M_z,V_y	7.45	-0.03	-0.18	0.38	0.03	
		Pie	Cumple	2.0	16.6	3.5	4.1	0.6	19.2	19.2	G, V [NL](7)	N_t	-2.25	-0.03	-0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	12.53	0.05	0.05	0.05	0.04	
											G, V, N [NL](8)	M_y	9.12	0.23	0.12	0.23	0.18	
											G, V [NL](11)	M_z,V_y	2.79	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	11.96	0.04	0.10	0.15	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	3.8	27.3	1.7	5.8	0.7	30.4	30.4	G, V [NL](7)	N_t	-4.33	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.17	-0.02	-0.09	0.09	0.03	
											G, V, N [NL](8)	M_y	15.74	-0.11	0.00	-0.12	0.17	
											G, V, N [NL](10)	M_z	12.23	-0.02	-0.19	0.37	0.03	
											G, V, N [NL](5)	V_y	13.30	-0.02	-0.19	0.37	0.03	
		Pie	Cumple	3.7	27.5	4.4	5.6	0.5	32.1	32.1	G, V [NL](7)	N_t	-4.26	-0.03	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.28	0.06	0.13	0.09	0.03	
											G, V, N [NL](8)	M_y	15.85	0.29	0.18	0.26	0.17	
											G, V, N [NL](9)	M_z	16.98	-0.07	0.18	0.26	-0.04	
											G, V [NL](4)	V_y	2.80	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1251.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.2	0.6	0.5	0.9	0.9	G, Q [NL](1)	N_t	-0.46	0.01	-0.01	-0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.02	0.00	-0.10	-0.02	
											G, V [NL](4)	M_z,V_y	-0.09	0.00	0.02	0.27	0.00	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.01	0.02	0.21	-0.01	
		Pie	Cumple	0.3	0.3	1.5	15.7	1.1	16.2	16.2	G, Q [NL](1)	N_t	-0.35	-0.03	-0.32	-0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.33	0.02	0.23	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.10	-0.09	0.17	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.22	-0.02	-0.50	-0.60	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.1	3.6	10.1	0.9	13.4	13.4	G, V [NL](7)	N_t	-0.64	0.04	0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	4.68	-0.07	-0.17	0.10	0.04	
											G, V, N [NL](8)	M_y	3.36	-0.24	-0.03	-0.13	0.15	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.25	-0.05	-0.32	0.47	0.04	
		Pie	Cumple	0.5	4.2	2.2	4.1	0.6	8.6	8.6	G, V [NL](7)	N_t	-0.57	-0.02	0.00	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	4.80	0.04	0.07	0.10	0.04	
											G, V, N [NL](8)	M_y	3.47	0.15	0.13	0.26	0.15	
											G, V, N [NL](9)	M_z	3.79	-0.02	0.13	0.26	-0.03	
											G, V [NL](4)	V_y	1.03	0.01	-0.12	-0.31	0.01	
											G, V, N [NL](6)	NM_yM_z	3.85	0.15	0.13	0.26	0.15	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.1	16.5	3.4	5.8	0.7	19.0	19.0	G, V [NL](7)	N_t	-2.36	0.03	0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.48	-0.05	-0.06	0.05	0.04	
											G, V, N [NL](8)	M_y	9.16	-0.22	0.03	-0.15	0.18	
											G, V, N [NL](10)	M_z,V_y	7.50	-0.04	-0.18	0.38	0.03	
		Pie	Cumple	2.0	16.7	3.5	4.1	0.6	19.3	19.3	G, V [NL](7)	N_t	-2.29	-0.03	-0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	12.59	0.05	0.05	0.05	0.04	
											G, V, N [NL](8)	M_y	9.28	0.23	0.12	0.23	0.18	
											G, V [NL](11)	M_z,V_y	2.85	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.05	0.04	0.10	0.15	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	3.8	27.4	1.8	5.8	0.7	30.6	30.6	G, V [NL](7)	N_t	-4.38	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.26	-0.02	-0.09	0.09	0.03	
											G, V, N [NL](8)	M_y	15.99	-0.12	0.00	-0.12	0.17	
											G, V, N [NL](10)	M_z	12.30	-0.02	-0.19	0.37	0.02	
											G, V, N [NL](5)	V_y	13.40	-0.02	-0.19	0.37	0.02	
		Pie	Cumple	3.8	27.6	4.4	5.6	0.5	32.2	32.2	G, V [NL](7)	N_t	-4.32	-0.03	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.37	0.05	0.13	0.09	0.03	
											G, V, N [NL](8)	M_y	16.10	0.29	0.18	0.26	0.17	
											G, V, N [NL](9)	M_z	17.03	-0.08	0.18	0.26	-0.04	
											G, V [NL](4)	V_y	2.89	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1252.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	0.6	0.5	0.9	0.9	G, Q [NL](1)	N_t	-0.46	0.01	-0.01	-0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.02	0.00	-0.10	-0.02	
											G, V [NL](4)	M_z,V_y	-0.08	0.00	0.02	0.27	0.00	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.01	0.02	0.21	-0.01	
		Pie	Cumple	0.3	0.3	1.5	15.7	1.1	16.2	16.2	G, Q [NL](1)	N_t	-0.35	-0.03	-0.32	-0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.33	0.02	0.24	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.10	-0.09	0.17	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.22	-0.02	-0.50	-0.60	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.2	3.4	10.1	0.9	13.4	13.4	G, V [NL](7)	N_t	-0.69	0.02	0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	4.83	-0.04	-0.17	0.10	0.02	
											G, V, N [NL](6)	M_y	3.34	-0.22	-0.03	-0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.39	-0.03	-0.32	0.47	0.02	
		Pie	Cumple	0.5	4.3	2.0	4.1	0.6	8.5	8.5	G, V [NL](7)	N_t	-0.63	-0.01	0.00	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	4.94	0.02	0.07	0.10	0.02	
											G, V, N [NL](6)	M_y	3.45	0.13	0.13	0.26	0.14	
											G, V, N [NL](8)	M_z	3.93	-0.04	0.13	0.26	-0.04	
											G, V [NL](4)	V_y	1.09	0.01	-0.11	-0.31	0.01	
											G, V, N [NL](9)	NM_yM_z	3.82	0.13	0.13	0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	16.9	3.3	5.8	0.7	19.3	19.3	G, V [NL](7)	N_t	-2.48	0.02	0.02	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.80	-0.03	-0.07	0.05	0.03	
											G, V, N [NL](6)	M_y	9.13	-0.22	0.03	-0.15	0.18	
											G, V, N [NL](10)	M_z,V_y	7.80	-0.03	-0.18	0.38	0.02	
		Pie	Cumple	2.1	17.1	3.4	4.1	0.6	19.4	19.4	G, V [NL](7)	N_t	-2.42	-0.02	-0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	12.92	0.03	0.05	0.05	0.03	
											G, V, N [NL](6)	M_y	9.24	0.22	0.12	0.23	0.18	
											G, V [NL](11)	M_z,V_y	2.98	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.17	0.03	0.10	0.15	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.0	28.1	1.8	5.9	0.7	31.2	31.2	G, V [NL](7)	N_t	-4.59	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.76	-0.02	-0.09	0.09	0.03	
											G, V, N [NL](6)	M_y	15.95	-0.12	0.00	-0.12	0.17	
											G, V, N [NL](10)	M_z	12.77	-0.01	-0.19	0.37	0.02	
											G, V, N [NL](5)	V_y	13.85	-0.01	-0.19	0.37	0.02	
		Pie	Cumple	3.9	28.2	4.3	5.7	0.5	32.9	32.9	G, V [NL](7)	N_t	-4.52	-0.03	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.87	0.05	0.13	0.09	0.03	
											G, V, N [NL](6)	M_y	16.06	0.28	0.18	0.26	0.17	
											G, V, N [NL](8)	M_z	17.49	-0.09	0.18	0.27	-0.05	
											G, V [NL](4)	V_y	3.08	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1253.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	0.6	0.5	1.0	1.0	G, Q [NL](1)	N_t	-0.46	0.02	-0.01	-0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.37	0.02	0.00	-0.10	-0.02	
											G, V [NL](4)	M_z,V_y	-0.08	0.00	0.02	0.27	0.00	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.01	0.02	0.21	-0.01	
		Pie	Cumple	0.3	0.3	1.5	15.6	1.1	16.1	16.1	G, Q [NL](1)	N_t	-0.34	-0.03	-0.31	-0.12	-0.02	Cumple
											G, G, V, V(2)	N_c	0.33	0.01	0.24	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.10	-0.08	0.17	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.02	-0.50	-0.60	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.3	3.3	10.1	0.9	13.4	13.4	G, V [NL](7)	N_t	-0.71	0.02	0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	4.88	-0.03	-0.17	0.10	0.01	
											G, V, N [NL](6)	M_y	3.44	-0.22	-0.03	-0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.43	-0.02	-0.32	0.47	0.01	
		Pie	Cumple	0.6	4.4	2.0	4.1	0.6	8.6	8.6	G, V [NL](7)	N_t	-0.65	-0.01	0.00	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	5.00	0.01	0.07	0.10	0.01	
											G, V, N [NL](6)	M_y	3.55	0.13	0.13	0.26	0.14	
											G, V, N [NL](8)	M_z	3.94	-0.05	0.13	0.26	-0.05	
											G, V [NL](4)	V_y	1.11	0.00	-0.11	-0.31	0.00	
											G, V, N [NL](9)	NM_yM_z	3.92	0.13	0.13	0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	17.1	3.3	5.8	0.7	19.4	19.4	G, V [NL](7)	N_t	-2.53	0.02	0.02	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.91	-0.03	-0.07	0.05	0.02	
											G, V, N [NL](6)	M_y	9.34	-0.21	0.02	-0.15	0.17	
											G, V, N [NL](10)	M_z,V_y	7.89	-0.02	-0.19	0.38	0.02	
		Pie	Cumple	2.1	17.2	3.4	4.1	0.6	19.5	19.5	G, V [NL](7)	N_t	-2.46	-0.02	-0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	13.02	0.03	0.05	0.05	0.02	
											G, V, N [NL](6)	M_y	9.46	0.22	0.13	0.23	0.17	
											G, V [NL](11)	M_z,V_y	3.01	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.24	0.02	0.10	0.15	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.1	28.3	1.7	5.9	0.7	31.4	31.4	G, V [NL](7)	N_t	-4.66	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.92	-0.02	-0.09	0.09	0.02	
											G, V, N [NL](6)	M_y	16.27	-0.11	0.00	-0.12	0.16	
											G, V, N [NL](10)	M_z	12.89	-0.01	-0.19	0.37	0.02	
											G, V, N [NL](5)	V_y	13.98	-0.01	-0.19	0.37	0.02	
		Pie	Cumple	4.0	28.4	4.3	5.7	0.5	33.1	33.1	G, V [NL](7)	N_t	-4.59	-0.03	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.03	0.04	0.13	0.09	0.02	
											G, V, N [NL](6)	M_y	16.38	0.28	0.18	0.26	0.16	
											G, V, N [NL](8)	M_z	17.50	-0.09	0.18	0.27	-0.05	
											G, V [NL](4)	V_y	3.13	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1254.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	0.6	0.5	0.9	0.9	G, Q [NL](1)	N_t	-0.46	0.01	-0.01	-0.12	-0.01	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.37	0.02	0.00	-0.10	-0.02	
											G, V [NL](4)	M_z,V_y	-0.08	0.00	0.02	0.27	0.00	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.01	0.02	0.21	-0.01	
		Pie	Cumple	0.3	0.3	1.5	15.6	1.1	16.0	16.0	G, Q [NL](1)	N_t	-0.34	-0.02	-0.32	-0.12	-0.01	Cumple
											G, G, V, V(2)	N_c	0.33	0.01	0.24	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.10	-0.09	0.17	-0.04	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.21	-0.01	-0.50	-0.60	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.3	3.3	10.1	0.9	13.3	13.3	G, V [NL](7)	N_t	-0.72	0.01	0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	4.89	-0.01	-0.18	0.10	0.01	
											G, V, N [NL](6)	M_y	3.46	-0.21	-0.03	-0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.44	-0.01	-0.32	0.47	0.01	
		Pie	Cumple	0.6	4.4	1.9	4.2	0.6	8.6	8.6	G, V [NL](7)	N_t	-0.65	0.00	0.00	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	5.01	0.00	0.07	0.10	0.01	
											G, V, N [NL](8)	M_y	3.50	0.13	0.13	0.25	0.14	
											G, V, N [NL](9)	M_z	3.94	-0.06	0.13	0.26	-0.06	
											G, V [NL](4)	V_y	1.11	0.00	-0.11	-0.31	0.00	
											G, V, N [NL](10)	NM_yM_z	3.94	0.13	0.13	0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	17.1	3.2	5.8	0.7	19.4	19.4	G, V [NL](7)	N_t	-2.55	0.02	0.02	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.93	-0.03	-0.07	0.05	0.02	
											G, V, N [NL](6)	M_y	9.37	-0.21	0.02	-0.15	0.17	
											G, V, N [NL](11)	M_z,V_y	7.91	-0.02	-0.19	0.38	0.01	
		Pie	Cumple	2.2	17.2	3.3	4.1	0.6	19.4	19.4	G, V [NL](7)	N_t	-2.48	-0.01	-0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	13.04	0.02	0.05	0.05	0.02	
											G, V, N [NL](6)	M_y	9.49	0.22	0.13	0.23	0.17	
											G, V [NL](12)	M_z,V_y	3.01	0.01	-0.13	-0.33	0.00	
											G, V, N [NL](13)	NM_yM_z	12.25	0.02	0.10	0.15	0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.1	28.3	1.7	5.9	0.7	31.4	31.4	G, V [NL](7)	N_t	-4.69	0.01	0.02	-0.02	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.96	-0.02	-0.09	0.09	0.02	
											G, V, N [NL](6)	M_y	16.31	-0.11	0.00	-0.12	0.16	
											G, V, N [NL](11)	M_z	12.92	-0.01	-0.19	0.37	0.02	
											G, V, N [NL](5)	V_y	14.01	-0.01	-0.19	0.37	0.02	
		Pie	Cumple	4.0	28.5	4.3	5.7	0.5	33.1	33.1	G, V [NL](7)	N_t	-4.62	-0.02	-0.04	-0.02	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.07	0.04	0.13	0.09	0.02	
											G, V, N [NL](6)	M_y	16.42	0.28	0.18	0.26	0.16	
											G, V, N [NL](9)	M_z	17.53	-0.09	0.18	0.27	-0.05	
											G, V [NL](4)	V_y	3.13	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(12) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(13) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1255.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.2	0.6	0.5	0.9	0.9	G, Q [NL][1]	N_t	-0.46	0.00	-0.01	-0.12	0.00	Cumple
											G, G, V, V[2]	N_c	0.26	-0.01	0.00	-0.04	0.01	
											G, V, N [NL][3]	M_y	-0.37	0.01	0.00	-0.10	-0.02	
											G, V [NL][4]	M_z	-0.08	0.00	0.02	0.27	0.00	
											G, V, N [NL][5]	V_y,NM_yM_z	-0.30	0.00	-0.02	-0.29	-0.04	
		Pie	Cumple	0.3	0.3	1.4	15.6	1.1	15.9	15.9	G, Q [NL][1]	N_t	-0.34	-0.01	-0.31	-0.12	0.00	Cumple
											G, G, V, V[2]	N_c	0.33	0.01	0.24	0.23	0.01	
											G, V, N [NL][6]	M_y	-0.17	-0.09	-0.03	0.27	-0.04	
											G, V, N [NL][7]	M_z,V_y,NM_yM_z	-0.21	0.00	-0.50	-0.60	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	4.3	3.3	10.1	0.9	13.3	13.3	G, V [NL][8]	N_t	-0.76	0.01	0.01	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	4.99	-0.01	-0.17	0.10	0.00	
											G, V, N [NL][9]	M_y	3.53	-0.22	0.02	-0.21	0.14	
											G, V, N [NL][7]	M_z,V_y,NM_yM_z	3.52	-0.01	-0.32	0.47	0.00	
		Pie	Cumple	0.6	4.4	2.0	4.9	0.6	9.6	9.6	G, V [NL][8]	N_t	-0.69	0.00	0.00	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	5.11	-0.01	0.07	0.10	0.00	
											G, V, N [NL][10]	M_y	2.77	0.13	0.14	0.30	0.14	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	4.09	0.13	0.16	0.32	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.3	17.4	3.3	5.8	0.7	19.7	19.7	G, V [NL][8]	N_t	-2.64	0.01	0.02	-0.01	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	13.15	-0.02	-0.07	0.05	0.02	
											G, V, N [NL][6]	M_y	9.81	-0.21	0.05	-0.22	0.17	
											G, V, N [NL][11]	M_z,V_y	8.08	-0.02	-0.19	0.38	0.01	
		Pie	Cumple	2.2	17.5	3.3	4.8	0.6	20.8	20.8	G, V [NL][8]	N_t	-2.57	-0.01	-0.01	-0.01	-0.01	Cumple
											G, Q [NL][1]	N_c	13.27	0.02	0.06	0.05	0.02	
											G, V, N [NL][6]	M_y,M_z	9.93	0.22	0.15	0.30	0.17	
											G, V [NL][12]	V_y	3.07	0.00	-0.13	-0.33	0.00	
											G, V, N [NL][5]	NM_yM_z	10.65	0.22	0.15	0.30	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.2	28.8	1.8	5.9	0.7	31.9	31.9	G, V [NL][8]	N_t	-4.83	0.01	0.02	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	22.30	-0.02	-0.09	0.09	0.02	
											G, V, N [NL][6]	M_y	17.15	-0.12	0.03	-0.17	0.16	
											G, V, N [NL][11]	M_z	13.19	-0.01	-0.19	0.37	0.02	
											G, V, N [NL][7]	V_y	14.28	-0.01	-0.19	0.37	0.02	
		Pie	Cumple	4.2	28.9	4.3	6.5	0.6	33.6	33.6	G, V [NL][8]	N_t	-4.77	-0.02	-0.04	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	22.41	0.03	0.14	0.09	0.02	
											G, V, N [NL][6]	M_y	17.26	0.28	0.21	0.32	0.16	
											G, V, N [NL][5]	M_z,V_y	18.35	0.28	0.21	0.32	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(12) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]

2.2.2.1.1256.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	0.7	0.6	1.2	1.2	G, Q [NL][1]	N_t	-0.46	0.01	-0.01	-0.12	-0.01	Cumple
											G, G, V, V[2]	N_c	0.26	-0.01	0.00	-0.04	0.01	
											G, V, N [NL][3]	M_y	-0.38	0.02	0.00	-0.10	-0.02	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	-0.30	0.02	-0.02	-0.35	-0.04	
		Pie	Cumple	0.3	0.3	1.5	15.7	1.1	15.9	15.9	G, Q [NL][1]	N_t	-0.35	-0.01	-0.32	-0.12	-0.01	Cumple
											G, G, V, V[2]	N_c	0.33	0.01	0.24	0.23	0.01	
											G, V, N [NL][5]	M_y	-0.18	-0.10	0.02	0.38	-0.05	
											G, V, N [NL][6]	M_z,V_y,NM_yM_z	-0.22	0.00	-0.50	-0.60	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	4.3	3.0	10.1	0.9	13.4	13.4	G, V [NL][7]	N_t	-0.77	0.00	0.02	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	4.93	0.02	-0.18	0.10	-0.02	
											G, V [NL][8]	M_y	2.12	-0.20	0.11	-0.32	0.13	
											G, V, N [NL][6]	M_z,V_y,NM_yM_z	3.46	0.01	-0.32	0.47	-0.01	
		Pie	Cumple	0.6	4.4	1.8	5.7	0.7	10.2	10.2	G, V [NL][7]	N_t	-0.70	0.01	0.00	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	5.04	-0.03	0.07	0.10	-0.02	
											G, V [NL][8]	M_y	2.19	0.12	0.16	0.36	0.13	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	3.99	0.11	0.18	0.39	0.12	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.3	17.2	3.1	5.8	0.7	19.5	19.5	G, V [NL][7]	N_t	-2.66	0.01	0.02	-0.01	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	13.01	-0.02	-0.07	0.05	0.01	
											G, V, N [NL][5]	M_y	9.69	-0.20	0.08	-0.29	0.16	
											G, V, N [NL][9]	M_z,V_y	7.96	-0.01	-0.19	0.38	0.01	
		Pie	Cumple	2.3	17.4	3.2	5.7	0.7	21.4	21.4	G, V [NL][7]	N_t	-2.59	-0.01	-0.01	-0.01	-0.01	Cumple
											G, Q [NL][1]	N_c	13.12	0.01	0.06	0.05	0.01	
											G, V, N [NL][10]	M_y	9.50	0.21	0.18	0.37	0.16	
											G, V, N [NL][5]	M_z,V_y	9.80	0.21	0.18	0.37	0.16	
											G, V, N [NL][4]	NM_yM_z	10.53	0.21	0.18	0.37	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.2	28.5	1.7	5.9	0.7	31.6	31.6	G, V [NL][7]	N_t	-4.88	0.01	0.02	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	22.08	-0.01	-0.09	0.09	0.02	
											G, V, N [NL][5]	M_y	17.10	-0.11	0.05	-0.23	0.16	
											G, V, N [NL][9]	M_z	13.01	-0.01	-0.19	0.37	0.01	
											G, V, N [NL][6]	V_y	14.10	-0.01	-0.19	0.37	0.01	
		Pie	Cumple	4.2	28.6	4.2	7.3	0.7	33.4	33.4	G, V [NL][7]	N_t	-4.81	-0.02	-0.04	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_c	22.19	0.03	0.13	0.09	0.02	
											G, V, N [NL][5]	M_y	17.21	0.28	0.23	0.38	0.16	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	18.30	0.28	0.23	0.38	0.16	

Notas:

[1] 1.35·PP+1.35·CM1+1.5·Q [NL]
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[8] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[9] 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.1257.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.3	0.7	0.6	1.0	1.0	G, Q [NL](1)	N_t	-0.46	-0.01	-0.01	-0.12	0.02	Cumple
											G, G, V, V(2)	N_c	0.27	0.00	0.00	-0.04	0.00	
											G, V, N [NL](3)	M_y	-0.29	-0.02	-0.01	-0.23	0.03	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	-0.28	-0.01	-0.02	-0.34	-0.03	
		Pie	Cumple	0.3	0.3	1.2	15.6	1.1	16.1	16.1	G, Q [NL](1)	N_t	-0.34	0.03	-0.31	-0.12	0.02	Cumple
											G, G, V, V(2)	N_c	0.34	0.00	0.25	0.23	0.00	
											G, V, N [NL](5)	M_y	-0.12	-0.08	0.10	0.41	-0.03	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	-0.21	0.02	-0.50	-0.60	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	4.2	3.1	10.1	0.9	13.4	13.4	G, V [NL](7)	N_t	-0.83	-0.01	0.02	-0.01	0.01	Cumple
											G, Q [NL](1)	N_c	4.85	0.04	-0.17	0.10	-0.04	
											G, V [NL](8)	M_y	2.02	-0.20	0.11	-0.32	0.13	
											G, V, N [NL](6)	M_z,V_y,NM_yM_z	3.40	0.03	-0.32	0.47	-0.02	
		Pie	Cumple	0.7	4.3	1.9	5.7	0.7	10.0	10.0	G, V [NL](7)	N_t	-0.77	0.01	0.00	-0.01	0.01	Cumple
											G, Q [NL](1)	N_c	4.96	-0.04	0.07	0.10	-0.04	
											G, V [NL](8)	M_y	2.09	0.12	0.16	0.35	0.13	
											G, V, N [NL](4)	M_z,V_y,NM_yM_z	3.86	0.11	0.18	0.39	0.12	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.5	16.9	3.2	5.8	0.7	19.2	19.2	G, V [NL](7)	N_t	-2.86	0.01	0.02	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	12.82	-0.02	-0.07	0.05	0.01	
											G, V, N [NL](9)	M_y	9.32	-0.21	0.08	-0.29	0.17	
											G, V, N [NL](10)	M_z,V_y	7.82	-0.01	-0.18	0.38	0.01	
		Pie	Cumple	2.4	17.1	3.2	5.6	0.7	20.9	20.9	G, V [NL](7)	N_t	-2.80	0.00	-0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	12.93	0.00	0.05	0.05	0.01	
											G, V, N [NL](5)	M_y	6.94	0.21	0.17	0.35	0.17	
											G, V, N [NL](9)	M_z,V_y	9.43	0.21	0.18	0.36	0.17	
											G, V, N [NL](4)	NM_yM_z	10.16	0.21	0.18	0.36	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	28.1	1.7	5.9	0.7	31.2	31.2	G, V [NL](7)	N_t	-5.24	0.01	0.02	-0.03	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.77	-0.02	-0.09	0.09	0.02	
											G, V, N [NL](9)	M_y	16.47	-0.11	0.05	-0.23	0.16	
											G, V, N [NL](10)	M_z	12.78	-0.01	-0.19	0.37	0.01	
											G, V, N [NL](6)	V_y	13.87	-0.01	-0.19	0.37	0.01	
		Pie	Cumple	4.5	28.2	4.2	7.1	0.7	32.7	32.7	G, V [NL](7)	N_t	-5.18	-0.02	-0.04	-0.03	-0.01	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	21.88	0.02	0.13	0.09	0.02	
											G, V, N [NL](9)	M_y	16.58	0.28	0.23	0.38	0.16	
											G, V, N [NL](4)	M_z,V_y	17.67	0.27	0.23	0.38	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

2.2.2.1.1258.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.4	0.7	0.6	1.2	1.2	G, Q [NL][1]	N_t	-0.45	-0.03	-0.01	-0.12	0.03	Cumple
											G, G, V, V[2]	N_c	0.29	0.00	0.00	-0.04	0.00	
											G, V, N [NL][3]	M_y	-0.28	-0.03	-0.01	-0.23	0.04	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	-0.26	-0.02	-0.02	-0.34	-0.02	
		Pie	Cumple	0.3	0.3	1.3	15.5	1.1	16.3	16.3	G, Q [NL][1]	N_t	-0.33	0.05	-0.31	-0.12	0.03	Cumple
											G, G, V, V[2]	N_c	0.36	-0.01	0.26	0.24	0.00	
											G, V, N [NL][3]	M_y	-0.17	0.08	-0.08	0.18	0.04	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	-0.20	0.04	-0.50	-0.60	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.8	4.2	3.1	10.0	0.9	13.4	13.4	G, V [NL][6]	N_t	-0.94	-0.02	0.02	-0.01	0.02	Cumple
											G, Q [NL][1]	N_c	4.79	0.06	-0.17	0.10	-0.05	
											G, V [NL][7]	M_y	1.91	-0.20	0.12	-0.33	0.13	
											G, V, N [NL][5]	M_z,V_y,NM_yM_z	3.36	0.04	-0.32	0.47	-0.03	
		Pie	Cumple	0.8	4.3	1.8	5.6	0.7	9.8	9.8	G, V [NL][6]	N_t	-0.88	0.02	0.00	-0.01	0.02	Cumple
											G, Q [NL][1]	N_c	4.91	-0.06	0.07	0.10	-0.05	
											G, V [NL][7]	M_y	1.97	0.12	0.15	0.35	0.13	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	3.73	0.11	0.18	0.39	0.12	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.8	16.8	3.2	5.8	0.7	19.0	19.0	G, V [NL][6]	N_t	-3.16	0.01	0.02	-0.01	0.00	Cumple
											G, Q [NL][1]	N_z,NM_yM_z	12.67	-0.02	-0.06	0.05	0.01	
											G, V, N [NL][8]	M_y	8.91	-0.21	0.08	-0.29	0.17	
											G, V, N [NL][9]	M_z,V_y	7.70	-0.01	-0.18	0.38	0.00	
		Pie	Cumple	2.7	16.9	3.2	5.6	0.7	20.3	20.3	G, V [NL][6]	N_t	-3.09	0.00	-0.01	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	12.79	0.00	0.05	0.05	0.01	
											G, V, N [NL][10]	M_y	6.56	0.21	0.16	0.35	0.17	
											G, V, N [NL][8]	M_z,V_y	9.03	0.21	0.18	0.36	0.17	
											G, V, N [NL][4]	NM_yM_z	9.75	0.21	0.18	0.36	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.0	27.8	1.7	5.8	0.7	30.8	30.8	G, V [NL][6]	N_t	-5.75	0.01	0.02	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_z,NM_yM_z	21.52	-0.01	-0.09	0.09	0.01	
											G, V, N [NL][8]	M_y	15.74	-0.11	0.06	-0.24	0.16	
											G, V, N [NL][9]	M_z	12.57	-0.01	-0.19	0.37	0.01	
											G, V, N [NL][5]	V_y	13.66	-0.01	-0.19	0.37	0.01	
		Pie	Cumple	4.9	27.9	4.2	7.0	0.7	32.3	32.3	G, V [NL][6]	N_t	-5.68	-0.02	-0.05	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_z,NM_yM_z	21.63	0.02	0.13	0.09	0.01	
											G, V, N [NL][8]	M_y	15.85	0.27	0.22	0.37	0.16	
											G, V, N [NL][4]	M_z,V_y	16.94	0.27	0.22	0.37	0.16	

Notas:

[1] 1.35·PP+1.35·CM1+1.5·Q [NL]
[2] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
[10] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.1259.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_zV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.7	0.8	0.7	1.6	0.7	1.6	G, V, N [NL][2]	N_t	-0.47	0.00	-0.01	-0.12	0.01	Cumple
												G, G, V, V[3]	N_c	0.31	0.00	0.00	-0.03	-0.01	
												G, V, N [NL][4]	M_t,M_y,M_z,V_y,NM_yM_z,M_tV_y	-0.20	-0.04	-0.02	-0.39	0.00	
		Pie	Cumple	0.3	0.3	1.4	15.3	1.1	16.2	1.0	16.2	G, V, N [NL][2]	N_t	-0.35	0.02	-0.33	-0.12	0.01	Cumple
												G, G, V, V[2]	N_c	0.38	-0.01	0.28	0.25	-0.01	
												G, V, N [NL][5]	M_y	-0.15	0.09	-0.07	0.18	0.05	
												G, V, N [NL][6]	M_z,V_y,NM_yM_z	-0.19	0.05	-0.49	-0.59	0.03	
												G, V [NL][7]	M_tV_y	0.00	-0.05	0.23	0.54	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.1	4.4	3.2	9.9	0.9	13.3	N.P.[1]	13.3	G, V [NL][8]	N_t	-1.21	-0.03	0.02	-0.01	0.02	Cumple
												G, V, N [NL][2]	N_c	5.06	0.04	-0.18	0.10	-0.03	
												G, V [NL][2]	M_y	1.97	-0.21	0.16	-0.41	0.13	
												G, V, N [NL][6]	M_z,V_y,NM_yM_z	3.23	0.05	-0.32	0.46	-0.04	
		Pie	Cumple	1.0	4.5	1.9	6.5	0.8	10.6	N.P.[1]	10.6	G, V [NL][8]	N_t	-1.14	0.02	0.00	-0.01	0.02	Cumple
												G, V, N [NL][2]	N_c	5.17	-0.04	0.08	0.10	-0.03	
												G, V [NL][2]	M_y	2.04	0.13	0.19	0.43	0.13	
												G, V, N [NL][4]	M_z,V_y,NM_yM_z	3.64	0.11	0.21	0.46	0.12	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.4	17.7	3.3	5.7	0.7	20.2	N.P.[1]	20.2	G, V [NL][8]	N_t	-3.86	0.01	0.02	-0.02	0.00	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	13.41	-0.04	-0.07	0.05	0.02	
												G, V, N [NL][9]	M_y	8.61	-0.22	0.12	-0.37	0.17	
												G, V, N [NL][10]	M_z	7.36	-0.01	-0.18	0.38	0.00	
												G, V [NL][11]	V_y	5.92	-0.21	0.14	-0.39	0.17	
		Pie	Cumple	3.3	17.9	3.3	6.6	0.8	20.9	N.P.[1]	20.9	G, V [NL][8]	N_t	-3.79	0.00	-0.01	-0.02	0.00	Cumple
												G, V, N [NL][2]	N_c	13.52	0.02	0.06	0.05	0.02	
												G, V [NL][2]	M_y	5.26	0.21	0.19	0.43	0.17	
												G, V, N [NL][9]	M_z,V_y	8.73	0.21	0.21	0.44	0.17	
												G, V, N [NL][4]	NM_yM_z	9.45	0.21	0.21	0.44	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	29.4	1.7	5.8	0.7	32.7	N.P.[1]	32.7	G, V [NL][8]	N_t	-6.93	0.01	0.03	-0.03	-0.01	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	22.79	-0.02	-0.09	0.10	0.03	
												G, V, N [NL][9]	M_y	15.28	-0.11	0.09	-0.32	0.16	
												G, V, N [NL][10]	M_z	12.00	-0.01	-0.18	0.37	0.01	
												G, V, N [NL][6]	V_y	13.09	-0.01	-0.18	0.37	0.01	
		Pie	Cumple	6.0	29.6	4.2	7.8	0.8	34.4	N.P.[1]	34.4	G, V [NL][8]	N_t	-6.87	-0.02	-0.05	-0.03	-0.01	Cumple
												G, V, N [NL][2]	N_t,NM_yM_z	22.90	0.04	0.14	0.10	0.03	
												G, V, N [NL][9]	M_y	15.39	0.27	0.25	0.44	0.16	
												G, V, N [NL][4]	M_z,V_y	16.48	0.27	0.25	0.44	0.16	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(8) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.1260.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.3	0.7	0.9	0.8	1.6	0.8	1.6	G, V, N [NL](2)	N_t	-0.47	-0.01	-0.01	-0.14	0.01	Cumple
												G, V [NL](3)	N_c	0.32	0.02	0.00	0.08	-0.02	
												G, Q [NL](4)	M_y	-0.37	-0.05	-0.01	-0.11	0.04	
												G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.14	-0.04	-0.03	-0.45	0.00	
												G, V, N [NL](6)	M_tV_y	-0.07	-0.03	-0.03	-0.42	-0.01	
		Pie	Cumple	0.3	0.3	1.4	15.1	1.2	15.9	1.2	15.9	G, V, N [NL](7)	N_t	-0.36	0.01	-0.32	-0.12	0.00	Cumple
												G, G, V, V(8)	N_c	0.40	0.00	0.24	0.23	0.00	
												G, V, N [NL](9)	M_y	-0.11	0.09	-0.07	0.18	0.05	
												G, V, N [NL](10)	M_z,NM_yM_z	-0.15	0.05	-0.48	-0.59	0.03	
												G, V [NL](11)	V_y,M_tV_y	0.05	-0.06	0.32	0.67	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	1.0	4.2	2.8	9.7	0.9	12.8	0.2	12.8	G, V [NL](3)	N_t	-1.14	-0.05	0.03	-0.02	0.04	Cumple
												G, V, N [NL](2)	N_c,M_tV_y	4.81	0.07	-0.20	0.11	-0.06	
												G, V [NL](11)	M_y,V_y	1.52	-0.18	0.22	-0.51	0.11	
												G, V, N [NL](10)	M_z,NM_yM_z	2.75	0.07	-0.31	0.46	-0.05	
		Pie	Cumple	0.9	4.3	1.7	7.3	1.0	10.8	0.4	10.8	G, V [NL](3)	N_t	-1.07	0.04	-0.01	-0.02	0.04	Cumple
												G, V, N [NL](2)	N_c	4.92	-0.07	0.08	0.11	-0.06	
												G, V, N [NL](12)	M_y	3.01	-0.11	0.13	0.26	-0.11	
												G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.15	0.08	0.23	0.53	0.09	
												G, G, V, V, N(13)	M_tV_y	4.00	-0.06	0.11	0.21	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.3	17.2	3.1	5.6	0.9	19.6	N.P.(1)	19.6	G, V [NL](3)	N_t	-3.81	0.01	0.02	-0.01	0.00	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	12.99	-0.03	-0.07	0.05	0.01	
												G, V, N [NL](14)	M_y	7.25	-0.20	0.15	-0.46	0.16	
												G, V, N [NL](15)	M_z	6.18	-0.01	-0.18	0.37	0.00	
												G, V [NL](16)	V_y	4.81	-0.20	0.18	-0.47	0.16	
		Pie	Cumple	3.3	17.3	3.2	7.5	1.0	20.0	N.P.(1)	20.0	G, V [NL](3)	N_t	-3.74	0.00	-0.01	-0.01	0.00	Cumple
												G, V, N [NL](2)	N_c	13.10	0.00	0.05	0.05	0.01	
												G, V [NL](11)	M_y	4.15	0.21	0.22	0.50	0.16	
												G, V, N [NL](14)	M_z,V_y	7.37	0.20	0.24	0.52	0.16	
												G, V, N [NL](5)	NM_yM_z	8.12	0.20	0.24	0.52	0.16	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.1	28.8	1.6	5.6	0.8	32.1	N.P.(1)	32.1	G, V [NL](3)	N_t	-6.95	0.01	0.03	-0.04	-0.01	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	22.28	-0.02	-0.10	0.10	0.02	
												G, V, N [NL](14)	M_y	13.07	-0.10	0.13	-0.40	0.15	
												G, V, N [NL](15)	M_z	10.07	-0.01	-0.18	0.36	0.01	
												G, V [NL](17)	V_y	5.12	0.00	0.16	-0.44	0.00	
		Pie	Cumple	6.0	28.9	4.1	8.3	0.9	33.7	N.P.(1)	33.7	G, V [NL](3)	N_t	-6.89	-0.01	-0.06	-0.04	-0.01	Cumple
												G, V, N [NL](2)	N_c,NM_yM_z	22.39	0.03	0.14	0.10	0.02	
												G, V, N [NL](14)	M_y	13.19	0.27	0.27	0.51	0.15	
												G, V, N [NL](5)	M_z,V_y	14.31	0.27	0.27	0.51	0.15	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(3) 0.8·PP+0.8·CM1+1.5·VH6 [NL]

(4) 1.35·PP+1.35·CM1+1.5·Q [NL]

(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(6) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

(7) 0.8·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(8) 1.35·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

(9) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(10) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

(12) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(13) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

(14) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(15) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(16) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

(17) 0.8·PP+0.8·CM1+1.5·V(270°)H2 [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1261.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.2	0.2	2.6	0.9	0.8	2.9	0.8	2.9	G, V, N [NL](2)	N_t,M_y,NM_yM_z	-0.22	-0.17	-0.01	-0.11	0.12	Cumple
												G, V [NL](3)	N_c	0.20	0.09	0.00	0.06	-0.07	
												G, V, N [NL](4)	M_z,V_y,M_tV_y	-0.02	-0.09	-0.03	-0.42	0.04	
		Pie	Cumple	0.1	0.3	2.3	13.7	1.3	14.8	1.3	14.8	G, V, N [NL](5)	N_t	-0.15	0.12	-0.25	-0.10	0.10	Cumple
												G, V [NL](6)	N_c	0.32	-0.05	0.11	0.04	-0.04	
												G, Q [NL](7)	M_y	-0.04	0.15	-0.23	-0.09	0.12	
												G, V, N [NL](8)	M_z,NM_yM_z	0.03	0.13	-0.44	-0.57	0.10	
												G, V [NL](9)	V_y,M_tV_y	0.10	-0.04	0.38	0.69	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	3.3	2.9	8.7	1.0	10.5	0.9	10.5	G, V [NL](10)	N_t	-0.83	0.00	-0.03	0.02	0.00	Cumple
												G, V, N [NL](11)	N_c	3.79	0.00	-0.09	0.06	0.00	
												G, V [NL](9)	M_y,V_y	0.44	-0.19	0.22	-0.51	0.12	
												G, V, N [NL](8)	M_z,NM_yM_z	1.94	0.01	-0.28	0.44	-0.01	
												G, V, N [NL](12)	M_tV_y	1.70	0.03	0.18	-0.46	-0.02	
		Pie	Cumple	0.7	3.4	1.7	7.0	1.0	9.3	0.9	9.3	G, V [NL](10)	N_t	-0.76	0.00	0.01	0.02	0.00	Cumple
												G, V, N [NL](11)	N_c	3.90	-0.02	0.06	0.06	0.00	
												G, V [NL](9)	M_y	0.51	0.11	0.21	0.50	0.12	
												G, V, N [NL](4)	M_z,V_y,NM_yM_z	1.73	0.10	0.22	0.51	0.11	
												G, V, N [NL](13)	M_tV_y	2.15	-0.03	0.22	0.49	-0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	1.8	11.5	3.4	5.9	0.9	12.4	N.P.(1)	12.4	G, V [NL](10)	N_t	-2.02	0.00	0.01	-0.01	0.00	Cumple
												G, V, N [NL](14)	N_c,NM_yM_z	8.69	-0.01	-0.03	0.03	0.00	
												G, V [NL](15)	M_y	3.73	-0.22	0.18	-0.47	0.17	
												G, V [NL](16)	M_z,V_y	2.50	-0.22	0.19	-0.48	0.17	
		Pie	Cumple	1.7	11.6	3.3	7.0	0.9	13.0	N.P.(1)	13.0	G, V [NL](10)	N_t	-1.95	0.00	-0.01	-0.01	0.00	Cumple
												G, V, N [NL](14)	N_c,NM_yM_z	8.81	-0.01	0.04	0.03	0.00	
												G, V [NL](9)	M_y	1.85	0.22	0.21	0.49	0.17	
												G, V, N [NL](17)	M_z,V_y	3.83	0.21	0.23	0.50	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	2.8	17.9	1.6	5.3	0.8	19.1	0.8	19.1	G, V [NL](10)	N_t	-3.24	0.00	0.00	-0.01	0.00	Cumple
												G, V, N [NL](14)	N_c,NM_yM_z	13.90	0.00	-0.04	0.04	0.01	
												G, V, N [NL](15)	M_y	7.29	-0.11	0.16	-0.43	0.15	
												G, V [NL](16)	M_z	5.18	-0.11	0.17	-0.44	0.15	
												G, V [NL](9)	V_y	4.10	-0.11	0.17	-0.44	0.15	
												G, V, N [NL](18)	M_tV_y	6.72	-0.11	0.16	-0.43	0.15	
		Pie	Cumple	2.8	18.1	4.1	7.2	0.9	20.3	0.9	20.3	G, V [NL](10)	N_t	-3.17	-0.01	-0.02	-0.01	0.00	Cumple
												G, V, N [NL](14)	N_c	14.01	0.02	0.07	0.04	0.01	
												G, V, N [NL](15)	M_y	7.40	0.27	0.23	0.48	0.15	
												G, V, N [NL](13)	M_z,V_y	9.18	-0.01	0.23	0.49	0.00	
												G, V, N [NL](4)	NM_yM_z,M_tV_y	8.50	0.27	0.23	0.48	0.15	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(3) 0.8·PP+0.8·CM1+1.5·VH6 [NL]

(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(5) 0.8·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(6) 1.35·PP+0.8·CM1+1.5·VH6 [NL]

(7) 1.35·PP+1.35·CM1+1.5·Q [NL]

(8) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]

(9) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

(10) 0.8·PP+0.8·CM1+1.5·VH5 [NL]

(11) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

(12) 1.35·PP+0.8·CM1+1.5·V(270°)H2+0.75·N(R)2 [NL]

(13) 1.35·PP+1.35·CM1+1.5·V(270°)H2+0.75·N(EI) [NL]

(14) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]

(15) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(16) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

(17) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

(18) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.1262.

Sección de acero laminado																					
Tramo	Sección	Posición	Comprobaciones												Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_t (%)	M_tV_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1015.5 cm)	HE 140 B	Cabeza	Cumple	1.2	1.8	11.9	6.8	2.9	2.5	18.2	3.8	3.0	2.5	18.2	G, G, V, V(4)	N_t	-1.43	0.34	0.14	-0.94	-0.25	
															G, V, N [NL](5)	N_c,M_y,V_z,V_y,NM_yM_z,M_t,M_tV_z,M_tV_y	2.04	-0.78	-0.22	1.34	0.59	Cumple
															G, V, N [NL](6)	M_z	2.02	-0.77	-0.22	1.34	0.59	
		Pie	Cumple	1.2	1.8	10.5	0.5	2.9	2.5	12.4	3.8	3.0	2.5	12.4	G, G, V, V(4)	N_t	-1.42	0.30	0.00	-0.94	-0.25	
															G, V, N [NL](5)	N_c,M_y,V_z,V_y,NM_yM_z,M_t,M_tV_z,M_tV_y	2.04	-0.69	-0.01	1.34	0.59	Cumple
															G, V, N [NL](7)	M_z	0.95	-0.31	-0.02	0.80	0.24	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.2	2.1	10.6	13.7	2.3	0.6	22.2	< 0.1	2.3	0.6	22.2	G, G, V, V(8)	N_t	-1.39	0.30	0.21	-0.16	-0.19	
															G, V, N [NL](6)	N_c	2.37	-0.69	-0.43	0.34	0.46	Cumple
															G, V, N [NL](5)	M_y,M_z,V_z,V_y,NM_yM_z,M_tV_z,M_tV_y	2.35	-0.69	-0.44	0.35	0.46	
															G, V, N [NL](9)	M_t	2.19	-0.55	-0.37	0.29	0.37	
		Pie	Cumple	1.2	2.2	7.5	14.2	2.3	0.6	20.5	< 0.1	2.3	0.6	20.5	G, G, V, V(8)	N_t	-1.32	-0.20	-0.21	-0.16	-0.19	
															G, V, N [NL](6)	N_c	2.49	0.49	0.45	0.34	0.46	Cumple
															G, V, N [NL](5)	M_y,M_z,V_z,V_y,NM_yM_z,M_tV_z,M_tV_y	2.47	0.49	0.45	0.35	0.46	
															G, V, N [NL](9)	M_t	2.30	0.39	0.37	0.29	0.37	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	3.9	7.6	12.1	1.6	0.5	20.0	0.2	1.6	0.5	20.0	G, G, V, V(8)	N_t	-0.80	0.23	-0.17	0.13	-0.15	
															G, V, N [NL](6)	N_c,M_z,V_y,NM_yM_z,M_tV_y	4.47	-0.47	0.39	-0.29	0.32	Cumple
															G, V, N [NL](10)	M_y	2.63	-0.50	0.26	-0.19	0.31	
															G, V, N [NL](5)	V_z,M_t,M_tV_z	3.97	-0.47	0.39	-0.28	0.32	
		Pie	Cumple	0.6	4.0	4.9	10.3	1.6	0.5	17.1	0.2	1.6	0.5	17.1	G, G, V, V(8)	N_t	-0.73	-0.15	0.14	0.13	-0.15	
															G, V, N [NL](6)	N_c,M_z,V_y,NM_yM_z,M_tV_y	4.59	0.32	-0.33	-0.29	0.32	Cumple
															G, V, N [NL](5)	M_y,V_z,M_t,M_tV_z	4.09	0.32	-0.33	-0.28	0.32	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	N.P.(1)	5.3	2.3	3.5	0.7	0.2	8.5	N.P.(2)	N.P.(3)	N.P.(3)	8.5	G, V, N [NL](6)	N_c,NM_yM_z	6.13	-0.06	0.08	-0.08	0.08	
															G, V, N [NL](10)	M_y,V_z	3.86	-0.15	0.05	-0.05	0.15	Cumple
															G, V, N [NL](11)	M_z,V_y	4.56	-0.03	0.11	-0.10	0.05	
		Pie	Cumple	N.P.(1)	5.4	3.3	4.2	0.7	0.2	10.1	N.P.(2)	N.P.(3)	N.P.(3)	10.1	G, V, N [NL](6)	N_c,NM_yM_z	6.25	0.14	-0.11	-0.08	0.08	
															G, V, N [NL](10)	M_y,V_z	3.98	0.22	-0.07	-0.05	0.15	Cumple
															G, V, N [NL](11)	M_z,V_y	4.68	0.09	-0.14	-0.10	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	N.P.(1)	6.7	1.1	1.6	0.7	0.1	7.7	0.2	0.7	0.1	7.7	G, V, N [NL](6)	N_c	7.72	-0.04	0.01	-0.01	0.06	
															G, V, N [NL](10)	M_y,V_z,M_tV_z	5.05	-0.07	0.00	-0.01	0.15	
															G, G, V, V, N(12)	M_z,V_y,M_tV_y	1.20	0.01	-0.05	0.05	-0.02	Cumple
															G, V, N [NL](9)	NM_yM_z	7.41	-0.04	-0.03	0.03	0.05	
															G, V, N [NL](5)	M_t	6.24	-0.04	0.00	-0.01	0.06	
		Pie	Cumple	N.P.(1)	6.8	4.4	2.1	0.7	0.1	10.6	0.2	0.7	0.1	10.6	G, V, N [NL](6)	N_c	7.83	0.10	-0.02	-0.01	0.06	
															G, V, N [NL](10)	M_y,V_z,M_tV_z	5.16	0.29	-0.01	-0.01	0.15	
															G, G, V, V, N(12)	M_z,V_y,M_tV_y	1.26	-0.03	0.07	0.05	-0.02	Cumple
															G, V, N [NL](7)	NM_yM_z	6.64	0.29	-0.01	-0.01	0.15	
															G, V, N [NL](5)	M_t	6.35	0.10	-0.02	-0.01	0.06	

Notas:
(1) La comprobación no procede, ya que no hay axil de tracción.
(2) La comprobación no procede, ya que no hay momento torsor.
(3) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(4) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(12) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1263.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_t (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1031 cm)	HE 140 B	Cabeza	Cumple	1.1	0.7	3.6	2.6	5.1	3.5	2.6	5.1	G, V, N [NL][3]	N_c,M_z,NM_yM_z	1.25	-0.05	-0.12	-0.01	-0.52	Cumple
												G, V, N [NL][*7]	M_y,V_z,M_t,M_tV_z	1.25	-0.05	-0.11	-0.02	-0.52	
		Pie	Cumple	1.1	3.1	3.8	2.6	6.8	3.5	2.6	6.8	G, V, N [NL][12]	N_c	1.26	-0.21	-0.12	-0.01	-0.52	Cumple
												G, V, N [NL][4]	M_y,M_z,V_z,NM_yM_z,M_t,M_tV_z	1.26	-0.21	-0.12	-0.02	-0.52	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.3	2.7	11.7	0.3	14.5	0.2	0.3	14.5	G, V, N [NL][3]	N_c,NM_yM_z	1.54	-0.17	-0.37	0.29	0.00	Cumple
												G, V, N [NL][*7]	M_y,M_z	1.48	-0.17	-0.37	0.29	0.00	
												G, V, N [NL][12]	V_z,M_tV_z	0.83	-0.10	-0.25	0.19	-0.06	
												G, V, N [NL][*6]	M_t	1.31	-0.16	-0.34	0.27	-0.01	
		Pie	Cumple	1.4	4.1	11.5	0.3	14.5	0.2	0.3	14.5	G, V, N [NL][12]	N_c,NM_yM_z	1.66	-0.18	0.37	0.29	0.00	Cumple
												G, V, N [NL][*7]	M_y	0.89	-0.27	0.24	0.19	-0.06	
												G, V, N [NL][*7]	M_z	1.59	-0.18	0.37	0.29	0.00	
												G, V, N [NL][5]	V_z,M_tV_z	0.95	-0.27	0.24	0.19	-0.06	
												G, V, N [NL][6]	M_t	1.43	-0.19	0.34	0.27	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.7	4.1	14.5	0.6	18.7	0.3	0.6	18.7	G, V, N [NL][3]	N_c,M_z,NM_yM_z	3.09	-0.16	0.46	-0.32	0.10	Cumple
												G, V, N [NL][*7]	M_y,V_z,M_tV_z	1.79	-0.27	0.31	-0.22	0.12	
												G, V, N [NL][*6]	M_t	2.53	-0.16	0.46	-0.32	0.10	
		Pie	Cumple	2.8	1.3	10.7	0.6	14.3	0.3	0.6	14.3	G, V, N [NL][12]	N_c,M_y,M_z,NM_yM_z	3.20	0.08	-0.34	-0.32	0.10	Cumple
												G, V, N [NL][7]	V_z,M_tV_z	1.90	0.02	-0.23	-0.22	0.12	
												G, V, N [NL][4]	M_t	2.64	0.08	-0.34	-0.32	0.10	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.0	1.2	2.1	0.2	5.7	0.1	0.2	5.7	G, V, N [NL][3]	N_c,M_y	4.56	0.08	0.02	-0.04	0.02	Cumple
												G, V, N [NL][*8]	M_z	2.61	0.05	0.07	-0.07	0.02	
												G, V, N [NL][*7]	V_z,M_tV_z	2.75	0.02	0.02	-0.03	0.05	
												G, V, N [NL][*9]	NM_yM_z	3.75	0.05	0.07	-0.07	0.02	
												G, V, N [NL][*6]	M_t	3.51	0.08	0.02	-0.04	0.02	
		Pie	Cumple	4.1	2.0	3.3	0.2	7.6	0.1	0.2	7.6	G, V, N [NL][12]	N_c,NM_yM_z	4.68	0.12	-0.08	-0.04	0.02	Cumple
												G, V, N [NL][*7]	M_y,V_z,M_tV_z	2.87	0.13	-0.05	-0.03	0.05	
												G, V, N [NL][8]	M_z	2.73	0.09	-0.11	-0.07	0.02	
												G, V, N [NL][4]	M_t	3.62	0.12	-0.08	-0.04	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.2	2.0	1.4	0.3	7.2	N.P.[1]	N.P.[2]	7.2	G, V, N [NL][3]	N_c	6.02	0.12	0.00	-0.01	-0.06	Cumple
												G, V, N [NL][7]	M_y	3.71	0.13	0.00	-0.01	0.02	
												G, V, N [NL][10]	M_z	3.41	0.06	-0.05	0.04	-0.02	
												G, V, N [NL][4]	V_z	4.47	0.12	0.00	-0.01	-0.06	
												G, V, N [NL][11]	NM_yM_z	5.98	0.09	-0.03	0.02	-0.05	
		Pie	Cumple	5.3	2.6	2.0	0.3	7.6	N.P.[1]	N.P.[2]	7.6	G, V, N [NL][3]	N_c	6.13	-0.02	-0.01	-0.01	-0.06	Cumple
												G, V, N [NL][5]	M_y,NM_yM_z	5.37	0.17	-0.01	-0.01	0.02	
												G, G, V, V, N[12]	M_z	2.04	0.00	0.06	0.04	0.02	
												G, V, N [NL][4]	V_z	4.58	-0.02	-0.01	-0.01	-0.06	

Notas:
[1] La comprobación no procede, ya que no hay momento torsor.
[2] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[3] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]
[8] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[9] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(0º)H2+0.75·N(R)2 [NL]
[11] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[12] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2+0.75·N(R) 2 [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1264.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_t (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1046.6 cm)	HE 140 B	Cabeza	Cumple	1.7	3.5	56.2	4.2	8.9	62.1	2.2	9.0	62.1	G, G, V, V[4]	N_t	-1.94	1.52	0.05	-0.02	-0.73	Cumple
													G, V, N [NL][5]	N_z,M_y,V_z,NM_yM_z,M_t,M_yV_z	4.06	-3.68	-0.13	0.08	1.79	
													G, V, N [NL][6]	M_z	4.06	-3.68	-0.13	0.08	1.79	
		Pie	Cumple	1.7	3.6	43.5	3.1	8.9	48.7	2.2	9.0	48.7	G, G, V, V[4]	N_t	-1.93	1.18	0.04	-0.02	-0.73	Cumple
													G, V, N [NL][5]	N_t,M_y,V_z,NM_yM_z,M_t,M_yV_z	4.08	-2.85	-0.10	0.08	1.79	
													G, V, N [NL][6]	M_z	4.08	-2.84	-0.10	0.08	1.79	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.5	3.8	44.0	12.7	5.8	57.0	0.1	5.8	57.0	G, G, V, V[7]	N_t	-1.70	1.18	0.17	-0.15	-0.48	Cumple
													G, V, N [NL][9]	N_t	4.38	-2.88	-0.41	0.34	1.18	
													G, V, N [NL][5]	M_t,M_z,V_z,NM_yM_z,M_yV_z	4.29	-2.88	-0.41	0.34	1.18	
													G, V, N [NL][8]	M_t	2.27	-1.50	-0.27	0.23	0.55	
		Pie	Cumple	1.4	3.9	2.6	14.9	5.8	20.4	0.1	5.8	20.4	G, G, V, V[7]	N_t	-1.63	-0.06	-0.20	-0.15	-0.48	Cumple
													G, V, N [NL][8]	N_t,NM_yM_z	4.50	0.17	0.48	0.34	1.18	
													G, V, N [NL][9]	M_y	4.36	0.17	0.46	0.33	1.16	
													G, V, N [NL][5]	M_z,V_z,M_yV_z	4.41	0.17	0.48	0.34	1.18	
													G, V, N [NL][8]	M_t	2.38	-0.07	0.32	0.23	0.55	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	5.0	1.6	10.8	0.3	16.7	0.1	0.3	16.7	G, G, V, V[7]	N_t	-0.82	-0.03	-0.16	0.12	-0.03	Cumple
													G, V, N [NL][8]	N_t,M_z,NM_yM_z,M_t	5.77	0.09	0.34	-0.26	0.06	
													G, V, N [NL][10]	M_y	2.93	-0.11	0.17	-0.13	0.06	
													G, V, N [NL][8]	V_z	3.19	-0.10	0.23	-0.17	0.07	
													G, V, N [NL][11]	M_tV_z	4.70	0.04	0.32	-0.24	0.06	
		Pie	Cumple	0.7	5.1	3.6	9.5	0.3	16.8	0.1	0.3	16.8	G, G, V, V[7]	N_t	-0.75	-0.10	0.14	0.12	-0.03	Cumple
													G, V, N [NL][8]	N_t,M_z,NM_yM_z,M_t	5.88	0.24	-0.30	-0.26	0.06	
													G, V, N [NL][5]	M_y	5.30	0.24	-0.30	-0.26	0.06	
													G, V, N [NL][8]	V_z	3.30	0.07	-0.20	-0.17	0.07	
													G, V, N [NL][11]	M_tV_z	4.82	0.19	-0.28	-0.24	0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	N.P.[1]	6.3	3.5	2.4	0.2	10.7	N.P.[2]	N.P.[3]	10.7	G, V, N [NL][8]	N_t,NM_yM_z	7.19	0.23	0.04	-0.05	-0.05	Cumple
													G, V, N [NL][5]	M_y	6.11	0.23	0.04	-0.05	-0.05	
													G, V, N [NL][12]	M_z	5.35	0.12	0.08	-0.07	-0.02	
													G, V, N [NL][9]	V_z	6.06	0.22	0.04	-0.04	-0.05	
		Pie	Cumple	N.P.[1]	6.4	2.1	3.4	0.2	9.8	N.P.[2]	N.P.[3]	9.8	G, V, N [NL][8]	N_t,NM_yM_z	7.31	0.10	-0.08	-0.05	-0.05	Cumple
													G, V, N [NL][10]	M_y	4.24	0.14	-0.05	-0.03	0.03	
													G, V, N [NL][12]	M_z	5.46	0.08	-0.11	-0.07	-0.02	
													G, V, N [NL][9]	V_z	6.17	0.10	-0.07	-0.04	-0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	N.P.[1]	11.1	2.1	1.5	0.2	12.1	N.P.[2]	N.P.[3]	12.1	G, V, N [NL][8]	N_t	8.62	0.10	0.00	0.00	-0.04	Cumple
													G, V, N [NL][8]	M_y	5.06	0.14	0.00	0.00	0.03	
													G, V, N [NL][13]	M_z	4.59	0.05	-0.05	0.04	-0.01	
													G, V, N [NL][9]	V_z	6.99	0.10	0.00	0.00	-0.04	
													G, V, N [NL][14]	NM_yM_z	8.08	0.08	-0.03	0.03	-0.03	
		Pie	Cumple	N.P.[1]	11.3	3.1	1.9	0.2	11.7	N.P.[2]	N.P.[3]	11.7	G, V, N [NL][8]	N_t,NM_yM_z	8.73	0.01	-0.01	0.00	-0.04	Cumple
													G, V, N [NL][15]	M_y	6.75	0.20	-0.01	0.00	0.03	
													G, G, V, V, N[16]	M_z	1.33	-0.01	0.06	0.04	0.01	
													G, V, N [NL][9]	V_z	7.10	0.01	-0.01	0.00	-0.04	

Notas:

[1] La comprobación no procede, ya que no hay axil de tracción.
[2] La comprobación no procede, ya que no hay momento torsor.
[3] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
[10] 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[11] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[12] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[13] 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
[14] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[15] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[16] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1265.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_t (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1062.1 cm)	HE 140 B	Cabeza	Cumple	1.1	0.4	3.1	1.3	4.4	1.6	1.3	4.4	G, V, N [NL] [3]	N_c,M_z,NM_yM_z	1.23	-0.03	-0.10	0.09	-0.26	Cumple
												G, V, N [NL] [4]	M_y,V_z,M_tV_z	1.23	-0.03	-0.10	0.09	-0.26	
		Pie	Cumple	1.1	2.9	1.4	1.3	4.9	1.6	1.3	4.9	G, V, N [NL] [3]	N_c,M_z,NM_yM_z	1.26	-0.19	-0.05	0.09	-0.26	Cumple
												G, V, N [NL] [4]	M_y,V_z,M_tV_z	1.26	-0.19	-0.04	0.09	-0.26	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.5	2.6	11.2	0.4	14.1	0.3	0.4	14.1	G, V, N [NL] [3]	N_c,NM_yM_z	1.72	-0.17	-0.36	0.27	0.09	Cumple
												G, V, N [NL] [4]	M_y,M_z,V_z,M_tV_z	1.59	-0.17	-0.36	0.27	0.09	
												G, V, N [NL] [5]	M_t	0.88	-0.11	-0.24	0.18	0.00	
		Pie	Cumple	1.6	1.7	10.3	0.4	12.5	0.3	0.4	12.5	G, V, N [NL] [3]	N_c,NM_yM_z	1.83	0.07	0.33	0.27	0.09	Cumple
												G, V, N [NL] [6]	M_y	1.05	-0.11	0.21	0.17	0.00	
												G, V, N [NL] [7]	M_z,V_z,M_tV_z	1.71	0.07	0.33	0.27	0.09	
												G, V, N [NL] [5]	M_t	1.00	-0.11	0.22	0.18	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.8	2.2	16.1	0.3	19.3	0.4	0.3	19.3	G, V, N [NL] [3]	N_c,M_z,NM_yM_z	3.27	0.02	0.51	-0.35	-0.01	Cumple
												G, V, N [NL] [7]	M_y,V_z,M_tV_z	2.51	-0.14	0.34	-0.24	0.05	
												G, V, N [NL] [4]	M_t	2.64	0.02	0.51	-0.35	-0.01	
		Pie	Cumple	2.9	0.5	11.6	0.3	14.7	0.4	0.3	14.7	G, V, N [NL] [3]	N_c,M_z,NM_yM_z	3.38	0.00	-0.37	-0.35	-0.01	Cumple
												G, V, N [NL] [8]	M_y	1.99	-0.03	-0.12	-0.11	0.01	
												G, V, N [NL] [7]	V_z,M_tV_z	2.63	-0.01	-0.25	-0.24	0.05	
												G, V, N [NL] [4]	M_t	2.76	0.00	-0.37	-0.35	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.1	0.4	1.8	0.3	5.7	0.1	0.3	5.7	G, V, N [NL] [3]	N_c	4.72	0.00	0.00	-0.02	0.02	Cumple
												G, V, N [NL] [8]	M_y	3.32	-0.03	0.00	-0.01	0.01	
												G, V, N [NL] [9]	M_z	3.83	-0.01	-0.06	0.04	0.01	
												G, V, N [NL] [7]	V_z,M_tV_z	2.84	-0.01	0.00	-0.02	0.05	
												G, V, N [NL] [11]	NM_yM_z	4.68	0.00	-0.05	0.02	0.02	
												G, V, N [NL] [4]	M_t	3.60	0.00	0.00	-0.02	0.02	
		Pie	Cumple	4.2	1.8	2.9	0.3	6.8	0.1	0.3	6.8	G, V, N [NL] [3]	N_c	4.83	0.05	-0.06	-0.02	0.02	Cumple
												G, V, N [NL] [5]	M_y,V_z,M_tV_z	2.96	0.12	-0.04	-0.02	0.05	
												G, V, N [NL] [11]	M_z	3.94	0.05	-0.09	-0.06	0.02	
												G, V, N [NL] [12]	NM_yM_z	4.02	0.05	-0.09	-0.06	0.02	
												G, V, N [NL] [4]	M_t	3.71	0.05	-0.06	-0.02	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.4	1.8	1.4	0.2	6.6	N.P. [1]	N.P. [2]	6.6	G, V, N [NL] [3]	N_c	6.16	0.05	0.00	-0.01	0.00	Cumple
												G, V, N [NL] [5]	M_y	3.79	0.12	0.00	-0.01	0.04	
												G, V, N [NL] [13]	M_z	3.01	0.02	-0.04	0.04	0.01	
												G, V, N [NL] [7]	V_z	5.40	0.12	0.00	-0.01	0.04	
												G, V, N [NL] [10]	NM_yM_z	6.13	0.04	-0.03	0.03	0.00	
		Pie	Cumple	5.5	3.4	1.9	0.2	8.5	N.P. [1]	N.P. [2]	8.5	G, V, N [NL] [3]	N_c	6.27	0.06	-0.01	-0.01	0.00	Cumple
												G, V, N [NL] [5]	M_y	3.90	0.22	-0.01	-0.01	0.04	
												G, G, V, V, N [14]	M_z	2.13	-0.02	0.06	0.04	0.00	
												G, V, N [NL] [7]	V_z,NM_yM_z	5.52	0.22	-0.01	-0.01	0.04	

Notas:

[1] La comprobación no procede, ya que no hay momento torsor.

[2] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[3] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[8] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[9] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]

[10] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

[11] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

[12] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]

[13] 0.8·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

[14] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1266.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1077.6 cm)	HE 140 B	Cabeza	Cumple	1.1	0.1	1.7	2.8	2.8	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.21	0.00	-0.05	-0.07	0.09	Cumple
									G, V, N [NL](2)	M_y	1.21	0.00	-0.05	-0.07	0.09	
		Pie	Cumple	1.1	1.1	3.5	5.1	5.1	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.25	0.07	-0.11	-0.07	0.09	Cumple
									G, V, N [NL](2)	M_y	1.25	0.07	-0.11	-0.07	0.09	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.5	1.0	12.3	14.4	14.4	G, V, N [NL](1)	N_c,NM_yM_z	1.76	0.07	-0.39	0.33	0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	1.60	0.07	-0.39	0.33	0.02	
		Pie	Cumple	1.6	1.7	14.5	17.1	17.1	G, V, N [NL](1)	N_c,NM_yM_z	1.88	0.11	0.46	0.33	0.02	Cumple
									G, V, N [NL](3)	M_y	1.71	0.11	0.45	0.32	0.02	
									G, V, N [NL](2)	M_z	1.72	0.11	0.46	0.33	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.8	1.6	10.4	14.2	14.2	G, V, N [NL](4)	N_c	3.20	0.08	0.20	-0.15	-0.05	Cumple
									G, V, N [NL](3)	M_y	2.55	0.10	0.32	-0.24	-0.06	
									G, V, N [NL](1)	M_z,NM_yM_z	3.20	0.10	0.33	-0.25	-0.06	
		Pie	Cumple	2.9	0.6	9.4	12.7	12.7	G, V, N [NL](4)	N_c	3.32	-0.03	-0.18	-0.15	-0.05	Cumple
									G, Q [NL](5)	M_y	2.26	-0.04	-0.25	-0.21	-0.03	
									G, V, N [NL](1)	M_z,NM_yM_z	3.32	-0.04	-0.30	-0.25	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.0	0.5	2.1	5.7	5.7	G, V, N [NL](1)	N_c	4.64	-0.03	0.03	-0.04	0.01	Cumple
									G, Q [NL](5)	M_y	3.09	-0.04	0.02	-0.03	0.02	
									G, V, N [NL](6)	M_z	3.80	-0.03	0.07	-0.07	0.02	
									G, V, N [NL](7)	NM_yM_z	3.87	-0.03	0.07	-0.07	0.02	
		Pie	Cumple	4.1	1.5	3.1	6.7	6.7	G, V, N [NL](1)	N_c	4.75	0.00	-0.07	-0.04	0.01	Cumple
									G, V, N [NL](8)	M_y	2.92	0.10	-0.04	-0.03	0.05	
									G, V, N [NL](6)	M_z	3.92	0.02	-0.10	-0.07	0.02	
									G, V, N [NL](7)	NM_yM_z	3.99	0.02	-0.10	-0.07	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.3	1.5	1.4	6.3	6.3	G, V, N [NL](9)	N_c,NM_yM_z	6.08	0.00	-0.03	0.03	0.02	Cumple
									G, V, N [NL](8)	M_y	3.75	0.10	0.00	0.00	0.05	
									G, V, N [NL](10)	M_z	3.60	0.01	-0.05	0.04	0.02	
		Pie	Cumple	5.4	3.3	1.9	8.3	8.3	G, V, N [NL](9)	N_c	6.19	0.04	0.04	0.03	0.02	Cumple
									G, V, N [NL](8)	M_y	3.86	0.22	-0.01	0.00	0.05	
									G, G, V, V, N(11)	M_z	2.35	-0.02	0.06	0.04	-0.01	
									G, V, N [NL](12)	NM_yM_z	5.51	0.22	-0.01	0.00	0.05	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·Q [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1267.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1093.1 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	1.3	2.4	2.4	G, V, N [NL][1]	N_c,M_z,NM_yM_z	1.21	0.00	-0.04	-0.02	0.01	Cumple
									G, V, N [NL][2]	M_y	1.21	0.00	-0.04	-0.02	0.01	
		Pie	Cumple	1.1	0.2	1.9	3.0	3.0	G, V, N [NL][1]	N_c,M_z,NM_yM_z	1.25	0.01	-0.06	-0.02	0.01	Cumple
									G, V, N [NL][2]	M_y	1.25	0.01	-0.06	-0.02	0.01	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.6	0.2	9.9	11.7	11.7	G, V, N [NL][1]	N_c,NM_yM_z	1.84	0.01	-0.32	0.23	0.02	Cumple
									G, V, N [NL][2]	M_y,M_z	1.65	0.01	-0.32	0.23	0.02	
		Pie	Cumple	1.7	0.8	8.9	11.1	11.1	G, V, N [NL][1]	N_c,NM_yM_z	1.96	0.05	0.28	0.23	0.02	Cumple
									G, V, N [NL][3]	M_y	1.77	0.05	0.28	0.23	0.02	
									G, V, N [NL][2]	M_z	1.77	0.05	0.28	0.23	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.0	1.5	15.8	19.8	19.8	G, V, N [NL][1]	N_c,M_z,NM_yM_z	3.40	-0.10	0.51	-0.35	0.05	Cumple
									G, V, N [NL][2]	M_y	2.72	-0.10	0.51	-0.35	0.05	
		Pie	Cumple	3.1	0.7	11.5	14.9	14.9	G, V, N [NL][1]	N_c,M_z,NM_yM_z	3.52	0.02	-0.37	-0.35	0.05	Cumple
									G, V, N [NL][4]	M_y	2.10	0.05	-0.24	-0.23	0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.2	0.7	1.8	6.1	6.1	G, V, N [NL][1]	N_c	4.84	0.02	-0.01	-0.01	0.00	Cumple
									G, V, N [NL][4]	M_y	2.92	0.04	-0.01	-0.01	0.03	
									G, V, N [NL][5]	M_z	3.99	0.00	-0.06	0.04	0.00	
									G, V, N [NL][6]	NM_yM_z	4.82	0.01	-0.06	0.03	0.00	
		Pie	Cumple	4.3	1.7	2.6	6.4	6.4	G, V, N [NL][1]	N_c	4.95	0.01	-0.05	-0.01	0.00	Cumple
									G, V, N [NL][4]	M_y	3.04	0.11	-0.03	-0.01	0.03	
									G, V, N [NL][7]	M_z	4.08	0.02	-0.08	-0.05	0.00	
									G, V, N [NL][8]	NM_yM_z	4.15	0.03	-0.08	-0.05	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	1.7	1.4	6.7	6.7	G, V, N [NL][1]	N_c	6.28	0.02	0.00	-0.01	0.01	Cumple
									G, V, N [NL][4]	M_y	3.87	0.11	0.00	-0.01	0.03	
									G, G, V, V, N[9]	M_z	2.40	-0.01	-0.04	0.04	0.00	
									G, V, N [NL][10]	NM_yM_z	5.55	0.11	0.00	-0.01	0.03	
		Pie	Cumple	5.6	3.0	1.9	8.1	8.1	G, V, N [NL][1]	N_c	6.39	0.03	-0.01	-0.01	0.01	Cumple
									G, V, N [NL][4]	M_y	3.98	0.19	-0.01	-0.01	0.03	
									G, G, V, V, N[9]	M_z	2.46	-0.01	0.06	0.04	0.00	
									G, V, N [NL][10]	NM_yM_z	5.66	0.19	-0.01	-0.01	0.03	

Notas:

[1] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
[9] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[10] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1268.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1108.6 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.9	1.9	1.9	G, V, N [NL](1)	N_c	1.21	0.00	-0.03	-0.06	0.00	Cumple
									G, V, N [NL](2)	M_y	1.21	0.00	-0.03	-0.06	0.00	
									G, V, N [NL](3)	M_z,NM_yM_z	1.21	0.00	-0.03	-0.04	0.00	
		Pie	Cumple	1.1	0.1	2.9	4.0	4.0	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.26	0.00	-0.09	-0.06	0.00	Cumple
									G, V, N [NL](2)	M_y	1.26	0.00	-0.09	-0.06	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.7	0.1	10.8	12.6	12.6	G, V, N [NL](1)	N_c,NM_yM_z	1.93	0.00	-0.34	0.29	-0.01	Cumple
									G, V, N [NL](4)	M_y	1.93	0.00	-0.34	0.29	-0.01	
									G, V, N [NL](5)	M_z	1.71	0.00	-0.35	0.29	-0.01	
		Pie	Cumple	1.8	0.5	12.9	15.1	15.1	G, V, N [NL](1)	N_c,NM_yM_z	2.05	-0.03	0.41	0.29	-0.01	Cumple
									G, V, N [NL](5)	M_y,M_z	1.83	-0.03	0.41	0.29	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.0	0.5	9.4	12.7	12.7	G, V, N [NL](1)	N_c,M_z,NM_yM_z	3.40	-0.03	0.30	-0.23	0.00	Cumple
									G, V, N [NL](5)	M_y	2.68	-0.03	0.30	-0.23	0.00	
		Pie	Cumple	3.1	0.6	8.6	12.0	12.0	G, V, N [NL](1)	N_c,M_z,NM_yM_z	3.51	-0.03	-0.28	-0.23	0.00	Cumple
									G, V [NL](6)	M_y	1.61	0.04	-0.11	-0.09	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.2	0.6	1.9	5.5	5.5	G, V, N [NL](1)	N_c	4.83	-0.03	0.02	-0.03	0.02	Cumple
									G, V [NL](6)	M_y	2.40	0.04	0.01	-0.01	0.03	
									G, V, N [NL](7)	M_z,NM_yM_z	3.98	-0.01	0.06	-0.06	0.01	
		Pie	Cumple	4.3	1.8	2.7	6.6	6.6	G, V, N [NL](1)	N_c	4.94	0.02	-0.05	-0.03	0.02	Cumple
									G, V, N [NL](8)	M_y	3.03	0.12	-0.03	-0.02	0.03	
									G, V, N [NL](7)	M_z	4.10	0.03	-0.09	-0.06	0.01	
									G, V, N [NL](9)	NM_yM_z	4.17	0.03	-0.09	-0.06	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	1.8	1.4	6.7	6.7	G, V, N [NL](1)	N_c	6.27	0.02	0.00	0.00	0.01	Cumple
									G, V, N [NL](8)	M_y	3.87	0.12	0.00	0.00	0.03	
									G, V, N [NL](10)	M_z	3.80	0.02	-0.04	0.04	0.01	
									G, V, N [NL](11)	NM_yM_z	5.58	0.12	0.00	0.00	0.03	
		Pie	Cumple	5.6	3.0	1.8	8.1	8.1	G, V, N [NL](1)	N_c	6.38	0.04	-0.01	0.00	0.01	Cumple
									G, V, N [NL](8)	M_y	3.98	0.19	-0.01	0.00	0.03	
									G, G, V, V, N(12)	M_z	2.53	-0.02	0.06	0.04	0.00	
									G, V, N [NL](11)	NM_yM_z	5.69	0.19	-0.01	0.00	0.03	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)2 [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(6) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(12) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1269.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1124.1 cm)	HE 140 B	Cabeza	Cumple	1.0	< 0.1	0.7	1.7	1.7	G, V, N [NL](1)	N_c	1.20	0.00	-0.02	-0.02	0.00	Cumple
									G, V, N [NL](2)	M_y	1.20	0.00	-0.02	-0.02	0.00	
									G, V, N [NL](3)	M_z,NM_yM_z	1.20	0.00	-0.02	-0.01	0.00	
		Pie	Cumple	1.1	0.1	1.6	2.7	2.7	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.26	0.00	-0.05	-0.02	0.00	Cumple
									G, V, N [NL](2)	M_y	1.26	0.00	-0.05	-0.02	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.8	< 0.1	8.3	10.1	10.1	G, V, N [NL](1)	N_c,NM_yM_z	2.01	0.00	-0.27	0.19	0.03	Cumple
									G, V, N [NL](2)	M_y,M_z	1.76	0.00	-0.27	0.20	0.03	
		Pie	Cumple	1.9	1.0	7.4	9.8	9.8	G, V, N [NL](1)	N_c,NM_yM_z	2.13	0.06	0.24	0.19	0.03	Cumple
									G, V, N [NL](2)	M_y,M_z	1.87	0.06	0.24	0.20	0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.1	1.9	13.7	18.0	18.0	G, V, N [NL](1)	N_c,M_z,NM_yM_z	3.60	-0.12	0.44	-0.30	0.04	Cumple
									G, V, N [NL](2)	M_y	2.85	-0.12	0.44	-0.30	0.04	
		Pie	Cumple	3.2	0.7	10.0	13.6	13.6	G, V, N [NL](1)	N_c,M_z,NM_yM_z	3.72	-0.04	-0.32	-0.30	0.04	Cumple
									G, V, N [NL](4)	M_y	1.79	0.05	-0.16	-0.15	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.4	0.7	1.8	6.4	6.4	G, V, N [NL](1)	N_c	5.04	-0.04	-0.01	-0.01	0.02	Cumple
									G, V [NL](5)	M_y	2.49	0.05	-0.01	0.00	0.03	
									G, V, N [NL](6)	M_z	3.76	-0.03	-0.06	0.03	0.01	
									G, V, N [NL](7)	NM_yM_z	5.00	-0.03	-0.06	0.03	0.01	
		Pie	Cumple	4.5	1.9	2.3	6.2	6.2	G, V, N [NL](1)	N_c	5.15	0.00	-0.03	-0.01	0.02	Cumple
									G, V, N [NL](8)	M_y	3.16	0.12	-0.02	-0.01	0.03	
									G, V, N [NL](9)	M_z	4.27	0.02	-0.07	-0.04	0.01	
									G, V, N [NL](10)	NM_yM_z	4.34	0.02	-0.07	-0.04	0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.6	1.9	1.3	7.0	7.0	G, V, N [NL](1)	N_c	6.48	0.00	0.00	-0.01	0.02	Cumple
									G, V, N [NL](8)	M_y	3.99	0.12	0.00	0.00	0.03	
									G, G, V, V, N(11)	M_z	2.49	0.00	-0.04	0.04	-0.01	
									G, V, N [NL](12)	NM_yM_z	5.73	0.12	0.00	0.00	0.03	
		Pie	Cumple	5.7	3.1	1.8	8.4	8.4	G, V, N [NL](1)	N_c	6.59	0.05	-0.01	-0.01	0.02	Cumple
									G, V, N [NL](8)	M_y	4.10	0.20	-0.01	0.00	0.03	
									G, G, V, V, N(11)	M_z	2.55	-0.02	0.06	0.04	-0.01	
									G, V, N [NL](12)	NM_yM_z	5.84	0.20	-0.01	0.00	0.03	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(6) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(10) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(11) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

Listados

2.2.2.1.1270.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1139.7 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.4	1.5	1.5	G, V, N [NL](1)	N_c	1.21	0.00	-0.01	-0.05	0.00	Cumple
									G, V, N [NL](2)	M_y	1.21	0.00	-0.01	-0.04	0.00	
									G, V, N [NL](3)	M_z,NM_yM_z	1.21	0.00	-0.01	-0.03	0.00	
		Pie	Cumple	1.1	0.1	2.2	3.4	3.4	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.27	0.01	-0.07	-0.05	0.00	Cumple
									G, V, N [NL](2)	M_y	1.27	0.01	-0.07	-0.04	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.8	0.1	8.6	10.5	10.5	G, V, N [NL](1)	N_c,NM_yM_z	2.11	0.01	-0.27	0.23	-0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	1.82	0.01	-0.27	0.23	-0.02	
		Pie	Cumple	1.9	0.6	10.3	12.7	12.7	G, V, N [NL](1)	N_c,NM_yM_z	2.23	-0.04	0.33	0.23	-0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	1.94	-0.04	0.33	0.23	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.1	0.6	7.7	11.1	11.1	G, V, N [NL](1)	N_c,NM_yM_z	3.57	-0.04	0.24	-0.19	-0.01	Cumple
									G, V, N [NL](2)	M_y	2.79	-0.04	0.24	-0.19	-0.01	
									G, V, N [NL](4)	M_z	2.80	-0.02	0.25	-0.19	0.00	
		Pie	Cumple	3.2	0.9	7.2	10.8	10.8	G, V, N [NL](1)	N_c,M_y,NM_yM_z	3.69	-0.06	-0.22	-0.19	-0.01	Cumple
									G, V, N [NL](4)	M_z	2.91	-0.03	-0.23	-0.19	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.4	0.9	1.7	5.9	5.9	G, V, N [NL](1)	N_c,M_y	5.00	-0.06	0.01	-0.02	0.02	Cumple
									G, V, N [NL](5)	M_z	3.29	0.00	0.05	-0.05	0.01	
									G, V, N [NL](6)	NM_yM_z	5.00	-0.05	-0.04	0.02	0.02	
		Pie	Cumple	4.5	1.9	2.4	6.3	6.3	G, V, N [NL](1)	N_c	5.12	0.00	-0.04	-0.02	0.02	Cumple
									G, V, N [NL](7)	M_y	3.14	0.13	-0.03	-0.01	0.04	
									G, V, N [NL](8)	M_z	4.27	0.02	-0.08	-0.05	0.02	
									G, V, N [NL](9)	NM_yM_z	4.42	0.13	-0.03	-0.01	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.6	1.9	1.3	6.9	6.9	G, V, N [NL](1)	N_c	6.44	0.00	0.00	0.00	0.02	Cumple
									G, V, N [NL](7)	M_y	3.98	0.13	0.00	0.00	0.04	
									G, V, N [NL](10)	M_z	3.90	0.02	-0.04	0.04	0.01	
									G, V, N [NL](9)	NM_yM_z	5.75	0.13	0.00	0.00	0.04	
		Pie	Cumple	5.7	3.2	1.8	8.5	8.5	G, V, N [NL](1)	N_c	6.55	0.05	-0.01	0.00	0.02	Cumple
									G, V, N [NL](7)	M_y	4.09	0.21	0.00	0.00	0.04	
									G, G, V, V, N(11)	M_z	2.63	-0.02	0.06	0.04	-0.01	
									G, V, N [NL](9)	NM_yM_z	5.86	0.21	0.00	0.00	0.04	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1271.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1155.2 cm)	HE 140 B	Cabeza	Cumple	1.0	< 0.1	0.4	1.4	1.4	G, V, N [NL](1)	N_c	1.20	0.00	-0.01	-0.02	0.00	Cumple
									G, V, N [NL](2)	M_y	1.20	0.00	-0.01	-0.02	0.00	
									G, V, N [NL](3)	M_z,NM_yM_z	1.20	0.00	-0.01	-0.01	0.00	
		Pie	Cumple	1.1	0.1	1.2	2.3	2.3	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.27	0.00	-0.04	-0.02	0.00	Cumple
									G, V, N [NL](2)	M_y	1.27	0.00	-0.04	-0.02	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.9	< 0.1	6.1	8.1	8.1	G, V, N [NL](1)	N_c,M_y,NM_yM_z	2.19	0.00	-0.20	0.14	0.02	Cumple
									G, V, N [NL](2)	M_z	1.87	0.00	-0.20	0.14	0.02	
		Pie	Cumple	2.0	0.7	5.4	7.8	7.8	G, V, N [NL](1)	N_c,NM_yM_z	2.30	0.04	0.17	0.14	0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	1.98	0.04	0.17	0.14	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	2.7	10.4	15.3	15.3	G, V, N [NL](1)	N_c,M_z,NM_yM_z	3.80	-0.18	0.33	-0.23	0.05	Cumple
									G, V, N [NL](2)	M_y	2.98	-0.18	0.33	-0.23	0.05	
		Pie	Cumple	3.4	0.8	7.8	11.4	11.4	G, V, N [NL](1)	N_c,NM_yM_z	3.91	-0.04	-0.24	-0.23	0.05	Cumple
									G, V [NL](4)	M_y	1.81	0.05	-0.10	-0.09	0.04	
									G, V, N [NL](5)	M_z	3.10	-0.02	-0.25	-0.23	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	0.8	1.7	6.5	6.5	G, V, N [NL](1)	N_c	5.23	-0.05	-0.01	0.00	0.02	Cumple
									G, V [NL](4)	M_y	2.59	0.05	-0.01	0.00	0.03	
									G, V, N [NL](6)	M_z	3.88	-0.03	-0.05	0.04	0.01	
									G, V, N [NL](7)	NM_yM_z	5.19	-0.03	-0.05	0.03	0.01	
		Pie	Cumple	4.7	2.0	2.0	6.3	6.3	G, V, N [NL](1)	N_c	5.34	0.00	-0.02	0.00	0.02	Cumple
									G, V, N [NL](8)	M_y	3.27	0.13	-0.01	0.00	0.03	
									G, V, N [NL](9)	M_z	4.45	0.02	-0.07	-0.04	0.01	
									G, V, N [NL](10)	NM_yM_z	4.58	0.13	-0.01	0.00	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	2.0	1.3	7.2	7.2	G, V, N [NL](1)	N_c	6.67	0.00	0.00	0.00	0.02	Cumple
									G, V, N [NL](8)	M_y	4.11	0.13	0.00	0.00	0.04	
									G, G, V, V, N(11)	M_z	2.58	0.00	-0.04	0.04	-0.01	
									G, V, N [NL](10)	NM_yM_z	5.91	0.13	0.00	0.00	0.04	
		Pie	Cumple	5.9	3.4	1.8	8.8	8.8	G, V, N [NL](1)	N_c	6.78	0.05	-0.01	0.00	0.02	Cumple
									G, V, N [NL](8)	M_y	4.22	0.22	-0.01	0.00	0.04	
									G, G, V, V, N(11)	M_z	2.65	-0.02	0.06	0.04	-0.01	
									G, V, N [NL](10)	NM_yM_z	6.02	0.22	-0.01	0.00	0.04	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

Listados

2.2.2.1.1272.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1170.7 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.3	1.2	1.2	G, V, N [NL](1)	N_c	1.21	0.00	0.00	-0.03	0.00	Cumple
									G, V, N [NL](2)	M_y	1.21	0.00	0.00	-0.03	0.00	
									G, V, N [NL](3)	M_z	-0.41	0.00	0.01	-0.02	0.00	
									G, V, N [NL](4)	NM_yM_z	1.20	0.00	-0.01	-0.01	0.00	
		Pie	Cumple	1.1	0.1	1.5	2.6	2.6	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.28	0.00	-0.05	-0.03	0.00	Cumple
									G, V, N [NL](2)	M_y	1.28	0.00	-0.05	-0.03	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.0	< 0.1	5.7	7.7	7.7	G, V, N [NL](1)	N_c,NM_yM_z	2.28	0.00	-0.18	0.16	-0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	1.92	0.00	-0.18	0.16	-0.02	
		Pie	Cumple	2.1	0.9	6.9	9.5	9.5	G, V, N [NL](1)	N_c,NM_yM_z	2.39	-0.06	0.22	0.16	-0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	2.04	-0.06	0.22	0.16	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	0.9	6.1	9.0	9.0	G, V, N [NL](1)	N_c	3.76	-0.06	0.17	-0.13	-0.01	Cumple
									G, V, N [NL](2)	M_y	2.91	-0.06	0.17	-0.13	-0.01	
									G, V, N [NL](5)	M_z	2.90	-0.04	0.19	-0.15	0.00	
									G, V, N [NL](6)	NM_yM_z	2.98	-0.04	0.19	-0.15	0.00	
		Pie	Cumple	3.4	1.1	5.7	8.8	8.8	G, V, N [NL](1)	N_c,M_y,NM_yM_z	3.87	-0.08	-0.15	-0.13	-0.01	Cumple
									G, V, N [NL](5)	M_z	3.02	-0.04	-0.18	-0.15	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.5	1.1	1.6	6.2	6.2	G, V, N [NL](1)	N_c,M_y	5.18	-0.07	0.01	-0.01	0.03	Cumple
									G, V, N [NL](7)	M_z	3.46	0.00	0.05	-0.04	0.01	
									G, V, N [NL](8)	NM_yM_z	5.18	-0.05	-0.04	0.03	0.02	
		Pie	Cumple	4.6	2.1	2.1	6.4	6.4	G, V, N [NL](1)	N_c	5.30	-0.01	-0.02	-0.01	0.03	Cumple
									G, V, N [NL](9)	M_y	3.26	0.13	-0.02	-0.01	0.04	
									G, V, N [NL](5)	M_z	4.45	0.01	-0.07	-0.05	0.02	
									G, V, N [NL](10)	NM_yM_z	4.60	0.13	-0.02	-0.01	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	2.1	1.3	7.2	7.2	G, V, N [NL](1)	N_c	6.62	-0.01	0.00	0.00	0.02	Cumple
									G, V, N [NL](9)	M_y	4.09	0.13	0.00	0.00	0.04	
									G, V, N [NL](11)	M_z	4.02	0.02	-0.04	0.04	0.01	
									G, V, N [NL](10)	NM_yM_z	5.93	0.13	0.00	0.00	0.04	
		Pie	Cumple	5.9	3.5	1.7	8.9	8.9	G, V, N [NL](1)	N_c	6.73	0.05	0.00	0.00	0.02	Cumple
									G, V, N [NL](9)	M_y	4.20	0.23	0.00	0.00	0.04	
									G, G, V, V, N(12)	M_z	2.73	-0.02	0.06	0.04	-0.01	
									G, V, N [NL](10)	NM_yM_z	6.04	0.23	0.00	0.00	0.04	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(12) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1273.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1186.2 cm)	HE 140 B	Cabeza	Cumple	1.0	< 0.1	0.3	1.2	1.2	G, V, N [NL](1)	N_c	1.20	0.00	0.00	-0.01	-0.01	Cumple
									G, V, N [NL](2)	M_y	1.20	0.00	0.00	-0.01	-0.01	
									G, V, N [NL](3)	M_z	-0.48	0.00	0.01	-0.01	0.00	
									G, V, N [NL](4)	NM_yM_z	1.20	0.00	-0.01	-0.01	0.00	
		Pie	Cumple	1.1	0.2	0.8	2.0	2.0	G, V, N [NL](1)	N_c,M_z,NM_yM_z	1.28	-0.01	-0.02	-0.01	-0.01	Cumple
									G, V, N [NL](2)	M_y	1.28	-0.01	-0.02	-0.01	-0.01	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.1	0.1	3.7	5.8	5.8	G, V, N [NL](1)	N_c,NM_yM_z	2.36	-0.01	-0.12	0.09	0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	1.97	-0.01	-0.12	0.09	0.02	
		Pie	Cumple	2.2	0.7	3.5	6.0	6.0	G, V, N [NL](1)	N_c,NM_yM_z	2.47	0.04	0.11	0.09	0.02	Cumple
									G, V, N [NL](2)	M_y,M_z	2.09	0.04	0.11	0.09	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.5	3.0	7.1	11.0	11.0	G, V, N [NL](1)	N_c	3.98	-0.20	0.18	-0.12	0.06	Cumple
									G, V, N [NL](2)	M_y	3.10	-0.20	0.18	-0.12	0.06	
									G, V, N [NL](5)	M_z	3.09	-0.13	0.23	-0.16	0.04	
									G, V, N [NL](6)	NM_yM_z	3.17	-0.14	0.22	-0.16	0.04	
		Pie	Cumple	3.6	0.8	5.6	8.7	8.7	G, V, N [NL](1)	N_c,M_y	4.10	-0.05	-0.13	-0.12	0.06	Cumple
									G, V, N [NL](5)	M_z	3.20	-0.03	-0.18	-0.16	0.04	
									G, V, N [NL](6)	NM_yM_z	3.28	-0.03	-0.18	-0.16	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	0.9	1.5	6.5	6.5	G, V, N [NL](1)	N_c,M_y	5.41	-0.06	-0.01	0.00	0.02	Cumple
									G, V, N [NL](7)	M_z	3.13	0.00	-0.05	0.04	0.01	
									G, V, N [NL](8)	NM_yM_z	5.36	-0.04	-0.05	0.03	0.02	
		Pie	Cumple	4.8	2.1	1.8	6.4	6.4	G, V, N [NL](1)	N_c	5.52	-0.01	-0.01	0.00	0.02	Cumple
									G, V, N [NL](9)	M_y	3.39	0.14	-0.01	0.00	0.04	
									G, V, N [NL](5)	M_z	4.63	0.01	-0.06	-0.04	0.02	
									G, V, N [NL](10)	NM_yM_z	4.76	0.14	-0.01	0.00	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	2.1	1.3	7.4	7.4	G, V, N [NL](1)	N_c	6.85	-0.01	0.00	0.00	0.02	Cumple
									G, V, N [NL](9)	M_y	4.22	0.14	0.00	0.00	0.04	
									G, G, V, V, N(11)	M_z	2.68	0.00	-0.04	0.04	-0.01	
									G, V, N [NL](10)	NM_yM_z	6.09	0.14	0.00	0.00	0.04	
		Pie	Cumple	6.1	3.6	1.7	9.1	9.1	G, V, N [NL](1)	N_c	6.96	0.05	0.00	0.00	0.02	Cumple
									G, V, N [NL](9)	M_y	4.33	0.24	0.00	0.00	0.04	
									G, G, V, V, N(11)	M_z	2.74	-0.02	0.05	0.04	-0.01	
									G, V, N [NL](10)	NM_yM_z	6.20	0.23	0.00	0.00	0.04	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1274.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1201.7 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.2	1.2	1.2	G, V, N [NL](1)	N_c	1.21	0.00	0.00	-0.01	0.00	Cumple
									G, V, N [NL](2)	M_y	1.20	0.00	0.00	-0.01	0.00	
									G, V, N [NL](3)	M_z	0.43	0.00	0.01	-0.01	0.00	
									G, V, N [NL](4)	NM_yM_z	1.20	0.00	0.00	-0.01	0.00	
		Pie	Cumple	1.1	0.1	0.7	1.9	1.9	G, V, N [NL](1)	N_c	1.30	0.00	-0.01	-0.01	0.00	Cumple
									G, V, N [NL](2)	M_y,M_z,NM_yM_z	1.30	0.00	-0.02	-0.01	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.1	< 0.1	2.5	4.6	4.6	G, V, N [NL](1)	N_c	2.45	0.00	-0.07	0.05	-0.02	Cumple
									G, V, N [NL](2)	M_y,NM_yM_z	2.45	0.00	-0.08	0.07	-0.03	
									G, V, N [NL](5)	M_z	2.03	0.00	-0.08	0.07	-0.03	
		Pie	Cumple	2.2	1.0	3.0	5.8	5.8	G, V, N [NL](1)	N_c	2.57	-0.05	0.07	0.05	-0.02	Cumple
									G, V, N [NL](5)	M_y,M_z	2.15	-0.06	0.10	0.07	-0.03	
									G, V, N [NL](2)	NM_yM_z	2.57	-0.06	0.10	0.07	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.4	1.0	4.1	7.2	7.2	G, V, N [NL](2)	N_c	3.92	-0.06	0.07	-0.06	-0.01	Cumple
									G, V, N [NL](5)	M_y	3.00	-0.06	0.07	-0.06	-0.01	
									G, V, N [NL](6)	M_z,NM_yM_z	3.06	-0.04	0.13	-0.10	-0.01	
		Pie	Cumple	3.5	1.3	3.9	7.2	7.2	G, V, N [NL](2)	N_c	4.03	-0.09	-0.07	-0.06	-0.01	Cumple
									G, V, N [NL](5)	M_y	3.12	-0.09	-0.07	-0.06	-0.01	
									G, V, N [NL](6)	M_z,NM_yM_z	3.17	-0.05	-0.13	-0.10	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	1.3	1.6	6.5	6.5	G, V, N [NL](1)	N_c,NM_yM_z	5.34	-0.06	-0.04	0.03	0.02	Cumple
									G, V, N [NL](2)	M_y	5.34	-0.09	0.00	0.00	0.03	
									G, V, N [NL](7)	M_z	3.63	0.00	0.05	-0.04	0.01	
		Pie	Cumple	4.8	2.1	1.8	6.4	6.4	G, V, N [NL](1)	N_c	5.46	0.00	0.04	0.03	0.02	Cumple
									G, V, N [NL](8)	M_y	3.35	0.13	-0.01	0.00	0.05	
									G, V, N [NL](7)	M_z	3.74	0.01	-0.06	-0.04	0.01	
									G, V, N [NL](9)	NM_yM_z	4.76	0.13	-0.01	0.00	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	2.1	1.3	7.4	7.4	G, V, N [NL](1)	N_c	6.78	0.00	-0.03	0.03	0.02	Cumple
									G, V, N [NL](8)	M_y	4.18	0.13	0.00	0.00	0.04	
									G, V, N [NL](10)	M_z	4.12	0.02	-0.04	0.04	0.02	
									G, V, N [NL](11)	NM_yM_z	6.09	0.13	0.00	0.00	0.04	
		Pie	Cumple	6.0	3.7	1.7	9.2	9.2	G, V, N [NL](1)	N_c	6.89	0.05	0.04	0.03	0.02	Cumple
									G, V, N [NL](8)	M_y	4.30	0.24	0.00	0.00	0.04	
									G, G, V, V, N(12)	M_z	2.83	-0.02	0.05	0.04	-0.01	
									G, V, N [NL](9)	NM_yM_z	6.20	0.24	0.00	0.00	0.04	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)2 [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(12) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1275.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1217.2 cm)	HE 140 B	Cabeza	Cumple	1.0	< 0.1	1.1	1.7	1.7	G, V, N [NL](1)	N_c	1.20	0.00	0.00	0.00	0.00	Cumple
									G, V, N [NL](2)	M_y	1.20	0.00	0.00	0.00	0.00	
									G, V, N [NL](3)	M_z	-0.38	0.00	0.04	-0.02	0.00	
									G, V, N [NL](4)	NM_yM_z	1.14	0.00	-0.02	0.01	0.00	
		Pie	Cumple	1.1	< 0.1	0.6	1.4	1.4	G, V, N [NL](1)	N_c	1.30	0.00	-0.01	0.00	0.00	Cumple
									G, V, N [NL](5)	M_y	0.65	0.00	-0.01	-0.01	0.00	
									G, G, V, V, N(6)	M_z	0.55	0.00	-0.02	-0.02	0.00	
									G, V, N [NL](2)	NM_yM_z	1.30	0.00	-0.01	0.00	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.2	0.1	1.1	3.2	3.2	G, V, N [NL](2)	N_c	2.52	0.00	-0.02	0.01	0.02	Cumple
									G, V, N [NL](5)	M_y	1.42	0.00	-0.02	0.01	0.01	
									G, V, N [NL](7)	M_z	2.01	0.00	-0.03	0.02	0.01	
									G, V, N [NL](8)	NM_yM_z	2.45	0.00	-0.03	0.02	0.01	
		Pie	Cumple	2.3	0.7	0.8	3.3	3.3	G, V, N [NL](2)	N_c	2.64	0.04	0.02	0.01	0.02	Cumple
									G, V, N [NL](1)	M_y	2.20	0.04	0.02	0.01	0.02	
									G, V, N [NL](9)	M_z	2.06	0.03	0.03	0.02	0.01	
									G, V, N [NL](8)	NM_yM_z	2.57	0.03	0.03	0.02	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.6	3.1	4.2	8.3	8.3	G, V, N [NL](2)	N_c	4.16	-0.20	0.05	-0.03	0.05	Cumple
									G, V, N [NL](1)	M_y	3.23	-0.20	0.05	-0.03	0.05	
									G, V, N [NL](10)	M_z,NM_yM_z	3.35	-0.14	0.13	-0.10	0.04	
		Pie	Cumple	3.7	1.2	3.4	6.9	6.9	G, V, N [NL](2)	N_c,M_y	4.28	-0.08	-0.03	-0.03	0.05	Cumple
									G, V, N [NL](10)	M_z,NM_yM_z	3.46	-0.05	-0.11	-0.10	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.9	1.2	1.5	6.6	6.6	G, V, N [NL](2)	N_c,M_y	5.59	-0.08	0.00	0.00	0.03	Cumple
									G, V, N [NL](11)	M_z	3.17	0.00	-0.05	0.04	0.01	
									G, V, N [NL](4)	NM_yM_z	5.47	-0.05	-0.04	0.04	0.02	
		Pie	Cumple	5.0	2.1	1.8	6.5	6.5	G, V, N [NL](2)	N_c	5.70	-0.01	0.00	0.00	0.03	Cumple
									G, V, N [NL](5)	M_y	3.53	0.14	0.00	0.00	0.04	
									G, V, N [NL](12)	M_z	3.96	0.01	-0.06	-0.04	0.01	
									G, V, N [NL](13)	NM_yM_z	4.97	0.14	0.00	0.00	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.1	2.1	1.3	7.6	7.6	G, V, N [NL](2)	N_c	7.03	-0.01	0.00	0.00	0.03	Cumple
									G, V, N [NL](5)	M_y	4.37	0.14	0.00	0.00	0.04	
									G, G, V, V, N(14)	M_z	2.78	0.00	-0.04	0.04	-0.01	
									G, V, N [NL](13)	NM_yM_z	6.29	0.14	0.00	0.00	0.04	
		Pie	Cumple	6.2	3.8	1.7	9.4	9.4	G, V, N [NL](2)	N_c	7.14	0.06	0.00	0.00	0.03	Cumple
									G, V, N [NL](5)	M_y	4.48	0.25	0.00	0.00	0.04	
									G, G, V, V, N(14)	M_z	2.84	-0.02	0.05	0.04	-0.01	
									G, V, N [NL](13)	NM_yM_z	6.40	0.25	0.00	0.00	0.04	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(5) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)1 [NL]
(10) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(13) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(14) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1276.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1217.2 cm)	HE 140 B	Cabeza	Cumple	1.0	< 0.1	1.1	1.7	1.7	G, V, N [NL](1)	N_c	1.21	0.00	0.00	0.00	0.00	Cumple
									G, V, N [NL](2)	M_y	1.20	0.00	0.00	0.00	0.00	
									G, V, N [NL](3)	M_z	-0.38	0.00	-0.04	0.02	0.00	
									G, G, V, V, N(4)	NM_yM_z	1.14	0.00	0.02	-0.01	0.00	
		Pie	Cumple	1.1	0.1	0.6	1.4	1.4	G, V, N [NL](1)	N_c	1.30	0.00	0.01	0.00	0.00	Cumple
									G, V, N [NL](5)	M_y	0.65	0.00	0.01	0.01	0.00	
									G, V, N [NL](6)	M_z	0.55	0.00	0.02	0.02	0.00	
									G, V, N [NL](2)	NM_yM_z	1.30	0.00	0.01	0.00	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.2	0.1	1.0	3.2	3.2	G, V, N [NL](2)	N_c	2.52	0.00	0.02	-0.01	0.02	Cumple
									G, V, N [NL](5)	M_y	1.42	0.00	0.02	-0.01	0.01	
									G, V, N [NL](7)	M_z	2.01	0.00	0.03	-0.02	0.01	
									G, V, N [NL](8)	NM_yM_z	2.45	0.00	0.03	-0.02	0.01	
		Pie	Cumple	2.3	0.7	0.9	3.3	3.3	G, V, N [NL](2)	N_c	2.64	0.04	-0.02	-0.01	0.02	Cumple
									G, V, N [NL](1)	M_y	2.20	0.04	-0.02	-0.01	0.02	
									G, V, N [NL](9)	M_z	2.06	0.03	-0.03	-0.02	0.01	
									G, V, N [NL](8)	NM_yM_z	2.57	0.03	-0.03	-0.02	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.6	3.1	4.2	8.3	8.3	G, V, N [NL](2)	N_c	4.17	-0.20	-0.04	0.03	0.05	Cumple
									G, V, N [NL](1)	M_y	3.23	-0.20	-0.04	0.03	0.05	
									G, V, N [NL](6)	M_z,NM_yM_z	3.35	-0.14	-0.13	0.10	0.04	
		Pie	Cumple	3.7	1.2	3.4	6.9	6.9	G, V, N [NL](2)	N_c,M_y	4.28	-0.08	0.03	0.03	0.05	Cumple
									G, V, N [NL](6)	M_z,NM_yM_z	3.46	-0.05	0.11	0.10	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.9	1.2	1.5	6.6	6.6	G, V, N [NL](2)	N_c,M_y	5.59	-0.08	0.00	0.00	0.03	Cumple
									G, V, N [NL](10)	M_z	3.17	0.00	0.05	-0.04	0.01	
									G, V, N [NL](11)	NM_yM_z	5.47	-0.05	0.04	-0.04	0.02	
		Pie	Cumple	5.0	2.1	1.8	6.5	6.5	G, V, N [NL](2)	N_c	5.70	-0.01	0.00	0.00	0.03	Cumple
									G, V, N [NL](5)	M_y	3.53	0.14	0.00	0.00	0.04	
									G, V, N [NL](12)	M_z	3.96	0.02	0.06	0.04	0.01	
									G, V, N [NL](13)	NM_yM_z	4.97	0.14	0.00	0.00	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.1	2.1	1.3	7.6	7.6	G, V, N [NL](2)	N_c	7.03	-0.01	0.00	0.00	0.03	Cumple
									G, V, N [NL](5)	M_y	4.37	0.14	0.00	0.00	0.04	
									G, V, N [NL](14)	M_z	6.12	0.02	-0.04	0.04	0.02	
									G, V, N [NL](13)	NM_yM_z	6.29	0.14	0.00	0.00	0.04	
		Pie	Cumple	6.2	3.8	1.7	9.4	9.4	G, V, N [NL](2)	N_c	7.14	0.06	0.00	0.00	0.03	Cumple
									G, V, N [NL](5)	M_y	4.48	0.25	0.00	0.00	0.04	
									G, V, N [NL](14)	M_z	6.23	0.06	0.05	0.04	0.02	
									G, V, N [NL](13)	NM_yM_z	6.40	0.25	0.00	0.00	0.04	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(4) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(5) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(11) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(12) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(13) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(14) 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1277.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1201.7 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.2	1.2	1.2	G, G, V, V, N[1]	N_c	1.22	0.00	0.00	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.20	0.00	0.00	0.01	0.00	
									G, V, N [NL][3]	M_z	0.43	0.00	-0.01	0.01	0.00	
									G, V, N [NL][4]	NM_yM_z	1.20	0.00	0.00	0.01	0.00	
		Pie	Cumple	1.1	< 0.1	0.7	1.9	1.9	G, G, V, V, N[1]	N_c	1.31	0.00	0.01	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y,M_z,NM_yM_z	1.30	0.00	0.02	0.01	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.1	< 0.1	2.5	4.6	4.6	G, G, V, V, N[1]	N_c	2.46	0.00	0.06	-0.05	-0.02	Cumple
									G, V, N [NL][5]	M_y	1.13	0.00	0.04	-0.03	-0.01	
									G, V, N [NL][6]	M_z	2.03	0.00	0.08	-0.07	-0.03	
									G, V, N [NL][2]	NM_yM_z	2.45	0.00	0.08	-0.07	-0.03	
		Pie	Cumple	2.2	1.0	3.0	5.8	5.8	G, G, V, V, N[1]	N_c	2.58	-0.05	-0.06	-0.05	-0.02	Cumple
									G, V, N [NL][6]	M_y,M_z	2.15	-0.07	-0.10	-0.07	-0.03	
									G, V, N [NL][2]	NM_yM_z	2.57	-0.07	-0.09	-0.07	-0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.4	1.0	4.1	7.2	7.2	G, G, V, V, N[7]	N_c	3.92	-0.05	0.00	-0.01	-0.01	Cumple
									G, V, N [NL][6]	M_y	3.01	-0.06	-0.07	0.06	-0.01	
									G, V, N [NL][8]	M_z,NM_yM_z	3.06	-0.04	-0.13	0.10	0.00	
		Pie	Cumple	3.5	1.3	3.9	7.2	7.2	G, G, V, V, N[7]	N_c	4.04	-0.06	-0.01	-0.01	-0.01	Cumple
									G, V, N [NL][6]	M_y	3.12	-0.09	0.07	0.06	-0.01	
									G, V, N [NL][8]	M_z,NM_yM_z	3.17	-0.05	0.13	0.10	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	1.3	1.6	6.5	6.5	G, G, V, V, N[1]	N_c	5.35	-0.06	0.01	-0.01	0.02	Cumple
									G, V, N [NL][6]	M_y	3.93	-0.09	0.00	0.00	0.03	
									G, V, N [NL][9]	M_z	3.63	0.00	-0.05	0.04	0.01	
									G, V, N [NL][10]	NM_yM_z	5.34	-0.06	0.04	-0.03	0.02	
		Pie	Cumple	4.8	2.1	1.8	6.4	6.4	G, G, V, V, N[1]	N_c	5.47	0.00	-0.01	-0.01	0.02	Cumple
									G, V, N [NL][11]	M_y	3.35	0.13	0.01	0.00	0.05	
									G, V, N [NL][9]	M_z	3.74	0.02	0.06	0.04	0.01	
									G, V, N [NL][12]	NM_yM_z	4.76	0.13	0.01	0.00	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	2.1	1.2	7.4	7.4	G, G, V, V, N[1]	N_c	6.80	0.00	-0.01	0.00	0.02	Cumple
									G, V, N [NL][11]	M_y	4.19	0.13	0.00	0.00	0.04	
									G, G, V, V, N[13]	M_z	4.60	0.00	-0.04	0.04	-0.01	
									G, V, N [NL][14]	NM_yM_z	6.09	0.13	0.00	0.00	0.04	
		Pie	Cumple	6.0	3.7	1.7	9.2	9.2	G, G, V, V, N[1]	N_c	6.91	0.05	0.01	0.00	0.02	Cumple
									G, V, N [NL][11]	M_y	4.30	0.24	0.00	0.00	0.04	
									G, V, N [NL][15]	M_z	6.05	0.06	0.05	0.04	0.02	
									G, V, N [NL][12]	NM_yM_z	6.20	0.24	0.00	0.00	0.04	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)1 [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)1 [NL]
[5] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[6] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
[10] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[11] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[14] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[15] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1278.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1186.2 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.3	1.2	1.2	G, G, V, V, N[1]	N_c	1.21	0.00	0.00	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.20	0.00	0.00	0.01	-0.01	
									G, V, N [NL][3]	M_z	-0.48	0.00	-0.01	0.01	0.00	
									G, V, N [NL][4]	NM_yM_z	1.20	0.00	0.01	0.01	0.00	
		Pie	Cumple	1.1	0.2	0.8	2.0	2.0	G, G, V, V, N[1]	N_c	1.29	-0.01	0.02	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.28	-0.01	0.02	0.01	-0.01	
									G, V, N [NL][5]	M_z,NM_yM_z	1.28	-0.01	0.02	0.01	-0.01	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.1	0.1	3.6	5.7	5.7	G, G, V, V, N[1]	N_c	2.36	-0.01	0.10	-0.07	0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.97	-0.01	0.12	-0.09	0.02	
									G, V, N [NL][5]	NM_yM_z	2.36	-0.01	0.11	-0.09	0.02	
		Pie	Cumple	2.2	0.6	3.4	6.0	6.0	G, G, V, V, N[1]	N_c	2.48	0.03	-0.09	-0.07	0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	2.09	0.04	-0.11	-0.09	0.02	
									G, V, N [NL][5]	NM_yM_z	2.47	0.04	-0.11	-0.09	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.5	3.0	7.1	11.0	11.0	G, V, N [NL][5]	N_c	3.98	-0.20	-0.18	0.13	0.06	Cumple
									G, V, N [NL][2]	M_y	3.10	-0.20	-0.18	0.13	0.06	
									G, V, N [NL][6]	M_z	3.09	-0.14	-0.23	0.16	0.04	
									G, V, N [NL][7]	NM_yM_z	3.17	-0.14	-0.22	0.16	0.04	
		Pie	Cumple	3.6	0.8	5.6	8.7	8.7	G, V, N [NL][5]	N_c,M_y	4.10	-0.05	0.13	0.13	0.06	Cumple
									G, V, N [NL][6]	M_z	3.20	-0.03	0.18	0.16	0.04	
									G, V, N [NL][7]	NM_yM_z	3.28	-0.03	0.18	0.16	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	0.9	1.5	6.5	6.5	G, V, N [NL][5]	N_c,M_y	5.41	-0.06	0.01	0.00	0.02	Cumple
									G, V, N [NL][8]	M_z	3.13	0.00	0.05	-0.04	0.01	
									G, V, N [NL][9]	NM_yM_z	5.36	-0.04	0.05	-0.03	0.02	
		Pie	Cumple	4.8	2.1	1.8	6.4	6.4	G, V, N [NL][5]	N_c	5.52	-0.01	0.01	0.00	0.02	Cumple
									G, V, N [NL][10]	M_y	3.39	0.14	0.01	0.00	0.04	
									G, V, N [NL][6]	M_z	4.63	0.01	0.06	0.04	0.02	
									G, V, N [NL][11]	NM_yM_z	4.76	0.14	0.01	0.00	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	2.1	1.2	7.4	7.4	G, V, N [NL][5]	N_c	6.85	-0.01	0.00	0.00	0.02	Cumple
									G, V, N [NL][10]	M_y	4.22	0.14	0.00	0.00	0.04	
									G, V, N [NL][12]	M_z	5.93	0.02	-0.04	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	6.09	0.14	0.00	0.00	0.04	
		Pie	Cumple	6.1	3.6	1.7	9.1	9.1	G, V, N [NL][5]	N_c	6.96	0.05	0.00	0.00	0.02	Cumple
									G, V, N [NL][10]	M_y	4.33	0.23	0.00	0.00	0.04	
									G, V, N [NL][12]	M_z	6.04	0.06	0.05	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	6.20	0.23	0.00	0.00	0.04	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[8] 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
[9] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[11] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1279.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1170.7 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.3	1.2	1.2	G, G, V, V, N[1]	N_c	1.22	0.00	0.00	0.02	0.00	Cumple
									G, V, N [NL][2]	M_y	1.21	0.00	0.00	0.03	0.00	
									G, V, N [NL][3]	M_z	-0.41	0.00	-0.01	0.02	0.00	
									G, V, N [NL][4]	NM_yM_z	1.20	0.00	0.01	0.01	0.00	
		Pie	Cumple	1.1	0.1	1.5	2.6	2.6	G, G, V, V, N[1]	N_c	1.29	0.00	0.03	0.02	0.00	Cumple
									G, V, N [NL][2]	M_y	1.28	0.00	0.05	0.03	0.00	
									G, V, N [NL][5]	M_z,NM_yM_z	1.28	0.00	0.05	0.03	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.0	< 0.1	5.7	7.7	7.7	G, G, V, V, N[1]	N_c	2.28	0.00	0.15	-0.12	-0.02	Cumple
									G, V, N [NL][2]	M_y,M_z	1.92	0.00	0.18	-0.16	-0.02	
									G, V, N [NL][5]	NM_yM_z	2.28	0.00	0.18	-0.16	-0.02	
		Pie	Cumple	2.1	0.9	6.9	9.5	9.5	G, G, V, V, N[1]	N_c	2.40	-0.05	-0.16	-0.12	-0.02	Cumple
									G, V, N [NL][2]	M_y,M_z	2.04	-0.06	-0.22	-0.16	-0.02	
									G, V, N [NL][5]	NM_yM_z	2.39	-0.06	-0.22	-0.16	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	0.9	6.1	9.0	9.0	G, G, V, V, N[1]	N_c	3.76	-0.05	-0.07	0.05	0.00	Cumple
									G, V, N [NL][2]	M_y	2.91	-0.06	-0.17	0.13	-0.01	
									G, V, N [NL][6]	M_z	2.90	-0.04	-0.19	0.15	0.00	
									G, V, N [NL][7]	NM_yM_z	2.98	-0.04	-0.19	0.15	0.00	
		Pie	Cumple	3.4	1.2	5.7	8.8	8.8	G, G, V, V, N[1]	N_c	3.88	-0.06	0.06	0.05	0.00	Cumple
									G, V, N [NL][5]	M_y,NM_yM_z	3.87	-0.08	0.15	0.13	-0.01	
									G, V, N [NL][6]	M_z	3.02	-0.04	0.18	0.15	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.5	1.1	1.6	6.3	6.3	G, G, V, V, N[1]	N_c	5.19	-0.05	0.00	0.00	0.02	Cumple
									G, V, N [NL][5]	M_y	5.18	-0.07	-0.01	0.01	0.03	
									G, V, N [NL][8]	M_z	3.46	0.00	-0.05	0.04	0.01	
									G, V, N [NL][9]	NM_yM_z	5.18	-0.05	0.04	-0.03	0.02	
		Pie	Cumple	4.6	2.0	2.1	6.4	6.4	G, G, V, V, N[1]	N_c	5.30	0.00	0.00	0.00	0.02	Cumple
									G, V, N [NL][10]	M_y	3.26	0.13	0.02	0.01	0.04	
									G, V, N [NL][6]	M_z	4.45	0.01	0.07	0.05	0.02	
									G, V, N [NL][11]	NM_yM_z	4.60	0.13	0.02	0.01	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	2.0	1.2	7.2	7.2	G, G, V, V, N[1]	N_c	6.63	0.00	-0.01	0.01	0.02	Cumple
									G, V, N [NL][10]	M_y	4.09	0.13	0.00	0.00	0.04	
									G, V, N [NL][12]	M_z	4.43	0.00	-0.04	0.04	-0.01	
									G, V, N [NL][11]	NM_yM_z	5.93	0.13	0.00	0.00	0.04	
		Pie	Cumple	5.9	3.5	1.7	8.9	8.9	G, G, V, V, N[1]	N_c	6.74	0.05	0.01	0.01	0.02	Cumple
									G, V, N [NL][10]	M_y	4.20	0.23	0.00	0.00	0.04	
									G, V, N [NL][13]	M_z	5.89	0.05	0.05	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	6.04	0.23	0.00	0.00	0.04	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
[9] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[11] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[13] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1280.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1155.2 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.4	1.4	1.4	G, G, V, V, N[1]	N_c	1.21	0.00	0.01	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.20	0.00	0.01	0.02	0.00	
									G, V, N [NL][3]	M_z,NM_yM_z	1.20	0.00	0.01	0.01	0.00	
		Pie	Cumple	1.1	0.1	1.2	2.3	2.3	G, G, V, V, N[1]	N_c	1.28	0.00	0.03	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.27	0.00	0.04	0.02	0.00	
									G, V, N [NL][4]	M_z,NM_yM_z	1.27	0.00	0.04	0.02	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.9	0.1	6.1	8.1	8.1	G, G, V, V, N[1]	N_c	2.19	0.00	0.16	-0.12	0.01	Cumple
									G, V, N [NL][4]	M_y,NM_yM_z	2.19	0.00	0.19	-0.14	0.02	
									G, V, N [NL][2]	M_z	1.87	0.00	0.20	-0.14	0.02	
		Pie	Cumple	2.0	0.7	5.3	7.7	7.7	G, G, V, V, N[1]	N_c	2.31	0.03	-0.14	-0.12	0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.98	0.04	-0.17	-0.14	0.02	
									G, V, N [NL][4]	NM_yM_z	2.30	0.04	-0.17	-0.14	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	2.7	10.5	15.4	15.4	G, V, N [NL][4]	N_c,M_z,NM_yM_z	3.80	-0.18	-0.34	0.23	0.05	Cumple
									G, V, N [NL][2]	M_y	2.98	-0.18	-0.34	0.23	0.05	
		Pie	Cumple	3.4	0.8	7.9	11.5	11.5	G, V, N [NL][4]	N_c,NM_yM_z	3.91	-0.04	0.24	0.23	0.05	Cumple
									G, V [NL][5]	M_y	1.81	0.05	0.10	0.09	0.04	
									G, V, N [NL][6]	M_z	3.10	-0.02	0.25	0.23	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	0.8	1.7	6.5	6.5	G, V, N [NL][4]	N_c	5.23	-0.05	0.01	0.00	0.02	Cumple
									G, V [NL][5]	M_y	2.59	0.05	0.01	0.00	0.03	
									G, V, N [NL][7]	M_z	3.88	-0.03	0.05	-0.04	0.01	
									G, V, N [NL][8]	NM_yM_z	5.19	-0.03	0.05	-0.04	0.01	
		Pie	Cumple	4.7	2.0	2.0	6.3	6.3	G, V, N [NL][4]	N_c	5.34	0.00	0.02	0.00	0.02	Cumple
									G, V, N [NL][9]	M_y	3.27	0.13	0.01	0.00	0.03	
									G, V, N [NL][10]	M_z	4.45	0.02	0.07	0.04	0.02	
									G, V, N [NL][11]	NM_yM_z	4.58	0.13	0.01	0.00	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	2.0	1.3	7.2	7.2	G, V, N [NL][4]	N_c	6.67	0.00	0.00	0.00	0.02	Cumple
									G, V, N [NL][9]	M_y	4.11	0.13	0.00	0.00	0.04	
									G, V, N [NL][12]	M_z	5.75	0.02	-0.04	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	5.91	0.13	0.00	0.00	0.04	
		Pie	Cumple	5.9	3.4	1.7	8.8	8.8	G, V, N [NL][4]	N_c	6.78	0.05	0.01	0.00	0.02	Cumple
									G, V, N [NL][9]	M_y	4.22	0.22	0.01	0.00	0.04	
									G, V, N [NL][12]	M_z	5.86	0.05	0.05	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	6.02	0.22	0.01	0.00	0.04	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[9] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[11] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1281.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1139.7 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.4	1.5	1.5	G, G, V, V, N[1]	N_c	1.22	0.00	0.01	0.03	0.00	Cumple
									G, V, N [NL][2]	M_y	1.21	0.00	0.01	0.04	0.00	
									G, V, N [NL][3]	M_z,NM_yM_z	1.21	0.00	0.01	0.03	0.00	
		Pie	Cumple	1.1	0.1	2.2	3.4	3.4	G, G, V, V, N[1]	N_c	1.28	0.01	0.05	0.03	0.00	Cumple
									G, V, N [NL][2]	M_y	1.27	0.01	0.07	0.04	0.00	
									G, V, N [NL][4]	M_z,NM_yM_z	1.27	0.01	0.07	0.05	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.8	0.1	8.6	10.5	10.5	G, G, V, V, N[1]	N_c	2.11	0.00	0.22	-0.18	-0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.82	0.01	0.27	-0.23	-0.02	
									G, V, N [NL][4]	NM_yM_z	2.11	0.01	0.27	-0.23	-0.02	
		Pie	Cumple	1.9	0.6	10.3	12.7	12.7	G, G, V, V, N[1]	N_c	2.23	-0.03	-0.26	-0.18	-0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.94	-0.04	-0.33	-0.23	-0.02	
									G, V, N [NL][4]	NM_yM_z	2.23	-0.04	-0.33	-0.23	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.1	0.6	7.7	11.1	11.1	G, G, V, V, N[1]	N_c	3.58	-0.03	-0.13	0.10	-0.01	Cumple
									G, V, N [NL][2]	M_y	2.79	-0.04	-0.24	0.19	-0.01	
									G, V, N [NL][5]	M_z	2.80	-0.02	-0.25	0.19	0.00	
									G, V, N [NL][4]	NM_yM_z	3.57	-0.04	-0.24	0.19	-0.01	
		Pie	Cumple	3.2	0.9	7.2	10.8	10.8	G, G, V, V, N[1]	N_c	3.69	-0.05	0.12	0.10	-0.01	Cumple
									G, V, N [NL][2]	M_y	2.90	-0.06	0.22	0.19	-0.01	
									G, V, N [NL][5]	M_z	2.91	-0.03	0.23	0.19	0.00	
									G, V, N [NL][4]	NM_yM_z	3.69	-0.06	0.22	0.19	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.4	0.9	1.7	5.9	5.9	G, G, V, V, N[1]	N_c	5.01	-0.05	0.00	0.00	0.02	Cumple
									G, V, N [NL][4]	M_y	5.00	-0.06	-0.01	0.02	0.02	
									G, V, N [NL][6]	M_z	4.16	-0.03	-0.05	0.05	0.02	
									G, V, N [NL][7]	NM_yM_z	5.00	-0.05	0.04	-0.02	0.02	
		Pie	Cumple	4.5	1.9	2.4	6.3	6.3	G, G, V, V, N[1]	N_c	5.12	0.00	0.01	0.00	0.02	Cumple
									G, V, N [NL][8]	M_y	3.14	0.12	0.03	0.01	0.04	
									G, V, N [NL][6]	M_z	4.27	0.02	0.08	0.05	0.02	
									G, V, N [NL][9]	NM_yM_z	4.42	0.12	0.03	0.01	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.6	1.9	1.2	6.9	6.9	G, G, V, V, N[1]	N_c	6.45	0.00	-0.01	0.01	0.02	Cumple
									G, V, N [NL][8]	M_y	3.98	0.12	0.00	0.00	0.04	
									G, G, V, V, N[10]	M_z	4.27	0.00	-0.04	0.04	-0.01	
									G, V, N [NL][9]	NM_yM_z	5.75	0.12	0.00	0.00	0.04	
		Pie	Cumple	5.7	3.2	1.7	8.5	8.5	G, G, V, V, N[1]	N_c	6.56	0.04	0.01	0.01	0.02	Cumple
									G, V, N [NL][8]	M_y	4.09	0.21	0.00	0.00	0.04	
									G, V, N [NL][11]	M_z	5.71	0.05	0.05	0.04	0.01	
									G, V, N [NL][9]	NM_yM_z	5.86	0.21	0.01	0.00	0.04	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[11] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1282.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1124.1 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.7	1.7	1.7	G, G, V, V, N[1]	N_c	1.21	0.00	0.02	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.20	0.00	0.02	0.02	0.00	
									G, V, N [NL][3]	M_z,NM_yM_z	1.20	0.00	0.02	0.01	0.00	
		Pie	Cumple	1.1	0.1	1.6	2.7	2.7	G, G, V, V, N[1]	N_c	1.27	0.00	0.04	0.01	0.00	Cumple
									G, V, N [NL][2]	M_y	1.26	0.00	0.05	0.02	0.00	
									G, V, N [NL][4]	M_z,NM_yM_z	1.26	0.00	0.05	0.02	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.8	< 0.1	8.3	10.1	10.1	G, G, V, V, N[1]	N_c	2.02	0.00	0.22	-0.16	0.02	Cumple
									G, V, N [NL][2]	M_y,M_z	1.76	0.00	0.27	-0.19	0.03	
									G, V, N [NL][4]	NM_yM_z	2.01	0.00	0.27	-0.19	0.03	
		Pie	Cumple	1.9	1.0	7.4	9.8	9.8	G, G, V, V, N[1]	N_c	2.14	0.05	-0.19	-0.16	0.02	Cumple
									G, V, N [NL][2]	M_y,M_z	1.87	0.06	-0.24	-0.19	0.03	
									G, V, N [NL][4]	NM_yM_z	2.13	0.06	-0.24	-0.19	0.03	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.1	1.9	13.7	18.1	18.1	G, V, N [NL][4]	N_c,M_z,NM_yM_z	3.60	-0.12	-0.44	0.30	0.04	Cumple
									G, V, N [NL][2]	M_y	2.85	-0.12	-0.44	0.30	0.04	
		Pie	Cumple	3.2	0.7	10.0	13.6	13.6	G, V, N [NL][4]	N_c,M_z,NM_yM_z	3.72	-0.04	0.32	0.30	0.04	Cumple
									G, V, N [NL][5]	M_y	1.78	0.05	0.16	0.15	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.4	0.7	1.8	6.4	6.4	G, V, N [NL][4]	N_c	5.04	-0.04	0.01	0.01	0.02	Cumple
									G, V [NL][6]	M_y	2.48	0.05	0.01	0.00	0.03	
									G, V, N [NL][7]	M_z	3.76	-0.03	0.06	-0.03	0.01	
									G, V, N [NL][8]	NM_yM_z	5.00	-0.03	0.06	-0.03	0.01	
		Pie	Cumple	4.5	1.8	2.3	6.2	6.2	G, V, N [NL][4]	N_c	5.15	0.00	0.03	0.01	0.02	Cumple
									G, V, N [NL][9]	M_y	3.16	0.12	0.02	0.01	0.03	
									G, V, N [NL][10]	M_z	4.27	0.02	0.07	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	4.34	0.02	0.07	0.04	0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.6	1.9	1.2	6.9	6.9	G, V, N [NL][4]	N_c	6.48	0.00	0.00	0.01	0.02	Cumple
									G, V, N [NL][9]	M_y	3.99	0.12	0.00	0.00	0.03	
									G, V, N [NL][12]	M_z	5.58	0.02	-0.04	0.04	0.01	
									G, V, N [NL][13]	NM_yM_z	5.73	0.12	0.00	0.00	0.03	
		Pie	Cumple	5.7	3.1	1.7	8.4	8.4	G, V, N [NL][4]	N_c	6.59	0.05	0.01	0.01	0.02	Cumple
									G, V, N [NL][9]	M_y	4.10	0.20	0.01	0.00	0.03	
									G, V, N [NL][12]	M_z	5.69	0.05	0.06	0.04	0.01	
									G, V, N [NL][13]	NM_yM_z	5.84	0.20	0.01	0.00	0.03	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[7] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[9] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[11] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
[13] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1283.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1108.6 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	0.9	1.9	1.9	G, G, V, V, N[1]	N_c	1.22	0.00	0.03	0.04	0.00	Cumple
									G, V, N [NL][2]	M_y	1.21	0.00	0.03	0.06	0.00	
									G, V, N [NL][3]	M_z,NM_yM_z	1.21	0.00	0.03	0.04	0.00	
		Pie	Cumple	1.1	0.1	2.9	4.0	4.0	G, G, V, V, N[1]	N_c	1.27	0.00	0.07	0.04	0.00	Cumple
									G, V, N [NL][4]	M_y	1.26	0.00	0.09	0.06	0.00	
									G, V, N [NL][5]	M_z,NM_yM_z	1.26	0.00	0.09	0.06	0.00	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.7	0.1	10.8	12.6	12.6	G, G, V, V, N[1]	N_c	1.94	0.00	0.28	-0.24	-0.01	Cumple
									G, V, N [NL][4]	M_y	1.71	0.00	0.34	-0.29	-0.01	
									G, V, N [NL][2]	M_z	1.71	0.00	0.35	-0.29	-0.01	
									G, V, N [NL][5]	NM_yM_z	1.93	0.00	0.34	-0.29	-0.01	
		Pie	Cumple	1.8	0.5	12.9	15.1	15.1	G, G, V, V, N[1]	N_c	2.06	-0.03	-0.33	-0.24	-0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.83	-0.03	-0.41	-0.29	-0.01	
									G, V, N [NL][5]	NM_yM_z	2.05	-0.03	-0.41	-0.29	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.0	0.5	9.4	12.7	12.7	G, G, V, V, N[1]	N_c	3.40	-0.03	-0.18	0.14	0.00	Cumple
									G, V, N [NL][2]	M_y	2.68	-0.03	-0.30	0.23	0.00	
									G, V, N [NL][5]	M_z,NM_yM_z	3.40	-0.03	-0.30	0.23	0.00	
		Pie	Cumple	3.1	0.6	8.6	12.0	12.0	G, G, V, V, N[1]	N_c	3.52	-0.02	0.16	0.14	0.00	Cumple
									G, V [NL][6]	M_y	1.61	0.04	0.11	0.09	0.02	
									G, V, N [NL][5]	M_z,NM_yM_z	3.51	-0.03	0.28	0.23	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.2	0.6	1.9	5.5	5.5	G, G, V, V, N[1]	N_c	4.84	-0.02	0.00	0.01	0.01	Cumple
									G, V [NL][6]	M_y	2.40	0.04	-0.01	0.01	0.03	
									G, V, N [NL][7]	M_z	3.98	-0.01	-0.06	0.06	0.01	
									G, V, N [NL][8]	NM_yM_z	4.82	-0.02	0.03	-0.02	0.01	
		Pie	Cumple	4.3	1.8	2.7	6.6	6.6	G, G, V, V, N[1]	N_c	4.95	0.01	0.02	0.01	0.01	Cumple
									G, V, N [NL][9]	M_y	3.03	0.12	0.03	0.02	0.03	
									G, V, N [NL][7]	M_z	4.10	0.03	0.09	0.06	0.01	
									G, V, N [NL][10]	NM_yM_z	4.17	0.03	0.09	0.06	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	1.8	1.2	6.7	6.7	G, G, V, V, N[1]	N_c	6.28	0.01	-0.01	0.01	0.01	Cumple
									G, V, N [NL][9]	M_y	3.87	0.12	0.00	0.00	0.03	
									G, G, V, V, N[11]	M_z	4.10	-0.01	-0.04	0.04	0.00	
									G, V, N [NL][12]	NM_yM_z	5.58	0.12	0.00	0.00	0.03	
		Pie	Cumple	5.6	2.9	1.7	8.1	8.1	G, G, V, V, N[1]	N_c	6.39	0.03	0.01	0.01	0.01	Cumple
									G, V, N [NL][9]	M_y	3.98	0.19	0.01	0.00	0.03	
									G, V, N [NL][13]	M_z	5.54	0.04	0.05	0.04	0.01	
									G, V, N [NL][12]	NM_yM_z	5.69	0.19	0.01	0.00	0.03	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)1 [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[9] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[10] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[11] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[13] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1284.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1093.1 cm)	HE 140 B	Cabeza	Cumple	1.1	< 0.1	1.3	2.4	2.4	G, G, V, V, N[1]	N_c	1.22	0.00	0.04	0.01	0.01	Cumple
									G, V, N [NL][2]	M_y	1.21	0.00	0.04	0.02	0.01	
									G, V, N [NL][3]	M_z,NM_yM_z	1.21	0.00	0.04	0.02	0.01	
		Pie	Cumple	1.1	0.2	1.9	3.0	3.0	G, G, V, V, N[1]	N_c	1.26	0.01	0.05	0.01	0.01	Cumple
									G, V, N [NL][2]	M_y	1.25	0.01	0.06	0.02	0.01	
									G, V, N [NL][3]	M_z,NM_yM_z	1.25	0.01	0.06	0.02	0.01	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.6	0.2	9.9	11.6	11.6	G, G, V, V, N[1]	N_c	1.85	0.01	0.26	-0.19	0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.65	0.01	0.32	-0.23	0.02	
									G, V, N [NL][3]	NM_yM_z	1.84	0.01	0.32	-0.23	0.02	
		Pie	Cumple	1.7	0.8	8.9	11.1	11.1	G, G, V, V, N[1]	N_c	1.97	0.04	-0.23	-0.19	0.01	Cumple
									G, V, N [NL][4]	M_y	1.77	0.05	-0.28	-0.23	0.02	
									G, V, N [NL][2]	M_z	1.77	0.05	-0.28	-0.23	0.02	
									G, V, N [NL][3]	NM_yM_z	1.96	0.05	-0.28	-0.23	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.0	1.5	15.9	19.8	19.8	G, V, N [NL][3]	N_c,M_z,NM_yM_z	3.40	-0.10	-0.51	0.35	0.05	Cumple
									G, V, N [NL][2]	M_y	2.72	-0.10	-0.51	0.35	0.05	
		Pie	Cumple	3.1	0.7	11.5	14.9	14.9	G, V, N [NL][3]	N_c,M_z,NM_yM_z	3.52	0.02	0.37	0.35	0.05	Cumple
									G, V, N [NL][5]	M_y	2.10	0.05	0.24	0.23	0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.2	0.7	1.8	6.1	6.1	G, V, N [NL][3]	N_c	4.84	0.02	0.01	0.01	0.00	Cumple
									G, V, N [NL][5]	M_y	2.92	0.04	0.01	0.01	0.03	
									G, V, N [NL][6]	M_z	3.99	0.00	0.06	-0.04	0.00	
									G, V, N [NL][7]	NM_yM_z	4.82	0.01	0.06	-0.03	0.00	
		Pie	Cumple	4.3	1.7	2.6	6.4	6.4	G, V, N [NL][3]	N_c	4.95	0.01	0.05	0.01	0.00	Cumple
									G, V, N [NL][5]	M_y	3.04	0.11	0.03	0.01	0.03	
									G, V, N [NL][8]	M_z	4.08	0.02	0.08	0.05	0.00	
									G, V, N [NL][9]	NM_yM_z	4.15	0.03	0.08	0.05	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	1.7	1.2	6.6	6.6	G, V, N [NL][3]	N_c	6.28	0.01	0.00	0.01	0.01	Cumple
									G, V, N [NL][5]	M_y	3.87	0.11	0.00	0.01	0.03	
									G, V, N [NL][10]	M_z	5.39	0.02	-0.04	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	5.55	0.11	0.00	0.01	0.03	
		Pie	Cumple	5.6	2.9	1.7	8.1	8.1	G, V, N [NL][3]	N_c	6.39	0.03	0.01	0.01	0.01	Cumple
									G, V, N [NL][5]	M_y	3.98	0.19	0.01	0.01	0.03	
									G, V, N [NL][10]	M_z	5.50	0.04	0.06	0.04	0.01	
									G, V, N [NL][11]	NM_yM_z	5.66	0.19	0.01	0.01	0.03	

Notas:

[1] *1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]*
[2] *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
[3] *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
[4] *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)1 [NL]*
[5] *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
[6] *1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]*
[7] *1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]*
[8] *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
[9] *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]*
[10] *1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]*
[11] *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*

2.2.2.1.1285.

Sección de acero laminado																
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1077.6 cm)	HE 140 B	Cabeza	Cumple	1.1	0.1	1.7	2.8	2.8	G, G, V, V, N[1]	N_c	1.22	0.00	0.05	0.05	0.07	Cumple
									G, V, N [NL][2]	M_y	1.21	0.00	0.05	0.07	0.09	
									G, V, N [NL][3]	M_z,NM_yM_z	1.21	0.00	0.05	0.07	0.09	
		Pie	Cumple	1.1	1.1	3.5	5.1	5.1	G, G, V, V, N[1]	N_c	1.25	0.06	0.09	0.05	0.07	Cumple
									G, V, N [NL][2]	M_y	1.25	0.08	0.11	0.07	0.09	
									G, V, N [NL][3]	M_z,NM_yM_z	1.25	0.08	0.11	0.07	0.09	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.5	1.1	12.2	14.4	14.4	G, G, V, V, N[1]	N_c	1.76	0.06	0.32	-0.27	0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.60	0.07	0.39	-0.33	0.02	
									G, V, N [NL][3]	NM_yM_z	1.76	0.07	0.39	-0.33	0.02	
		Pie	Cumple	1.6	1.7	14.5	17.1	17.1	G, G, V, V, N[1]	N_c	1.88	0.09	-0.37	-0.27	0.01	Cumple
									G, V, N [NL][2]	M_y,M_z	1.72	0.11	-0.46	-0.33	0.02	
									G, V, N [NL][3]	NM_yM_z	1.87	0.11	-0.46	-0.33	0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.8	1.6	10.4	14.2	14.2	G, G, V, V, N[1]	N_c	3.21	0.08	-0.22	0.16	-0.05	Cumple
									G, V, N [NL][4]	M_y	2.55	0.11	-0.32	0.24	-0.06	
									G, V, N [NL][3]	M_z,NM_yM_z	3.20	0.11	-0.33	0.25	-0.06	
		Pie	Cumple	2.9	0.6	9.5	12.7	12.7	G, G, V, V, N[1]	N_c	3.33	-0.03	0.19	0.16	-0.05	Cumple
									G, Q [NL][5]	M_y	2.26	-0.04	0.25	0.21	-0.03	
									G, V, N [NL][3]	M_z,NM_yM_z	3.32	-0.04	0.30	0.25	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.1	0.5	2.1	5.7	5.7	G, G, V, V, N[1]	N_c	4.65	-0.03	-0.01	0.02	0.01	Cumple
									G, Q [NL][5]	M_y	3.09	-0.03	-0.02	0.03	0.02	
									G, V, N [NL][6]	M_z	3.80	-0.02	-0.07	0.07	0.02	
									G, V, N [NL][7]	NM_yM_z	3.87	-0.03	-0.07	0.06	0.02	
		Pie	Cumple	4.1	1.5	3.1	6.7	6.7	G, G, V, V, N[1]	N_c	4.76	0.00	0.03	0.02	0.01	Cumple
									G, V, N [NL][8]	M_y	2.92	0.10	0.04	0.03	0.04	
									G, V, N [NL][6]	M_z	3.92	0.02	0.10	0.07	0.02	
									G, V, N [NL][7]	NM_yM_z	3.99	0.02	0.10	0.06	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.3	1.5	1.2	6.3	6.3	G, G, V, V, N[9]	N_c	6.09	0.00	0.00	0.01	0.02	Cumple
									G, V, N [NL][8]	M_y	3.75	0.10	0.00	0.00	0.05	
									G, G, V, V, N[10]	M_z	3.94	0.00	-0.04	0.04	-0.01	
									G, V, N [NL][11]	NM_yM_z	6.08	0.00	0.03	-0.03	0.02	
		Pie	Cumple	5.4	3.3	1.7	8.3	8.3	G, G, V, V, N[9]	N_c	6.20	0.04	0.01	0.01	0.02	Cumple
									G, V, N [NL][8]	M_y	3.86	0.21	0.01	0.00	0.05	
									G, V, N [NL][12]	M_z	5.36	0.05	0.05	0.04	0.02	
									G, V, N [NL][13]	NM_yM_z	5.51	0.21	0.01	0.00	0.05	

Notas:

[1] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[2] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·Q [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
[10] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[11] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[12] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
[13] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1286.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1062.1 cm)	HE 140 B	Cabeza	Cumple	1.1	0.4	3.1	1.3	4.4	1.6	1.3	4.4	G, G, V, V, N[3]	N_c	1.24	-0.02	0.09	-0.08	-0.22	Cumple
												G, V, N [NL][4]	M_t,V_z,M_y,M_tV_z	1.23	-0.03	0.10	-0.09	-0.26	
												G, V, N [NL][5]	M_z,NM_yM_z	1.23	-0.03	0.10	-0.09	-0.26	
		Pie	Cumple	1.1	2.9	1.4	1.3	4.9	1.6	1.3	4.9	G, G, V, V, N[3]	N_c	1.27	-0.16	0.04	-0.08	-0.22	Cumple
												G, V, N [NL][4]	M_t,V_z,M_y,M_tV_z	1.26	-0.19	0.04	-0.09	-0.26	
												G, V, N [NL][5]	M_z,NM_yM_z	1.26	-0.19	0.05	-0.09	-0.26	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.5	2.6	11.2	0.5	14.0	0.3	0.5	14.0	G, V, N [NL][5]	N_c,NM_yM_z	1.72	-0.17	0.36	-0.26	0.09	Cumple
												G, V, N [NL][4]	M_t,M_z,V_z,M_tV_z	1.59	-0.17	0.36	-0.27	0.09	
												G, V, N [NL][6]	M_t	0.88	-0.11	0.24	-0.18	0.00	
		Pie	Cumple	1.6	1.6	10.3	0.5	12.5	0.3	0.5	12.5	G, V, N [NL][5]	N_c,NM_yM_z	1.83	0.07	-0.33	-0.26	0.09	Cumple
												G, V, N [NL][7]	M_y	0.89	-0.11	-0.17	-0.13	-0.01	
												G, V, N [NL][4]	M_z,V_z,M_tV_z	1.71	0.07	-0.33	-0.27	0.09	
												G, V, N [NL][6]	M_t	1.00	-0.11	-0.22	-0.18	0.00	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.8	2.1	16.1	0.3	19.4	0.4	0.3	19.4	G, V, N [NL][5]	N_c,M_z,NM_yM_z	3.27	0.02	-0.52	0.36	-0.01	Cumple
												G, V, N [NL][8]	M_t,V_z,M_tV_z	2.51	-0.14	-0.34	0.24	0.05	
												G, V, N [NL][4]	M_t	2.64	0.02	-0.52	0.36	-0.01	
		Pie	Cumple	2.9	0.4	11.7	0.3	14.8	0.4	0.3	14.8	G, V, N [NL][5]	N_c,M_z,NM_yM_z	3.38	0.00	0.37	0.36	-0.01	Cumple
												G, V, N [NL][9]	M_y	1.99	-0.03	0.12	0.11	0.01	
												G, V, N [NL][8]	V_z,M_tV_z	2.63	-0.01	0.25	0.24	0.05	
												G, V, N [NL][4]	M_t	2.76	0.00	0.37	0.36	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.1	0.4	1.8	0.3	5.7	0.1	0.3	5.7	G, V, N [NL][5]	N_c	4.72	0.00	0.00	0.02	0.02	Cumple
												G, V, N [NL][9]	M_y	3.32	-0.03	0.00	0.01	0.01	
												G, V, N [NL][10]	M_z	3.83	-0.01	0.06	-0.04	0.01	
												G, V, N [NL][8]	V_z,M_tV_z	2.84	-0.01	0.00	0.02	0.05	
												G, V, N [NL][11]	NM_yM_z	4.68	0.00	0.05	-0.03	0.02	
												G, V, N [NL][4]	M_t	3.60	0.00	0.00	0.02	0.02	
		Pie	Cumple	4.2	1.8	2.9	0.3	6.8	0.1	0.3	6.8	G, V, N [NL][5]	N_c	4.83	0.05	0.06	0.02	0.02	Cumple
												G, V, N [NL][9]	M_t,V_z,M_tV_z	2.96	0.12	0.04	0.02	0.05	
												G, V, N [NL][12]	M_z	2.82	0.05	0.09	0.06	0.02	
												G, V, N [NL][13]	NM_yM_z	4.02	0.05	0.09	0.06	0.02	
												G, V, N [NL][4]	M_t	3.71	0.05	0.06	0.02	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.4	1.8	1.2	0.2	6.6	N.P.[1]	N.P.[2]	6.6	G, V, N [NL][5]	N_c	6.16	0.05	0.00	0.01	0.00	Cumple
												G, V, N [NL][6]	M_y	3.79	0.12	0.00	0.01	0.04	
												G, V, N [NL][14]	M_z	5.25	0.03	-0.04	0.04	0.01	
												G, V, N [NL][8]	V_z	5.40	0.12	0.00	0.01	0.04	
												G, V, N [NL][11]	NM_yM_z	6.13	0.04	0.03	-0.03	0.00	
		Pie	Cumple	5.5	3.4	1.7	0.2	8.4	N.P.[1]	N.P.[2]	8.4	G, V, N [NL][5]	N_c	6.27	0.06	0.01	0.01	0.00	Cumple
												G, V, N [NL][6]	M_y	3.90	0.22	0.01	0.01	0.04	
												G, V, N [NL][14]	M_z	5.36	0.06	0.06	0.04	0.01	
												G, V, N [NL][8]	V_z,NM_yM_z	5.52	0.22	0.01	0.01	0.04	

Notas:

[1] La comprobación no procede, ya que no hay momento torsor.

[2] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

[3] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[7] 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

[9] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

[10] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]

[11] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

[12] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]

[13] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]

[14] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

Listados

2.2.2.1.1287.

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_t (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1046.6 cm)	HE 140 B	Cabeza	Cumple	1.5	3.5	56.3	4.2	8.9	62.2	2.2	9.0	62.2	G, V [NL][4]	N_t	-1.75	1.50	-0.06	0.04	-0.72	Cumple
													G, V, N [NL][5]	N_z,M_y,V_z,NM_yM_z,M_t,M_yV_z	4.07	-3.69	0.13	-0.08	1.80	
													G, V, N [NL][6]	M_z	4.06	-3.68	0.13	-0.08	1.80	
		Pie	Cumple	1.5	3.6	43.5	3.1	8.9	48.8	2.2	9.0	48.8	G, V [NL][4]	N_t	-1.74	1.16	-0.03	0.04	-0.72	Cumple
													G, V, N [NL][5]	N_z,M_y,V_z,NM_yM_z,M_t,M_yV_z	4.09	-2.85	0.10	-0.08	1.80	
													G, V, N [NL][6]	M_z	4.08	-2.85	0.10	-0.08	1.80	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.3	3.8	44.0	12.7	5.9	57.1	0.1	5.9	57.1	G, V [NL][7]	N_t	-1.51	1.17	-0.17	0.14	-0.48	Cumple
													G, V, N [NL][9]	N_c	4.39	-2.88	0.41	-0.34	1.18	
													G, V, N [NL][5]	M_y,M_z,V_z,NM_yM_z,M_yV_z	4.30	-2.89	0.41	-0.34	1.18	
													G, V, N [NL][8]	M_t	2.27	-1.50	0.27	-0.23	0.56	
		Pie	Cumple	1.3	3.9	2.6	14.9	5.9	20.5	0.1	5.9	20.5	G, V [NL][7]	N_t	-1.44	-0.06	0.20	0.14	-0.48	Cumple
													G, V, N [NL][8]	N_c,NM_yM_z	4.50	0.17	-0.48	-0.34	1.18	
													G, V, N [NL][9]	M_y	4.36	0.17	-0.46	-0.33	1.16	
													G, V, N [NL][5]	M_z,V_z,M_yV_z	4.41	0.17	-0.48	-0.34	1.18	
													G, V, N [NL][8]	M_t	2.39	-0.06	-0.32	-0.23	0.56	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	5.0	1.6	10.8	0.3	16.8	0.1	0.3	16.8	G, V [NL][7]	N_t	-0.63	-0.03	0.14	-0.11	-0.03	Cumple
													G, V, N [NL][8]	N_c,M_z,NM_yM_z,M_t	5.77	0.09	-0.34	0.26	0.06	
													G, V, N [NL][10]	M_y	2.93	-0.10	-0.17	0.13	0.06	
													G, V, N [NL][8]	V_z	3.19	-0.10	-0.23	0.17	0.07	
													G, V, N [NL][11]	M_tV_z	4.71	0.05	-0.32	0.24	0.06	
		Pie	Cumple	0.5	5.1	3.6	9.5	0.3	16.8	0.1	0.3	16.8	G, V [NL][7]	N_t	-0.56	-0.10	-0.13	-0.11	-0.03	Cumple
													G, V, N [NL][8]	N_c,M_z,NM_yM_z,M_t	5.89	0.24	0.30	0.26	0.06	
													G, V, N [NL][10]	M_y	5.30	0.24	0.30	0.26	0.06	
													G, V, N [NL][8]	V_z	3.31	0.07	0.20	0.17	0.07	
													G, V, N [NL][11]	M_tV_z	4.82	0.20	0.28	0.24	0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	N.P.[1]	6.3	3.5	2.4	0.2	10.7	N.P.[2]	N.P.[3]	10.7	G, V, N [NL][8]	N_c,NM_yM_z	7.20	0.23	-0.04	0.05	-0.05	Cumple
													G, V, N [NL][10]	M_y	6.12	0.23	-0.04	0.05	-0.05	
													G, V, N [NL][12]	M_z	5.35	0.12	-0.08	0.07	-0.02	
													G, V, N [NL][9]	V_z	6.06	0.23	-0.04	0.04	-0.05	
		Pie	Cumple	N.P.[1]	6.4	2.1	3.4	0.2	9.8	N.P.[2]	N.P.[3]	9.8	G, V, N [NL][8]	N_c,NM_yM_z	7.31	0.10	0.08	0.05	-0.05	Cumple
													G, V, N [NL][10]	M_y	4.24	0.14	0.05	0.03	0.03	
													G, V, N [NL][13]	M_z	4.39	0.08	0.11	0.07	-0.02	
													G, V, N [NL][9]	V_z	6.18	0.10	0.07	0.04	-0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	N.P.[1]	11.1	2.1	1.2	0.2	12.1	N.P.[2]	N.P.[3]	12.1	G, V, N [NL][8]	N_c	8.63	0.10	0.00	0.00	-0.04	Cumple
													G, V, N [NL][10]	M_y	5.07	0.14	0.00	0.00	0.02	
													G, G, V, V, N[14]	M_z	2.93	-0.04	-0.04	0.04	0.01	
													G, V, N [NL][9]	V_z	7.00	0.10	0.00	0.00	-0.04	
													G, V, N [NL][15]	NM_yM_z	8.09	0.08	0.03	-0.03	-0.03	
		Pie	Cumple	N.P.[1]	11.3	3.0	1.7	0.2	11.7	N.P.[2]	N.P.[3]	11.7	G, V, N [NL][8]	N_c,NM_yM_z	8.74	0.01	0.01	0.00	-0.04	Cumple
													G, V, N [NL][16]	M_y	6.75	0.20	0.01	0.00	0.02	
													G, V, N [NL][17]	M_z	6.36	0.03	0.05	0.04	-0.01	
													G, V, N [NL][9]	V_z	7.11	0.01	0.01	0.00	-0.04	

Notas:

[1] La comprobación no procede, ya que no hay axil de tracción.
[2] La comprobación no procede, ya que no hay momento torsor.
[3] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[4] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[5] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)1 [NL]
[10] 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
[11] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[12] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
[13] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
[14] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[15] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
[16] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[17] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1288.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_t (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1031 cm)	HE 140 B	Cabeza	Cumple	1.1	0.7	3.6	2.6	5.1	3.5	2.6	5.1	G, G, V, V, N[3]	N_c	1.25	-0.04	0.10	-0.02	-0.42	Cumple
												G, V, N [NL][*1]	M_y,V_z,M_t,M_t,V_z	1.25	-0.05	0.11	0.02	-0.52	
												G, V, N [NL][*2]	M_z,NM_yM_z	1.25	-0.05	0.12	0.01	-0.52	
		Pie	Cumple	1.1	3.1	3.7	2.6	6.8	3.5	2.6	6.8	G, G, V, V, N[3]	N_c	1.26	-0.17	0.10	-0.02	-0.42	Cumple
												G, V, N [NL][4]	M_y,M_z,V_z,NM_yM_z,M_t,M_tV_z	1.26	-0.21	0.12	0.02	-0.52	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	1.3	2.7	11.7	0.3	14.4	0.2	0.3	14.4	G, G, V, V, N[3]	N_c	1.54	-0.14	0.31	-0.24	0.00	Cumple
												G, V, N [NL][*1]	M_y,M_z	1.48	-0.17	0.37	-0.29	0.00	
												G, V, N [NL][*2]	V_z,M_tV_z	0.84	-0.10	0.25	-0.19	-0.06	
												G, V, N [NL][*3]	NM_yM_z	1.54	-0.17	0.37	-0.29	0.00	
												G, V, N [NL][*4]	M_t	1.31	-0.16	0.34	-0.26	-0.01	
		Pie	Cumple	1.4	4.0	11.5	0.3	14.4	0.2	0.3	14.4	G, G, V, V, N[3]	N_c	1.66	-0.14	-0.30	-0.24	0.00	Cumple
												G, V, N [NL][8]	M_y	0.89	-0.26	-0.24	-0.19	-0.06	
												G, V, N [NL][*1]	M_z	1.59	-0.18	-0.37	-0.29	0.00	
												G, V, N [NL][*2]	V_z,M_tV_z	0.95	-0.26	-0.24	-0.19	-0.06	
												G, V, N [NL][*3]	NM_yM_z	1.66	-0.18	-0.37	-0.29	0.00	
												G, V, N [NL][7]	M_t	1.43	-0.19	-0.34	-0.26	-0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.7	4.0	14.5	0.6	18.7	0.3	0.6	18.7	G, V, N [NL][5]	N_c,M_z,NM_yM_z	3.08	-0.16	-0.47	0.32	0.10	Cumple
												G, V, N [NL][8]	M_y,V_z,M_tV_z	1.78	-0.26	-0.31	0.22	0.12	
												G, V, N [NL][*1]	M_t	2.52	-0.16	-0.46	0.32	0.10	
		Pie	Cumple	2.8	1.3	10.8	0.6	14.3	0.3	0.6	14.3	G, V, N [NL][*3]	N_c,M_y,M_z,NM_yM_z	3.19	0.08	0.34	0.32	0.10	Cumple
												G, V, N [NL][*2]	V_z,M_tV_z	1.89	0.02	0.23	0.22	0.12	
												G, V, N [NL][4]	M_t	2.63	0.08	0.34	0.32	0.10	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.0	1.2	2.1	0.2	5.7	0.1	0.2	5.7	G, V, N [NL][5]	N_c,M_y	4.56	0.08	-0.02	0.04	0.02	Cumple
												G, V, N [NL][*1]	M_z	2.61	0.05	-0.07	0.07	0.02	
												G, V, N [NL][*2]	V_z,M_tV_z	2.75	0.02	-0.02	0.03	0.05	
												G, V, N [NL][*3]	NM_yM_z	3.74	0.05	-0.07	0.07	0.02	
												G, V, N [NL][*4]	M_t	3.50	0.08	-0.02	0.04	0.02	
		Pie	Cumple	4.1	2.0	3.3	0.2	7.6	0.1	0.2	7.6	G, V, N [NL][*5]	N_c,NM_yM_z	4.67	0.12	0.08	0.04	0.02	Cumple
												G, V, N [NL][*6]	M_y,V_z,M_tV_z	2.86	0.13	0.05	0.03	0.05	
												G, V, N [NL][*7]	M_z	2.72	0.09	0.11	0.07	0.02	
												G, V, N [NL][4]	M_t	3.61	0.12	0.08	0.04	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.2	2.0	1.2	0.3	7.2	N.P.[1]	N.P.[2]	7.2	G, V, N [NL][5]	N_c	6.01	0.12	0.00	0.01	-0.06	Cumple
												G, V, N [NL][8]	M_y	3.70	0.13	0.00	0.01	0.01	
												G, V, N [NL][11]	M_z	4.61	0.04	-0.04	0.04	-0.01	
												G, V, N [NL][4]	V_z	4.46	0.12	0.00	0.01	-0.06	
												G, V, N [NL][12]	NM_yM_z	5.98	0.09	0.03	-0.02	-0.05	
		Pie	Cumple	5.3	2.6	1.7	0.3	7.5	N.P.[1]	N.P.[2]	7.5	G, V, N [NL][5]	N_c	6.12	-0.02	0.01	0.01	-0.06	Cumple
												G, V, N [NL][13]	M_y	4.83	0.17	0.01	0.01	0.02	
												G, V, N [NL][14]	M_z	5.20	0.01	0.06	0.04	-0.02	
												G, V, N [NL][4]	V_z	4.57	-0.02	0.01	0.01	-0.06	
												G, V, N [NL][6]	NM_yM_z	5.36	0.17	0.01	0.01	0.01	

Notas:

[1] La comprobación no procede, ya que no hay momento torsor.
[2] No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
[3] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+0.9·VH3+1.5·N(EI) [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]
[10] 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
[11] 0.8·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
[12] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
[13] 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[14] 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

Listados

Modelado para analisis estructural por remodelacion de marcos de ventana Fecha: 07/24

2.2.2.1.1289.

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	V_y (%)	NM_yM_z (%)	M_tV_z (%)	M_tV_y (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (1000 - 1015.5 cm)	HE 140 B	Cabeza	Cumple	1.8	12.0	6.9	3.0	2.5	18.3	3.8	3.0	2.5	18.3	G, V, N [NL](3)	N_c,M_y,V_z,V_y,NM_yM_z,M_tM_z,M_tV_z,M_tV_y	2.04	-0.78	0.22	-1.33	0.60	Cumple
														G, V, N [NL](*)	M_z	2.03	-0.78	0.22	-1.32	0.60	
		Pie	Cumple	1.8	10.5	0.6	3.0	2.5	12.5	3.8	3.0	2.5	12.5	G, V, N [NL](*)	N_c,M_y,V_z,V_y,NM_yM_z,M_tM_z,M_tV_z,M_tV_y	2.05	-0.69	0.01	-1.33	0.60	Cumple
														G, Q [NL](5)	M_z	1.40	-0.46	0.02	-1.00	0.43	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	2.1	10.7	13.9	2.3	0.7	22.4	< 0.1	2.3	0.7	22.4	G, V, N [NL](4)	N_c	2.37	-0.69	0.44	-0.35	0.46	Cumple
														G, V, N [NL](*)	M_y,M_z,V_z,V_y,NM_yM_z,M_tV_z,M_tV_y	2.36	-0.70	0.44	-0.35	0.47	
														G, V, N [NL](*)	M_t	2.19	-0.56	0.37	-0.30	0.37	
		Pie	Cumple	2.2	7.8	14.7	2.3	0.7	21.1	< 0.1	2.3	0.7	21.1	G, V, N [NL](*)	N_c	2.49	0.50	-0.47	-0.35	0.46	Cumple
														G, V, N [NL](*)	M_y,M_z,V_z,V_y,NM_yM_z,M_tV_z,M_tV_y	2.48	0.51	-0.47	-0.35	0.47	
														G, V, N [NL](5)	M_t	2.31	0.41	-0.39	-0.30	0.37	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.9	7.8	11.5	1.6	0.5	19.6	0.2	1.6	0.5	19.6	G, V, N [NL](4)	N_c,M_z,V_y,NM_yM_z,M_tV_y	4.48	-0.49	-0.37	0.28	0.33	Cumple
														G, V, N [NL](*)	M_y	2.63	-0.51	-0.25	0.18	0.31	
														G, V, N [NL](*)	V_z,$M_tM_tV_z$	3.98	-0.50	-0.37	0.27	0.33	
		Pie	Cumple	4.0	5.1	10.0	1.6	0.5	16.9	0.2	1.6	0.5	16.9	G, V, N [NL](*)	N_c,M_z,V_y,NM_yM_z,M_tV_y	4.59	0.33	0.32	0.28	0.33	Cumple
														G, V, N [NL](2)	M_y,V_z,$M_tM_tV_z$	4.09	0.33	0.32	0.27	0.33	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.3	2.2	3.5	0.7	0.2	8.5	N.P.(1)	N.P.(2)	N.P.(2)	8.5	G, V, N [NL](4)	N_c,NM_yM_z	6.14	-0.06	-0.09	0.08	0.08	Cumple
														G, V, N [NL](*)	M_y,V_z	3.86	-0.14	-0.05	0.05	0.14	
														G, V, N [NL](*)	M_z,V_y	4.56	-0.03	-0.11	0.10	0.05	
		Pie	Cumple	5.4	3.3	4.2	0.7	0.2	10.2	N.P.(1)	N.P.(2)	N.P.(2)	10.2	G, V, N [NL](*)	N_c,NM_yM_z	6.25	0.14	0.11	0.08	0.08	Cumple
														G, V, N [NL](*)	M_t,V_z	3.98	0.22	0.07	0.05	0.14	
														G, V, N [NL](*)	M_z	4.81	0.10	0.14	0.10	0.05	
														G, V, N [NL](8)	V_y	4.68	0.09	0.14	0.10	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.7	1.0	1.3	0.7	0.1	7.7	0.2	0.7	0.1	7.7	G, V, N [NL](4)	N_c	7.72	-0.04	-0.01	0.01	0.05	Cumple
														G, V, N [NL](7)	M_y,V_z,M_tV_z	5.04	-0.07	0.00	0.01	0.14	
														G, V, N [NL](10)	M_z,V_y,M_tV_y	5.80	-0.02	-0.04	0.04	0.03	
														G, V, N [NL](6)	NM_yM_z	7.42	-0.03	0.03	-0.03	0.04	
														G, V, N [NL](3)	M_t	6.24	-0.04	0.00	0.01	0.06	
		Pie	Cumple	6.8	4.3	1.8	0.7	0.1	10.4	0.2	0.7	0.1	10.4	G, V, N [NL](4)	N_c	7.83	0.09	0.02	0.01	0.05	Cumple
														G, V, N [NL](7)	M_y,V_z,M_tV_z	5.15	0.28	0.01	0.01	0.14	
														G, V, N [NL](10)	M_z,V_y,M_tV_y	5.91	0.05	0.06	0.04	0.03	
														G, V, N [NL](11)	NM_yM_z	6.64	0.28	0.01	0.01	0.14	
														G, V, N [NL](3)	M_t	6.35	0.10	0.02	0.01	0.06	

Notas:
(1) La comprobación no procede, ya que no hay momento torsor.
(2) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·Q [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.179. P300

Sección de acero laminado																				
Tramo	Sección	Posición	Comprobaciones										Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.2	1.8	8.1	1.6	9.3	1.6	9.3	G, V, N [NL](1)	N_c,M_y,M_z,NM_yM_z	0.28	0.12	-0.26	0.20	0.01	Cumple
											G, V [NL](2)	V_z	0.11	0.07	0.03	-0.03	-0.32	
											G, V [NL](3)	M_tV_z	0.03	0.05	0.07	-0.06	-0.32	
		Pie	Cumple	0.3	2.4	7.7	1.7	9.2	1.7	9.2	G, V, N [NL](1)	N_c,M_z	0.40	0.15	0.25	0.20	0.01	Cumple
											G, Q [NL](4)	M_y	0.37	0.16	0.22	0.17	0.03	
											G, V, N [NL](5)	V_z	0.11	0.11	-0.05	-0.03	0.35	
											G, V, N [NL](6)	NM_yM_z	0.40	0.15	0.24	0.20	0.01	
											G, V, N [NL](7)	M_tV_z	0.24	0.13	-0.01	0.00	0.35	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.0	2.3	11.5	1.2	14.1	1.2	14.1	G, V, N [NL](6)	N_c,M_z,NM_yM_z	2.27	0.08	0.37	-0.26	-0.07	Cumple
											G, V, N [NL](8)	M_y	1.56	0.15	0.28	-0.20	0.00	
											G, V, N [NL](9)	V_z,M_tV_z	1.09	-0.01	0.05	-0.03	-0.25	
		Pie	Cumple	2.1	2.9	9.0	2.0	12.0	1.9	12.0	G, V, N [NL](9)	N_c,M_z,NM_yM_z	2.38	-0.11	-0.29	-0.26	-0.07	Cumple
											G, V, N [NL](8)	M_y	1.67	-0.19	-0.22	-0.20	-0.26	
											G, V [NL](10)	V_z	1.29	0.19	0.05	0.04	0.40	
											G, V, N [NL](11)	M_tV_z	1.33	0.17	0.02	0.02	0.39	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.2	1.4	2.4	1.0	5.9	1.0	5.9	G, V, N [NL](6)	N_c,M_y	3.70	-0.09	0.04	-0.04	0.04	Cumple
											G, V, N [NL](12)	M_z,NM_yM_z	3.36	-0.07	0.08	-0.07	0.03	
											G, V [NL](3)	V_z,M_tV_z	1.47	0.00	0.00	0.01	-0.20	
		Pie	Cumple	3.3	3.6	3.2	1.9	6.3	1.9	6.3	G, V, N [NL](6)	N_c	3.81	0.01	-0.07	-0.04	0.04	Cumple
											G, V, N [NL](11)	M_y	2.53	0.23	0.00	0.00	0.39	
											G, V, N [NL](12)	M_z	3.47	0.00	-0.10	-0.07	0.03	
											G, V, N [NL](7)	V_z,M_tV_z	2.99	0.23	-0.01	-0.01	0.39	
											G, V, N [NL](13)	NM_yM_z	2.96	0.23	-0.01	-0.01	0.39	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	0.5	1.6	0.5	6.0	0.5	6.0	G, V, N [NL](14)	N_c	5.15	-0.02	-0.04	0.03	0.03	Cumple
											G, V [NL](3)	M_tV_z,M_tV_z	2.17	0.03	0.01	-0.01	-0.11	
											G, V, N [NL](15)	M_z	3.43	-0.01	-0.05	0.05	0.01	
											G, V, N [NL](16)	NM_yM_z	4.93	-0.01	-0.05	0.04	0.02	
		Pie	Cumple	4.6	6.5	1.9	2.1	10.6	2.1	10.6	G, V, N [NL](14)	N_c	5.26	0.04	0.04	0.03	0.03	Cumple
											G, V, N [NL](7)	M_tV_z,M_tV_z	4.29	0.43	-0.01	-0.01	0.43	
											G, V, N [NL](15)	M_z	3.54	0.02	0.06	0.05	0.01	
											G, V, N [NL](13)	NM_yM_z	4.26	0.43	-0.02	-0.01	0.43	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(12) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(13) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(14) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(15) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(16) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]

2.2.2.1.1290.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.2	3.9	7.7	1.2	10.0	1.2	10.0	G, V, N [NL](1)	N_c,M_z,NM_yM_z	0.28	0.25	-0.25	0.22	0.12	Cumple
											G, V, N [NL](2)	M_y	0.28	0.25	-0.25	0.22	0.12	
											G, V [NL](3)	V_z,M_yV_z	0.10	0.04	0.06	-0.05	-0.25	
		Pie	Cumple	0.3	8.8	9.8	2.2	15.8	2.2	15.8	G, V, N [NL](1)	N_c,M_z,NM_yM_z	0.40	0.57	0.31	0.22	0.12	Cumple
											G, V, N [NL](2)	M_y	0.40	0.57	0.31	0.22	0.12	
											G, V, N [NL](4)	V_z,M_yV_z	0.31	0.42	0.02	0.01	0.45	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.0	10.0	8.2	2.7	17.8	2.7	17.8	G, V, N [NL](1)	N_c,M_z,NM_yM_z	2.29	0.66	0.26	-0.20	-0.29	Cumple
											G, V, N [NL](2)	M_y	1.80	0.66	0.26	-0.20	-0.29	
											G, V, N [NL](4)	V_z,M_yV_z	1.44	0.40	0.02	-0.01	-0.55	
		Pie	Cumple	2.1	3.1	7.4	1.4	10.1	1.4	10.1	G, V, N [NL](1)	N_c,M_z,NM_yM_z	2.41	-0.07	-0.24	-0.20	-0.29	Cumple
											G, V, N [NL](5)	M_y	2.05	-0.20	-0.01	-0.01	0.06	
											G, V, N [NL](2)	V_z,M_yV_z	1.91	-0.07	-0.24	-0.20	-0.29	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.3	3.4	2.2	1.2	6.5	1.2	6.5	G, V, N [NL](1)	N_c	3.75	-0.04	0.03	-0.04	0.00	Cumple
											G, V, N [NL](5)	M_y,NM_yM_z	3.38	-0.22	0.01	-0.01	-0.24	
											G, V, N [NL](6)	M_z	3.40	-0.01	0.07	-0.06	-0.01	
											G, V, N [NL](4)	V_z,M_yV_z	2.39	-0.22	0.01	-0.01	-0.24	
		387.8 cm	Cumple	3.3	5.2	0.4	0.1	8.2	0.1	8.2	G, V, N [NL](1)	N_c	3.80	-0.05	-0.01	-0.04	0.00	Cumple
											G, V, N [NL](5)	M_y,NM_yM_z	3.43	-0.34	0.00	-0.01	0.01	
											G, V, N [NL](7)	M_z	3.43	-0.02	-0.01	0.00	-0.01	
											G, V, N [NL](8)	V_z,M_yV_z	2.38	0.11	-0.01	-0.03	-0.02	
		Pie	Cumple	3.4	1.2	2.9	1.7	6.3	1.7	6.3	G, V, N [NL](1)	N_c	3.86	-0.05	-0.06	-0.04	0.00	Cumple
											G, V, N [NL](4)	M_y	2.50	-0.08	-0.01	-0.01	0.34	
											G, V, N [NL](6)	M_z	3.52	-0.04	-0.09	-0.06	-0.01	
											G, V [NL](3)	V_z,M_yV_z	3.02	-0.06	0.01	0.01	0.35	
											G, V, N [NL](9)	NM_yM_z	3.55	-0.04	-0.09	-0.06	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	1.4	1.5	0.8	6.0	0.8	6.0	G, V, N [NL](1)	N_c	5.20	-0.05	-0.01	0.01	-0.02	Cumple
											G, V, N [NL](4)	M_y	3.33	-0.09	0.01	-0.01	0.16	
											G, V, N [NL](10)	M_z	3.27	-0.03	-0.05	0.04	-0.01	
											G, V [NL](3)	V_z,M_yV_z	4.31	-0.08	0.01	-0.01	0.16	
											G, V, N [NL](11)	NM_yM_z	5.10	-0.05	-0.04	0.03	-0.01	
		Pie	Cumple	4.6	14.7	1.8	3.4	19.1	3.4	19.1	G, V, N [NL](1)	N_c	5.31	-0.09	0.00	0.01	-0.02	Cumple
											G, V [NL](3)	M_y,V_z,M_yV_z	4.37	0.96	-0.01	-0.01	0.69	
											G, V, N [NL](10)	M_z	3.38	-0.05	0.06	0.04	-0.01	
											G, V [NL](12)	NM_yM_z	4.85	0.95	-0.01	-0.01	0.69	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(R)2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.1291.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	8.7	7.3	0.8	14.2	0.8	14.2	G, V, N [NL](1)	N_c,M_y	0.44	0.57	-0.23	0.18	-0.16	Cumple
											G, V, N [NL](4)	M_z,NM_yM_z	0.44	0.57	-0.23	0.18	-0.16	
											G, V, N [NL](3)	V_z,M_tV_z	0.43	0.56	-0.23	0.17	-0.16	
		Pie	Cumple	0.5	9.7	7.1	2.7	10.8	2.7	10.8	G, V, N [NL](1)	N_c	0.56	0.16	0.23	0.18	-0.16	Cumple
											G, V, N [NL](4)	M_y	0.30	0.63	0.04	0.02	0.52	
											G, V, N [NL](2)	M_z	0.56	0.16	0.23	0.18	-0.16	
											G, V [NL](5)	V_z	0.13	0.59	-0.03	-0.03	0.55	
											G, V, N [NL](6)	NM_yM_z	0.30	0.63	0.04	0.02	0.52	
											G, V, N [NL](7)	M_tV_z	0.15	0.61	-0.01	-0.01	0.55	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	14.4	11.9	4.3	19.5	4.3	19.5	G, V, N [NL](2)	N_c,M_z,NM_yM_z	3.74	0.52	0.38	-0.27	0.00	Cumple
											G, V, N [NL](4)	M_y	1.60	0.94	-0.01	0.00	-0.87	
											G, V, N [NL](8)	V_z	2.00	0.92	-0.02	0.01	-0.87	
											G, V, N [NL](7)	M_tV_z	1.54	0.83	-0.08	0.05	-0.86	
		Pie	Cumple	3.4	9.2	8.9	1.3	17.5	1.3	17.5	G, V, N [NL](4)	N_c,M_z,NM_yM_z	3.85	0.52	-0.28	-0.27	0.00	Cumple
											G, V [NL](5)	M_y	1.47	-0.60	0.08	0.08	-0.25	
											G, V, N [NL](8)	V_z	2.12	-0.49	0.01	0.01	-0.26	
											G, V, N [NL](7)	M_tV_z	1.61	-0.56	0.05	0.05	-0.25	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.5	9.0	1.9	1.1	12.4	1.1	12.4	G, V, N [NL](2)	N_c,NM_yM_z	5.17	0.50	0.01	-0.02	-0.22	Cumple
											G, V [NL](5)	M_y	2.75	-0.59	0.01	0.00	-0.14	
											G, V, N [NL](9)	M_z	2.89	-0.03	0.06	-0.05	0.01	
											G, V, N [NL](1)	V_z,M_tV_z	4.18	0.50	0.01	-0.02	-0.22	
		Pie	Cumple	4.6	3.4	2.7	2.2	6.8	2.2	6.8	G, V, N [NL](2)	N_c	5.28	-0.05	-0.05	-0.02	-0.22	Cumple
											G, V, N [NL](6)	M_y,NM_yM_z	3.65	-0.23	-0.01	-0.01	0.38	
											G, V, N [NL](10)	M_z	4.28	-0.03	-0.09	-0.06	-0.12	
											G, V [NL](5)	V_z,M_tV_z	2.82	-0.21	0.01	0.00	0.44	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	3.5	1.4	2.0	8.0	2.0	8.0	G, V, N [NL](2)	N_c	6.60	-0.05	-0.01	0.00	-0.14	Cumple
											G, V, N [NL](6)	M_y,NM_yM_z	4.97	-0.23	0.01	-0.01	0.36	
											G, V, N [NL](11)	M_z	3.86	-0.03	-0.05	0.04	-0.06	
											G, V [NL](5)	V_z,M_tV_z	4.10	-0.21	0.01	-0.01	0.40	
		Pie	Cumple	5.8	21.3	1.7	4.6	25.3	4.6	25.3	G, V, N [NL](2)	N_c	6.71	-0.38	0.00	0.00	-0.14	Cumple
											G, V [NL](5)	M_y,V_z,NM_yM_z,M_tV_z	4.17	1.40	-0.01	-0.01	0.93	
											G, V, N [NL](11)	M_z	3.97	-0.17	0.06	0.04	-0.06	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(10) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1292.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	12.7	6.4	0.5	17.7	0.5	17.7	G, V, N [NL](1)	N_c,M_y	0.62	0.83	-0.21	0.14	-0.08	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.62	0.83	-0.21	0.14	-0.08	
											G, V, N [NL](3)	V_z,M_tV_z	0.22	0.19	-0.01	0.01	-0.11	
		Pie	Cumple	0.6	12.1	4.9	2.8	13.7	2.8	13.7	G, V, N [NL](1)	N_c	0.74	0.63	0.16	0.14	-0.08	Cumple
											G, V, N [NL](4)	M_y	0.35	0.79	0.02	0.02	0.56	
											G, V, N [NL](2)	M_z,NM_yM_z	0.74	0.63	0.16	0.14	-0.08	
											G, V, N [NL](5)	V_z,M_tV_z	0.16	0.68	-0.01	-0.01	0.57	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.9	17.4	13.8	4.5	30.8	4.5	30.8	G, V, N [NL](2)	N_c,M_z,NM_yM_z	4.52	1.12	0.44	-0.30	-0.05	Cumple
											G, V, N [NL](4)	M_y,V_z,M_tV_z	1.75	1.14	0.01	-0.01	-0.92	
		Pie	Cumple	4.0	15.1	9.7	1.5	25.9	1.5	25.9	G, V, N [NL](2)	N_c,M_z,NM_yM_z	4.64	0.99	-0.31	-0.30	-0.05	Cumple
											G, V, N [NL](1)	M_y	4.14	0.99	-0.31	-0.30	-0.05	
											G, V, N [NL](4)	V_z,M_tV_z	1.86	-0.39	-0.01	-0.01	-0.31	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.2	14.7	1.8	2.0	20.2	2.0	20.2	G, V, N [NL](2)	N_c,NM_yM_z	5.95	0.96	-0.01	-0.01	-0.39	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	4.96	0.96	-0.01	-0.01	-0.39	
											G, V, N [NL](6)	M_z	2.86	0.23	-0.06	0.04	-0.10	
		Pie	Cumple	5.3	3.3	2.4	2.3	6.8	2.0	6.8	G, V, N [NL](2)	N_c	6.06	-0.03	-0.04	-0.01	-0.39	Cumple
											G, V, N [NL](4)	M_y	2.81	-0.22	-0.01	0.00	0.35	
											G, V, N [NL](7)	M_z	4.72	-0.02	-0.08	-0.05	-0.22	
											G, V [NL](8)	V_z	2.78	-0.21	0.01	0.00	0.46	
											G, V, N [NL](9)	NM_yM_z	3.80	-0.22	-0.01	0.00	0.35	
											G, V, N [NL](10)	M_tV_z	3.68	0.06	-0.03	-0.01	-0.41	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.4	3.3	1.3	2.1	7.9	1.8	7.9	G, V, N [NL](2)	N_c	7.38	-0.02	0.00	0.00	-0.31	Cumple
											G, V, N [NL](4)	M_y	3.64	-0.22	0.01	-0.01	0.35	
											G, V, N [NL](11)	M_z	4.20	-0.01	-0.04	0.04	-0.14	
											G, V [NL](8)	V_z	4.06	-0.21	0.01	-0.01	0.43	
											G, V, N [NL](9)	NM_yM_z	5.12	-0.22	0.01	-0.01	0.35	
											G, V, N [NL](10)	M_tV_z	4.51	0.07	0.00	0.00	-0.36	
		Pie	Cumple	6.5	22.8	1.7	4.8	26.7	2.9	26.7	G, V, N [NL](2)	N_c	7.49	-0.76	0.00	0.00	-0.31	Cumple
											G, V [NL](8)	M_y,V_z,NM_yM_z	4.13	1.49	-0.01	-0.01	0.97	
											G, G, V, V, N(12)	M_z	1.69	0.27	0.05	0.04	0.11	
											G, V, N [NL](10)	M_tV_z	4.62	-1.08	-0.01	0.00	-0.58	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(6) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(12) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1293.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	11.2	7.3	2.3	16.7	2.4	16.7	G, V, N [NL](1)	N_c,M_y,V_z,M_tV_z	0.55	0.73	-0.23	0.21	0.48	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.55	0.73	-0.23	0.21	0.47	
		Pie	Cumple	0.6	29.9	9.5	3.1	37.1	3.1	37.1	G, V, N [NL](1)	N_c,M_y,NM_yM_z	0.67	1.96	0.30	0.21	0.48	Cumple
											G, V, N [NL](2)	M_z	0.67	1.96	0.30	0.21	0.47	
											G, V, N [NL](3)	V_z,M_tV_z	0.39	0.99	0.02	0.02	0.63	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.9	32.9	7.2	4.0	41.0	4.0	41.0	G, V, N [NL](2)	N_c,NM_yM_z	3.38	2.15	0.23	-0.18	-0.61	Cumple
											G, V, N [NL](1)	M_y	2.88	2.16	0.23	-0.18	-0.61	
											G, V, N [NL](4)	M_z	2.63	1.31	0.23	-0.18	-0.36	
											G, V, N [NL](3)	V_z,M_tV_z	1.67	0.98	0.02	-0.01	-0.81	
		Pie	Cumple	3.0	9.6	6.8	3.0	17.4	3.0	17.4	G, V, N [NL](2)	N_c,M_z,NM_yM_z	3.49	0.63	-0.22	-0.18	-0.61	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	3.00	0.63	-0.22	-0.18	-0.61	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.2	10.0	1.8	1.3	14.8	1.3	14.8	G, V, N [NL](2)	N_c,NM_yM_z	4.82	0.66	0.02	-0.03	-0.26	Cumple
											G, V, N [NL](1)	M_y,M_tV_z	3.83	0.66	0.02	-0.03	-0.26	
											G, V, N [NL](5)	M_z	4.00	0.41	0.06	-0.06	-0.16	
											G, V, N [NL](3)	V_z	2.62	-0.27	0.00	0.00	-0.26	
		Pie	Cumple	4.3	3.0	2.5	1.9	6.4	1.6	6.4	G, V, N [NL](2)	N_c	4.94	0.01	-0.05	-0.03	-0.26	Cumple
											G, V, N [NL](3)	M_y	2.74	-0.20	0.00	0.00	0.32	
											G, V, N [NL](5)	M_z	4.11	0.00	-0.08	-0.06	-0.16	
											G, V [NL](6)	V_z	2.99	-0.19	0.01	0.00	0.39	
											G, V, N [NL](7)	NM_yM_z	3.72	-0.20	0.00	0.00	0.32	
											G, V, N [NL](8)	M_tV_z	2.98	0.07	-0.04	-0.02	-0.33	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	3.0	1.4	2.1	7.6	1.9	7.6	G, V, N [NL](2)	N_c	6.27	0.00	-0.01	0.00	-0.36	Cumple
											G, V, N [NL](3)	M_y	3.57	-0.20	0.01	-0.01	0.33	
											G, V, N [NL](9)	M_z	3.72	-0.01	-0.04	0.04	-0.16	
											G, V [NL](6)	V_z	4.27	-0.19	0.01	-0.01	0.42	
											G, V, N [NL](7)	NM_yM_z	5.05	-0.20	0.01	-0.01	0.33	
											G, V, N [NL](8)	M_tV_z	3.82	0.07	0.00	0.00	-0.39	
		Pie	Cumple	5.6	22.6	1.7	4.7	26.7	3.0	26.7	G, V, N [NL](2)	N_c	6.38	-0.87	0.00	0.00	-0.36	Cumple
											G, V [NL](6)	M_y,V_z,NM_yM_z	4.34	1.48	-0.01	-0.01	0.95	
											G, V, N [NL](9)	M_z	3.83	-0.40	0.05	0.04	-0.16	
											G, V, N [NL](8)	M_tV_z	3.93	-1.14	0.00	0.00	-0.61	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(6) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

2.2.2.1.1294.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	15.5	5.8	0.5	20.2	0.5	20.2	G, V, N [NL](1)	N_c,M_y	0.78	1.02	-0.18	0.13	0.01	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.78	1.02	-0.18	0.13	0.01	
											G, V [NL](3)	V_z,M_tV_z	0.05	0.01	0.04	-0.03	-0.10	
		Pie	Cumple	0.8	16.1	4.7	2.9	20.1	2.9	20.1	G, V, N [NL](1)	N_c,M_y	0.89	1.05	0.15	0.13	0.01	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.89	1.05	0.15	0.13	0.01	
											G, V, N [NL](4)	V_z,M_tV_z	0.38	0.90	0.01	0.01	0.58	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.4	27.2	11.7	4.6	40.0	4.6	40.0	G, V, N [NL](2)	N_c,M_z,NM_yM_z	5.09	1.78	0.37	-0.26	-0.18	Cumple
											G, V, N [NL](1)	M_y	4.60	1.78	0.37	-0.25	-0.18	
											G, V, N [NL](4)	V_z,M_tV_z	1.91	1.28	0.04	-0.03	-0.93	
		Pie	Cumple	4.5	20.5	8.3	1.6	31.0	1.6	31.0	G, V, N [NL](2)	N_c,M_z,NM_yM_z	5.21	1.34	-0.27	-0.26	-0.18	Cumple
											G, V, N [NL](1)	M_y	4.71	1.34	-0.26	-0.25	-0.18	
											G, V, N [NL](4)	V_z,M_tV_z	2.03	-0.27	-0.03	-0.03	-0.32	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.7	20.1	1.7	2.6	26.2	2.6	26.2	G, V, N [NL](2)	N_c,NM_yM_z	6.51	1.31	-0.01	-0.01	-0.53	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	5.53	1.31	-0.01	-0.01	-0.53	
											G, V, N [NL](5)	M_z	2.92	0.29	-0.06	0.04	-0.12	
		Pie	Cumple	5.8	2.9	2.2	2.6	6.9	2.6	6.9	G, V, N [NL](2)	N_c,NM_yM_z	6.63	-0.01	-0.03	-0.01	-0.53	Cumple
											G, V, N [NL](4)	M_y	2.97	-0.19	0.00	0.00	0.32	
											G, V, N [NL](6)	M_z	5.13	-0.01	-0.07	-0.04	-0.31	
											G, V, N [NL](1)	V_z,M_tV_z	5.64	-0.01	-0.03	-0.01	-0.53	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	10.3	2.9	1.3	2.1	10.4	2.1	10.4	G, V, N [NL](2)	N_c,NM_yM_z	7.95	-0.01	0.00	0.00	-0.42	Cumple
											G, V, N [NL](4)	M_y	3.81	-0.19	0.01	-0.01	0.31	
											G, V, N [NL](7)	M_z	4.49	-0.01	-0.04	0.04	-0.19	
											G, V [NL](3)	V_z	4.08	-0.18	0.01	-0.01	0.43	
											G, V, N [NL](1)	M_tV_z	6.47	-0.01	0.00	0.00	-0.42	
		Pie	Cumple	10.4	22.9	1.7	4.7	26.8	3.2	26.8	G, V, N [NL](2)	N_c	8.06	-1.03	0.00	0.00	-0.42	Cumple
											G, V [NL](3)	M_y,V_z,NM_yM_z	4.14	1.50	-0.01	-0.01	0.96	
											G, G, V, V, N(8)	M_z	1.53	0.37	0.05	0.04	0.15	
											G, V, N [NL](9)	M_tV_z	4.93	-1.23	0.00	0.00	-0.65	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(8) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1295.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	13.7	6.1	3.1	18.5	3.1	18.5	G, V, N [NL][2]	N_c,M_t,V_z,M_tV_z	0.64	0.90	-0.19	0.17	0.62	Cumple
											G, V, N [NL][4]	M_z,NM_yM_z	0.64	0.90	-0.19	0.17	0.62	
		Pie	Cumple	0.7	38.2	7.8	3.3	44.3	3.3	44.3	G, V, N [NL][2]	N_c,M_t,NM_yM_z	0.76	2.50	0.25	0.17	0.62	Cumple
											G, V, N [NL][3]	M_z	0.76	2.50	0.25	0.17	0.62	
											G, V, N [NL][4]	V_z,M_tV_z	0.41	1.14	0.03	0.02	0.67	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.2	41.6	6.7	4.1	49.2	4.1	49.2	G, V, N [NL][3]	N_c,NM_yM_z	3.68	2.72	0.19	-0.15	-0.72	Cumple
											G, V, N [NL][4]	M_y	3.19	2.72	0.19	-0.15	-0.73	
											G, V, N [NL][5]	M_z	2.86	1.72	0.21	-0.17	-0.45	
											G, V, N [NL][4]	V_z,M_tV_z	1.75	1.14	0.02	-0.01	-0.84	
		Pie	Cumple	3.3	13.9	6.2	3.6	21.2	3.6	21.2	G, V, N [NL][3]	N_c,NM_yM_z	3.79	0.91	-0.18	-0.15	-0.72	Cumple
											G, V, N [NL][2]	M_y,V_z,M_tV_z	3.30	0.91	-0.18	-0.15	-0.73	
											G, V, N [NL][5]	M_z	2.97	0.61	-0.20	-0.17	-0.45	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.5	14.3	1.7	1.8	19.2	N.P.[1]	19.2	G, V, N [NL][3]	N_c,NM_yM_z	5.13	0.94	0.01	-0.02	-0.36	Cumple
											G, V, N [NL][4]	M_y,V_z	4.14	0.94	0.01	-0.02	-0.36	
											G, V, N [NL][6]	M_z	2.92	0.03	0.05	-0.05	-0.02	
		Pie	Cumple	4.6	2.7	2.3	1.9	6.2	N.P.[1]	6.2	G, V, N [NL][3]	N_c	5.24	0.03	-0.04	-0.02	-0.36	Cumple
											G, V [NL][7]	M_y	2.01	-0.18	0.01	0.00	0.39	
											G, V, N [NL][8]	M_z	4.34	0.01	-0.07	-0.05	-0.23	
											G, V [NL][9]	V_z	3.00	-0.18	0.01	0.00	0.39	
											G, V, N [NL][5]	NM_yM_z	4.42	0.01	-0.07	-0.05	-0.24	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.7	2.7	1.3	2.3	7.3	2.3	7.3	G, V, N [NL][3]	N_c	6.58	0.02	0.00	0.00	-0.47	Cumple
											G, V, N [NL][10]	M_y	2.96	-0.18	0.01	-0.01	0.38	
											G, V, N [NL][11]	M_z	3.86	0.00	-0.04	0.04	-0.21	
											G, V, N [NL][2]	V_z,M_tV_z	5.09	0.02	0.00	0.00	-0.47	
											G, V, N [NL][12]	NM_yM_z	5.14	-0.17	0.00	0.00	0.30	
		Pie	Cumple	5.8	22.9	1.7	4.7	26.9	3.3	26.9	G, V, N [NL][3]	N_c	6.69	-1.12	0.00	0.00	-0.47	Cumple
											G, V [NL][9]	M_y,V_z,NM_yM_z	4.34	1.50	-0.01	0.00	0.95	
											G, V, N [NL][6]	M_z	4.47	-0.02	-0.05	-0.04	0.00	
											G, V, N [NL][13]	M_tV_z	4.10	-1.29	0.00	0.00	-0.67	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(7) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(9) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(13) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1296.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	17.2	4.6	0.7	21.2	0.7	21.2	G, V, N [NL][1]	N_c,M_y	0.88	1.13	-0.15	0.11	0.10	Cumple
											G, V, N [NL][2]	M_z,NM_yM_z	0.88	1.13	-0.15	0.11	0.10	
											G, V, N [NL][3]	V_z,M_tV_z	0.53	0.56	-0.12	0.08	0.14	
		Pie	Cumple	0.9	21.1	3.9	3.0	24.7	3.0	24.7	G, V, N [NL][1]	N_c,M_t,NM_yM_z	1.00	1.38	0.12	0.11	0.10	Cumple
											G, V, N [NL][2]	M_z	1.00	1.38	0.13	0.11	0.10	
											G, V, N [NL][4]	V_z,M_tV_z	0.41	1.02	-0.01	0.00	0.61	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.8	35.3	9.5	4.7	46.6	4.7	46.6	G, V, N [NL][2]	N_c,NM_yM_z	5.48	2.31	0.28	-0.20	-0.27	Cumple
											G, V, N [NL][1]	M_y	4.98	2.31	0.28	-0.20	-0.27	
											G, V, N [NL][5]	M_z	4.05	1.57	0.30	-0.21	-0.21	
											G, V, N [NL][4]	V_z,M_tV_z	2.02	1.43	0.06	-0.04	-0.95	
		Pie	Cumple	4.9	24.8	7.1	1.7	34.5	1.7	34.5	G, V, N [NL][2]	N_c,NM_yM_z	5.59	1.63	-0.21	-0.20	-0.27	Cumple
											G, V, N [NL][1]	M_y	5.10	1.63	-0.20	-0.20	-0.27	
											G, V, N [NL][5]	M_z	4.16	1.05	-0.23	-0.21	-0.21	
											G, V, N [NL][4]	V_z,M_tV_z	2.13	-0.18	-0.04	-0.04	-0.34	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.0	24.4	1.6	3.2	30.9	3.2	30.9	G, V, N [NL][2]	N_c,NM_yM_z	6.90	1.60	-0.01	-0.01	-0.64	Cumple
											G, V, N [NL][1]	M_t,V_z,M_tV_z	5.91	1.60	-0.01	-0.01	-0.64	
											G, V, N [NL][6]	M_z	2.90	0.32	-0.05	0.04	-0.13	
		Pie	Cumple	6.1	2.6	2.0	3.2	6.9	3.2	6.9	G, V, N [NL][2]	N_c,NM_yM_z	7.01	0.00	-0.02	-0.01	-0.64	Cumple
											G, V, N [NL][4]	M_y	3.08	-0.17	0.00	0.00	0.29	
											G, V, N [NL][7]	M_z	5.45	0.00	-0.06	-0.04	-0.39	
											G, V, N [NL][1]	V_z,M_tV_z	6.02	0.00	-0.02	-0.01	-0.64	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	10.7	2.6	1.2	2.6	10.9	2.6	10.9	G, V, N [NL][2]	N_c,NM_yM_z	8.33	0.01	0.00	0.00	-0.52	Cumple
											G, V, N [NL][4]	M_y	3.91	-0.17	0.00	0.00	0.29	
											G, V, N [NL][8]	M_z	4.65	0.00	-0.04	0.04	-0.23	
											G, V, N [NL][1]	V_z,M_tV_z	6.85	0.01	0.00	0.00	-0.52	
		Pie	Cumple	10.9	23.1	1.7	4.7	27.6	3.5	27.6	G, V, N [NL][2]	N_c,NM_yM_z	8.44	-1.25	0.00	0.00	-0.52	Cumple
											G, V [NL][9]	M_y,V_z	4.15	1.51	0.00	0.00	0.96	
											G, V, N [NL][10]	M_z	4.57	-0.03	-0.05	-0.04	-0.01	
											G, V, N [NL][3]	M_tV_z	5.14	-1.37	0.00	0.00	-0.70	

Notas:

[1] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[5] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
[7] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
[9] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[10] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]

2.2.2.1.1297.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	15.3	4.5	3.6	19.1	3.6	19.1	G, V, N [NL](2)	N_c,M_y,V_z,M_tV_z	0.71	1.00	-0.14	0.13	0.73	Cumple
											G, G, V, V, N(3)	M_z	0.51	0.66	-0.14	0.13	0.49	
											G, V, N [NL](4)	NM_yM_z	0.71	1.00	-0.14	0.13	0.73	
		Pie	Cumple	0.7	44.2	5.9	3.6	49.0	3.6	49.0	G, V, N [NL](2)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.83	2.89	0.19	0.13	0.73	Cumple
											G, G, V, V, N(3)	M_z	0.63	1.91	0.19	0.13	0.49	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.4	47.8	5.8	4.3	54.7	4.3	54.7	G, V, N [NL](4)	N_c,NM_yM_z	3.90	3.13	0.14	-0.11	-0.81	Cumple
											G, V, N [NL](2)	M_y	3.41	3.13	0.14	-0.11	-0.81	
											G, V, N [NL](5)	M_z	2.97	1.95	0.19	-0.14	-0.49	
											G, V, N [NL](6)	V_z,M_tV_z	1.84	1.29	0.01	-0.01	-0.87	
		Pie	Cumple	3.5	17.1	5.5	4.0	23.7	4.0	23.7	G, V, N [NL](4)	N_c,NM_yM_z	4.01	1.12	-0.14	-0.11	-0.81	Cumple
											G, V, N [NL](2)	M_y,V_z,M_tV_z	3.52	1.12	-0.14	-0.11	-0.81	
											G, V, N [NL](5)	M_z	3.09	0.73	-0.17	-0.14	-0.49	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.5	1.6	2.2	22.6	N.P.(1)	22.6	G, V, N [NL](4)	N_c,NM_yM_z	5.35	1.15	0.01	-0.02	-0.44	Cumple
											G, V, N [NL](2)	M_y,V_z	4.36	1.15	0.01	-0.02	-0.44	
											G, V, N [NL](7)	M_z	2.99	0.06	0.05	-0.05	-0.03	
		Pie	Cumple	4.8	2.6	2.1	2.2	6.3	N.P.(1)	6.3	G, V, N [NL](4)	N_c	5.46	0.06	-0.03	-0.02	-0.44	Cumple
											G, V [NL](8)	M_y	2.03	-0.17	0.00	0.00	0.39	
											G, V, N [NL](5)	M_z	4.53	0.03	-0.07	-0.05	-0.29	
											G, V, N [NL](2)	V_z	4.47	0.06	-0.03	-0.02	-0.44	
											G, V, N [NL](9)	NM_yM_z	4.62	0.03	-0.06	-0.04	-0.30	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	2.6	1.3	2.8	7.1	2.8	7.1	G, V, N [NL](4)	N_c	6.80	0.05	0.00	0.00	-0.56	Cumple
											G, V [NL](8)	M_y	2.82	-0.17	0.00	0.00	0.42	
											G, V, N [NL](10)	M_z	3.96	0.01	-0.04	0.04	-0.25	
											G, V, N [NL](2)	V_z,M_tV_z	5.32	0.05	0.00	0.00	-0.56	
											G, V, N [NL](11)	NM_yM_z	5.22	-0.16	0.00	0.00	0.27	
		Pie	Cumple	6.0	23.0	1.7	4.7	27.1	3.6	27.1	G, V, N [NL](4)	N_c	6.91	-1.32	0.00	0.00	-0.56	Cumple
											G, V [NL](12)	M_y,V_z,NM_yM_z	4.36	1.51	0.00	0.00	0.96	
											G, V, N [NL](7)	M_z	4.54	-0.05	-0.05	-0.04	-0.02	
											G, V, N [NL](13)	M_tV_z	4.22	-1.41	0.00	0.00	-0.73	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

(3) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]

(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]

(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(7) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]

(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

(9) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]

(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

(11) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(12) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

(13) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1298.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	18.7	3.4	0.7	21.7	0.7	21.7	G, V, N [NL][1]	N_c,M_y	0.90	1.23	-0.10	0.07	0.10	Cumple
											G, G, V, V, N[2]	M_z	0.64	0.80	-0.11	0.08	0.10	
											G, V, N [NL][3]	V_z,M_tV_z	0.54	0.62	-0.08	0.06	0.14	
											G, V, N [NL][4]	NM_yM_z	0.90	1.22	-0.10	0.07	0.10	
		Pie	Cumple	0.9	22.6	2.9	3.1	25.2	3.1	25.2	G, V, N [NL][1]	N_c,M_y,NM_yM_z	1.02	1.48	0.08	0.07	0.10	Cumple
											G, G, V, V, N[2]	M_z	0.76	1.05	0.09	0.08	0.10	
											G, V, N [NL][5]	V_z,M_tV_z	0.42	1.07	0.00	0.00	0.62	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	5.2	41.3	8.2	4.8	51.5	4.8	51.5	G, V, N [NL][4]	N_c,NM_yM_z	5.97	2.71	0.21	-0.14	-0.33	Cumple
											G, V, N [NL][1]	M_y	5.48	2.71	0.21	-0.14	-0.33	
											G, V, N [NL][6]	M_z	4.33	1.78	0.26	-0.18	-0.24	
											G, V, N [NL][5]	V_z,M_tV_z	2.13	1.57	0.04	-0.03	-0.98	
		Pie	Cumple	5.3	28.6	6.1	1.8	37.4	1.8	37.4	G, V, N [NL][4]	N_c,NM_yM_z	6.09	1.87	-0.15	-0.14	-0.33	Cumple
											G, V, N [NL][1]	M_y	5.59	1.87	-0.15	-0.14	-0.33	
											G, V, N [NL][6]	M_z	4.45	1.19	-0.20	-0.18	-0.24	
											G, V, N [NL][5]	V_z,M_tV_z	2.25	-0.12	-0.02	-0.03	-0.37	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.4	28.1	1.5	3.6	35.1	3.6	35.1	G, V, N [NL][4]	N_c,NM_yM_z	7.39	1.84	-0.01	0.00	-0.73	Cumple
											G, V, N [NL][1]	M_t,V_z,M_tV_z	6.40	1.84	-0.01	0.00	-0.73	
											G, V, N [NL][7]	M_z	2.86	0.32	-0.05	0.04	-0.13	
		Pie	Cumple	9.9	2.5	1.8	3.6	10.6	3.6	10.6	G, V, N [NL][4]	N_c,NM_yM_z	7.50	0.02	-0.02	0.00	-0.73	Cumple
											G, V, N [NL][5]	M_y	3.19	-0.16	0.00	0.00	0.27	
											G, V, N [NL][8]	M_z	3.28	0.00	-0.06	-0.04	-0.02	
											G, V, N [NL][1]	V_z,M_tV_z	6.51	0.02	-0.02	0.00	-0.73	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	11.4	2.5	1.2	3.0	11.7	3.0	11.7	G, V, N [NL][4]	N_c,NM_yM_z	8.82	0.03	0.00	0.00	-0.61	Cumple
											G, V, N [NL][9]	M_y	2.94	-0.16	0.01	0.00	0.37	
											G, G, V, V, N[10]	M_z	1.16	-0.01	-0.04	0.04	0.22	
											G, V, N [NL][1]	V_z,M_tV_z	7.34	0.03	0.00	0.00	-0.61	
		Pie	Cumple	11.5	23.2	1.7	4.7	31.0	3.0	31.0	G, V, N [NL][4]	N_c,NM_yM_z	8.93	-1.44	0.00	0.00	-0.61	Cumple
											G, V [NL][11]	M_t,V_z	4.14	1.52	0.00	0.00	0.96	
											G, V, N [NL][8]	M_z	4.72	-0.07	-0.05	-0.04	-0.03	
											G, V, N [NL][1]	M_tV_z	7.45	-1.44	0.00	0.00	-0.61	

Notas:

[1] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[2] 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[7] 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
[8] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[9] 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[10] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[11] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.1299.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	11.7	3.6	5.0	14.4	5.0	14.4	G, V, N [NL](2)	N_c,M_y,V_z,M_tV_z	0.67	0.77	-0.10	0.09	1.01	Cumple
											G, G, V, V, N(3)	M_z	0.50	0.53	-0.11	0.10	0.69	
											G, V, N [NL](4)	NM_yM_z	0.67	0.77	-0.10	0.09	1.01	
		Pie	Cumple	0.7	51.6	4.8	5.0	55.2	5.0	55.2	G, V, N [NL](2)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.79	3.38	0.13	0.09	1.01	Cumple
											G, G, V, V, N(3)	M_z	0.62	2.32	0.15	0.10	0.69	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	54.8	4.5	4.5	60.1	4.4	60.1	G, V, N [NL](4)	N_c,NM_yM_z	3.79	3.59	0.08	-0.06	-0.90	Cumple
											G, V, N [NL](2)	M_y,V_z	3.30	3.59	0.08	-0.06	-0.90	
											G, V, N [NL](5)	M_z	2.97	2.32	0.15	-0.11	-0.57	
											G, V, N [NL](6)	M_tV_z	1.84	1.41	0.01	-0.01	-0.88	
		Pie	Cumple	3.4	20.3	4.4	4.5	25.5	3.5	25.5	G, V, N [NL](4)	N_c,NM_yM_z	3.91	1.33	-0.08	-0.06	-0.90	Cumple
											G, V, N [NL](2)	M_y,V_z	3.41	1.33	-0.08	-0.06	-0.90	
											G, V, N [NL](5)	M_z	3.08	0.89	-0.14	-0.11	-0.57	
											G, V, N [NL](7)	M_tV_z	2.93	1.03	0.01	0.01	-0.70	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	20.7	1.6	2.6	25.7	N.P.(1)	25.7	G, V, N [NL](4)	N_c,NM_yM_z	5.24	1.36	0.01	-0.01	-0.52	Cumple
											G, V, N [NL](2)	M_y,V_z	4.25	1.36	0.01	-0.01	-0.52	
											G, V, N [NL](8)	M_z	3.06	0.11	0.05	-0.04	-0.05	
		Pie	Cumple	4.7	2.3	1.9	2.6	6.0	N.P.(1)	6.0	G, V, N [NL](4)	N_c	5.35	0.05	-0.02	-0.01	-0.52	Cumple
											G, V [NL](9)	M_y	2.05	-0.15	0.00	0.00	0.39	
											G, V, N [NL](8)	M_z	3.18	0.00	-0.06	-0.04	-0.05	
											G, V, N [NL](2)	V_z	4.37	0.05	-0.02	-0.01	-0.52	
											G, V, N [NL](5)	NM_yM_z	4.53	0.03	-0.06	-0.04	-0.35	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	2.3	1.2	3.1	6.9	N.P.(1)	6.9	G, V, N [NL](4)	N_c	6.69	0.04	0.00	0.00	-0.62	Cumple
											G, V [NL](9)	M_y	2.84	-0.15	0.00	0.00	0.41	
											G, V, N [NL](10)	M_z	3.93	0.01	-0.04	0.04	-0.28	
											G, V, N [NL](2)	V_z	5.21	0.04	0.00	0.00	-0.62	
											G, V, N [NL](11)	NM_yM_z	5.22	-0.15	0.00	0.00	0.25	
		Pie	Cumple	5.9	22.9	1.7	4.7	28.6	N.P.(1)	28.6	G, V, N [NL](4)	N_c,NM_yM_z	6.80	-1.46	0.00	0.00	-0.62	Cumple
											G, V [NL](12)	M_y,V_z	4.39	1.50	0.00	0.00	0.95	
											G, V, N [NL](8)	M_z	4.62	-0.11	-0.05	-0.04	-0.04	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(9) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(12) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.190. P312

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	16.1	2.0	1.7	17.5	1.7	17.5	G, V, N [NL](1)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.80	1.06	-0.03	0.00	0.35	Cumple
											G, G, V, V, N(2)	M_z	0.57	0.67	-0.06	0.04	0.27	
		Pie	Cumple	0.8	30.0	1.2	3.3	31.2	3.0	31.2	G, V, N [NL](1)	N_c,M_y,NM_yM_z	0.91	1.96	-0.02	0.00	0.35	Cumple
											G, G, V, V, N(3)	M_z	0.10	-0.48	0.04	0.02	-0.09	
											G, V, N [NL](4)	V_z	0.40	1.15	0.01	0.01	0.67	
											G, V, N [NL](5)	M_tV_z	0.18	0.81	0.01	0.00	0.61	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.4	48.1	7.2	4.8	56.8	4.8	56.8	G, V, N [NL](6)	N_c,NM_yM_z	5.06	3.15	0.17	-0.11	-0.50	Cumple
											G, V, N [NL](1)	M_y	4.57	3.15	0.17	-0.11	-0.50	
											G, V, N [NL](7)	M_z	3.84	2.16	0.23	-0.16	-0.36	
											G, V, N [NL](4)	V_z,M_tV_z	1.94	1.63	0.01	-0.01	-0.98	
		Pie	Cumple	4.5	29.1	5.2	2.5	36.2	2.5	36.2	G, V, N [NL](6)	N_c,NM_yM_z	5.17	1.91	-0.10	-0.11	-0.50	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	4.68	1.91	-0.10	-0.11	-0.50	
											G, V, N [NL](7)	M_z	3.96	1.28	-0.17	-0.16	-0.36	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.6	28.9	1.4	3.6	35.1	3.6	35.1	G, V, N [NL](6)	N_c,NM_yM_z	6.49	1.89	-0.01	0.00	-0.73	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	5.50	1.89	-0.01	0.00	-0.73	
											G, V, N [NL](8)	M_z	1.52	-0.13	0.04	-0.04	0.05	
		Pie	Cumple	5.7	2.4	1.8	3.6	6.9	3.6	6.9	G, V, N [NL](6)	N_c,NM_yM_z	6.60	0.06	-0.01	0.00	-0.73	Cumple
											G, V [NL](9)	M_y	1.84	-0.16	0.00	0.00	0.44	
											G, V, N [NL](10)	M_z	3.35	0.00	-0.06	-0.04	-0.06	
											G, V, N [NL](1)	V_z,M_tV_z	5.61	0.06	-0.01	0.00	-0.73	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.9	2.4	1.2	3.3	8.1	2.4	8.1	G, V, N [NL](6)	N_c,NM_yM_z	7.92	0.07	0.00	0.00	-0.67	Cumple
											G, V [NL](9)	M_y	2.62	-0.16	0.00	0.00	0.42	
											G, G, V, V, N(11)	M_z	1.49	-0.03	-0.04	0.04	0.24	
											G, V, N [NL](1)	V_z	6.44	0.07	0.00	0.00	-0.67	
											G, V, N [NL](12)	M_tV_z	5.34	0.04	0.03	-0.03	-0.48	
		Pie	Cumple	10.4	23.6	1.7	4.7	31.8	2.4	31.8	G, V, N [NL](6)	N_c,NM_yM_z	8.03	-1.55	0.00	0.00	-0.67	Cumple
											G, V, N [NL](1)	M_y	6.55	-1.55	0.00	0.00	-0.67	
											G, V, N [NL](10)	M_z	4.79	-0.14	-0.05	-0.04	-0.06	
											G, V [NL](13)	V_z	4.17	1.50	0.00	0.00	0.95	
											G, V, N [NL](12)	M_tV_z	5.45	-1.11	-0.04	-0.03	-0.48	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(3) 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 0.8·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(9) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(10) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(11) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(12) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(EI) [NL]
(13) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.191. P313

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	13.1	1.8	2.4	14.2	2.4	14.2	G, V, N [NL](2)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.68	0.86	-0.02	0.02	0.49	Cumple
											G, G, V, V, N(3)	M_z	0.51	0.59	-0.06	0.05	0.34	
		Pie	Cumple	0.7	32.2	2.0	3.4	33.4	2.8	33.4	G, V, N [NL](2)	N_c,M_y,NM_yM_z	0.80	2.11	0.02	0.02	0.49	Cumple
											G, G, V, V, N(3)	M_z	0.62	1.47	0.06	0.05	0.34	
											G, V, N [NL](4)	V_z	0.40	1.14	0.00	0.00	0.68	
											G, V, N [NL](5)	M_tV_z	0.50	1.36	0.01	0.01	0.57	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.3	55.2	4.3	4.8	60.8	4.2	60.8	G, V, N [NL](6)	N_c,NM_yM_z	4.92	3.61	0.03	-0.02	-0.73	Cumple
											G, V, N [NL](2)	M_y	4.42	3.62	0.03	-0.02	-0.73	
											G, V, N [NL](7)	M_z	1.91	0.36	0.14	-0.10	-0.07	
											G, V, N [NL](4)	V_z	1.98	1.64	0.00	0.00	-0.96	
											G, V, N [NL](8)	M_tV_z	1.85	1.12	0.00	0.00	-0.86	
		Pie	Cumple	4.4	27.2	3.6	3.6	32.4	3.6	32.4	G, V, N [NL](6)	N_c,NM_yM_z	5.03	1.78	-0.03	-0.02	-0.73	Cumple
											G, V, N [NL](2)	M_y,V_z,M_tV_z	4.54	1.78	-0.03	-0.02	-0.73	
											G, V, N [NL](7)	M_z	2.02	0.18	-0.12	-0.10	-0.07	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.5	27.2	1.4	3.3	33.2	N.P.(1)	33.2	G, V, N [NL](6)	N_c,NM_yM_z	6.34	1.78	0.00	0.00	-0.67	Cumple
											G, V, N [NL](2)	M_y,V_z	5.35	1.78	0.00	0.00	-0.67	
											G, V, N [NL](9)	M_z	2.36	0.19	0.05	-0.04	-0.08	
		Pie	Cumple	5.6	2.6	1.8	3.3	7.4	N.P.(1)	7.4	G, V, N [NL](6)	N_c,NM_yM_z	6.45	0.11	-0.01	0.00	-0.67	Cumple
											G, V [NL](10)	M_y	1.91	-0.17	0.00	0.00	0.41	
											G, V, N [NL](7)	M_z	3.46	0.00	-0.06	-0.04	-0.07	
											G, V, N [NL](2)	V_z	5.46	0.11	-0.01	0.00	-0.67	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.8	2.6	1.2	3.4	8.5	N.P.(1)	8.5	G, V, N [NL](6)	N_c,NM_yM_z	7.78	0.11	0.00	0.00	-0.69	Cumple
											G, V [NL](10)	M_y	2.70	-0.17	0.00	0.00	0.42	
											G, G, V, V, N(11)	M_z	3.01	-0.04	-0.04	0.04	0.24	
											G, V, N [NL](2)	V_z	6.30	0.11	0.00	0.00	-0.69	
		Pie	Cumple	6.9	24.0	1.7	4.7	31.3	N.P.(1)	31.3	G, V, N [NL](6)	N_c,NM_yM_z	7.89	-1.57	0.00	0.00	-0.69	Cumple
											G, V, N [NL](2)	M_y	6.41	-1.57	0.00	0.00	-0.69	
											G, V, N [NL](9)	M_z	3.42	-0.18	-0.05	-0.04	-0.07	
											G, V [NL](12)	V_z	4.25	1.48	0.00	0.00	0.95	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
(8) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(12) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.192. P314

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	13.1	1.1	2.3	14.0	2.3	14.0	G, V, N [NL](2)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.69	0.86	0.01	-0.01	0.47	Cumple
											G, G, V, V, N(3)	M_z	0.40	0.49	-0.03	0.03	0.28	
		Pie	Cumple	0.7	31.7	1.3	3.4	32.8	2.8	32.8	G, V, N [NL](2)	N_c,M_y,NM_yM_z	0.81	2.08	-0.01	-0.01	0.47	Cumple
											G, G, V, V, N(3)	M_z	0.47	1.21	0.04	0.03	0.28	
											G, V, N [NL](4)	V_z	0.40	1.13	0.00	0.00	0.68	
											G, V, N [NL](5)	M_tV_z	0.50	1.35	-0.01	0.00	0.57	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.3	55.3	4.3	4.8	60.7	4.2	60.7	G, V, N [NL](6)	N_c,NM_yM_z	4.89	3.62	-0.02	0.02	-0.73	Cumple
											G, V, N [NL](2)	M_y	4.40	3.63	-0.02	0.02	-0.73	
											G, V, N [NL](7)	M_z	1.91	0.38	-0.14	0.10	-0.07	
											G, V, N [NL](4)	V_z	1.98	1.64	0.00	0.00	-0.96	
											G, V, N [NL](8)	M_tV_z	1.36	1.12	0.00	0.00	-0.86	
		Pie	Cumple	4.4	27.3	3.6	3.6	32.4	3.6	32.4	G, V, N [NL](6)	N_c,NM_yM_z	5.01	1.79	0.02	0.02	-0.73	Cumple
											G, V, N [NL](2)	M_y,V_z,M_tV_z	4.51	1.79	0.02	0.02	-0.73	
											G, V, N [NL](7)	M_z	2.03	0.20	0.12	0.10	-0.07	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.5	27.4	1.5	3.3	33.4	N.P.(1)	33.4	G, V, N [NL](6)	N_c,NM_yM_z	6.32	1.79	0.01	0.00	-0.67	Cumple
											G, V, N [NL](2)	M_y,V_z	5.33	1.79	0.01	0.00	-0.67	
											G, V, N [NL](9)	M_z	2.48	0.22	0.05	-0.04	-0.09	
		Pie	Cumple	5.6	2.6	1.8	3.3	7.3	N.P.(1)	7.3	G, V, N [NL](6)	N_c,NM_yM_z	6.44	0.11	0.00	0.00	-0.67	Cumple
											G, V [NL](10)	M_y	1.92	-0.17	0.00	0.00	0.41	
											G, V, N [NL](9)	M_z	2.59	0.00	-0.06	-0.04	-0.09	
											G, V, N [NL](2)	V_z	5.45	0.11	0.00	0.00	-0.67	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.8	2.6	1.2	3.4	8.5	N.P.(1)	8.5	G, V, N [NL](6)	N_c,NM_yM_z	7.76	0.11	0.00	0.00	-0.69	Cumple
											G, V [NL](10)	M_y	2.71	-0.17	0.00	0.00	0.42	
											G, G, V, V, N(11)	M_z	3.01	-0.04	-0.04	0.04	0.25	
											G, V, N [NL](2)	V_z	6.28	0.11	0.00	0.00	-0.69	
		Pie	Cumple	6.9	24.0	1.7	4.7	31.3	N.P.(1)	31.3	G, V, N [NL](6)	N_c,NM_yM_z	7.87	-1.57	0.00	0.00	-0.69	Cumple
											G, V, N [NL](2)	M_y	6.39	-1.57	0.00	0.00	-0.69	
											G, V, N [NL](9)	M_z	3.53	-0.21	-0.05	-0.04	-0.09	
											G, V [NL](12)	V_z	4.26	1.48	0.00	0.00	0.95	

Notas:
(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(R) 1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+0.9·V(270°)H1+1.5·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(10) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(11) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(12) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.193. P315

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	16.2	1.4	1.6	17.6	1.6	17.6	G, V, N [NL](1)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.79	1.06	0.03	-0.02	0.32	Cumple
											G, V, N [NL](2)	M_z	0.49	0.57	0.05	-0.03	0.21	
		Pie	Cumple	0.8	29.0	1.3	3.3	30.2	3.0	30.2	G, V, N [NL](1)	N_c,M_y,NM_yM_z	0.91	1.90	-0.02	-0.02	0.32	Cumple
											G, V, N [NL](3)	M_z	0.68	1.29	-0.04	-0.03	0.24	
											G, V, N [NL](4)	V_z	0.40	1.15	-0.01	-0.01	0.67	
											G, V, N [NL](5)	M_tV_z	0.18	0.82	-0.01	0.00	0.61	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.4	48.7	5.9	4.8	55.9	4.8	55.9	G, V, N [NL](6)	N_c,NM_yM_z	5.04	3.19	-0.11	0.08	-0.51	Cumple
											G, V, N [NL](1)	M_y	4.54	3.19	-0.11	0.08	-0.51	
											G, V, N [NL](3)	M_z	3.84	2.21	-0.19	0.13	-0.37	
											G, V, N [NL](4)	V_z,M_tV_z	1.94	1.64	0.00	0.00	-0.98	
		Pie	Cumple	4.5	29.2	4.6	2.5	35.7	2.5	35.7	G, V, N [NL](6)	N_c,NM_yM_z	5.15	1.91	0.08	0.08	-0.51	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	4.66	1.92	0.08	0.08	-0.51	
											G, V, N [NL](3)	M_z	3.95	1.29	0.15	0.13	-0.37	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.6	29.0	1.4	3.6	35.2	3.6	35.2	G, V, N [NL](6)	N_c,NM_yM_z	6.46	1.90	0.01	0.00	-0.73	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	5.47	1.90	0.01	0.00	-0.73	
											G, V, N [NL](7)	M_z	2.61	0.27	0.05	-0.04	-0.11	
		Pie	Cumple	5.7	2.4	1.8	3.6	6.7	3.6	6.7	G, V, N [NL](6)	N_c,NM_yM_z	6.58	0.07	0.00	0.00	-0.73	Cumple
											G, V [NL](8)	M_y	1.84	-0.16	0.00	0.00	0.44	
											G, V, N [NL](9)	M_z	3.36	0.00	0.06	0.04	-0.06	
											G, V, N [NL](1)	V_z,M_tV_z	5.59	0.07	0.00	0.00	-0.73	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.9	2.4	1.2	3.3	8.0	2.4	8.0	G, V, N [NL](6)	N_c,NM_yM_z	7.90	0.07	0.00	0.00	-0.67	Cumple
											G, V [NL](8)	M_y	2.63	-0.16	0.00	0.00	0.42	
											G, V, N [NL](7)	M_z	3.56	0.00	0.04	-0.04	-0.10	
											G, V, N [NL](1)	V_z	6.42	0.07	0.00	0.00	-0.67	
											G, V, N [NL](10)	M_tV_z	5.34	0.04	-0.03	0.03	-0.48	
		Pie	Cumple	10.3	23.7	1.7	4.7	31.8	2.4	31.8	G, V, N [NL](6)	N_c,NM_yM_z	8.01	-1.55	0.00	0.00	-0.67	Cumple
											G, V, N [NL](1)	M_y	6.53	-1.55	0.00	0.00	-0.67	
											G, V, N [NL](7)	M_z	3.67	-0.24	-0.05	-0.04	-0.10	
											G, V [NL](11)	V_z	4.18	1.50	0.00	0.00	0.95	
											G, V, N [NL](10)	M_tV_z	5.45	-1.12	0.04	0.03	-0.48	

Notas:

(1) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(2) *1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(R)2 [NL]*
(3) *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
(4) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(5) *0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]*
(6) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(7) *1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]*
(8) *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
(9) *1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(10) *1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]*
(11) *0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]*

2.2.2.1.194. P316

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	11.8	2.6	5.0	14.2	5.0	14.2	G, V, N [NL](2)	N_c,M_y,V_z,M_tV_z	0.67	0.77	0.08	-0.07	1.01	Cumple
											G, V, N [NL](3)	M_z,NM_yM_z	0.67	0.77	0.08	-0.07	1.01	
		Pie	Cumple	0.7	51.5	3.6	5.0	54.5	5.0	54.5	G, V, N [NL](2)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.79	3.37	-0.10	-0.07	1.01	Cumple
											G, V, N [NL](4)	M_z	0.62	2.31	-0.11	-0.08	0.69	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.3	54.6	4.8	4.4	60.2	4.4	60.2	G, V, N [NL](3)	N_c,NM_yM_z	3.78	3.58	-0.09	0.07	-0.90	Cumple
											G, V, N [NL](2)	M_y,V_z	3.29	3.58	-0.09	0.07	-0.90	
											G, V, N [NL](5)	M_z	2.97	2.31	-0.15	0.12	-0.56	
											G, V, N [NL](6)	M_tV_z	1.83	1.41	-0.01	0.01	-0.88	
		Pie	Cumple	3.4	20.4	4.4	4.4	25.7	3.5	25.7	G, V, N [NL](3)	N_c,NM_yM_z	3.90	1.34	0.08	0.07	-0.90	Cumple
											G, V, N [NL](2)	M_y,V_z	3.40	1.34	0.08	0.07	-0.90	
											G, V, N [NL](5)	M_z	3.08	0.91	0.14	0.12	-0.56	
											G, G, V, V, N(7)	M_tV_z	2.93	1.03	0.00	0.00	-0.70	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	20.8	1.6	2.6	25.7	N.P.(1)	25.7	G, V, N [NL](3)	N_c,NM_yM_z	5.23	1.36	0.01	0.00	-0.53	Cumple
											G, V, N [NL](2)	M_y,V_z	4.24	1.37	0.01	0.00	-0.53	
											G, V, N [NL](8)	M_z	2.40	0.22	0.05	-0.04	-0.09	
		Pie	Cumple	4.7	2.3	1.8	2.6	5.8	N.P.(1)	5.8	G, V, N [NL](3)	N_c	5.35	0.05	0.01	0.00	-0.53	Cumple
											G, V [NL](9)	M_y	2.05	-0.15	0.00	0.00	0.39	
											G, V, N [NL](10)	M_z	3.18	0.00	0.06	0.04	-0.05	
											G, V, N [NL](2)	V_z	4.36	0.05	0.01	0.00	-0.53	
											G, V, N [NL](5)	NM_yM_z	4.53	0.03	0.05	0.04	-0.36	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	2.3	1.2	3.1	6.8	N.P.(1)	6.8	G, V, N [NL](3)	N_c	6.68	0.04	0.01	0.00	-0.62	Cumple
											G, V [NL](9)	M_y	2.83	-0.15	0.00	0.00	0.41	
											G, G, V, V, N(11)	M_z	3.30	-0.01	-0.04	0.04	0.22	
											G, V, N [NL](2)	V_z	5.20	0.04	0.01	0.00	-0.62	
											G, V, N [NL](12)	NM_yM_z	5.21	-0.15	0.00	0.00	0.25	
		Pie	Cumple	5.9	22.9	1.7	4.7	28.7	N.P.(1)	28.7	G, V, N [NL](3)	N_c,NM_yM_z	6.79	-1.47	0.00	0.00	-0.62	Cumple
											G, V, N [NL](13)	M_y	4.16	-1.50	0.00	0.00	-0.76	
											G, V, N [NL](8)	M_z	3.46	-0.25	-0.05	-0.04	-0.10	
											G, V [NL](14)	V_z	4.38	1.50	0.00	0.00	0.95	

Notas:

(1) *No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.*
(2) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(3) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]*
(5) *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
(6) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(7) *1.35·PP+0.8·CM 1+1.5·V H1+1.5·V(0°) H2+0.75·N(EI) [NL]*
(8) *1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]*
(9) *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
(10) *1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(11) *0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]*
(12) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(14) *0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]*

2.2.2.1.195. P317

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	18.7	3.4	0.6	21.9	0.6	21.9	G, V, N [NL](1)	N_c,M_y	0.90	1.23	0.11	-0.09	0.08	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.90	1.23	0.11	-0.09	0.08	
											G, V, N [NL](3)	V_z,M_tV_z	0.54	0.62	0.09	-0.07	0.13	
		Pie	Cumple	0.9	22.1	4.1	3.0	25.8	3.0	25.8	G, V, N [NL](1)	N_c,M_y,NM_yM_z	1.02	1.44	-0.13	-0.09	0.08	Cumple
											G, V, N [NL](2)	M_z	1.01	1.44	-0.13	-0.09	0.08	
											G, V, N [NL](4)	V_z,M_tV_z	0.42	1.06	-0.02	-0.01	0.61	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	5.2	41.6	6.7	4.9	50.1	4.9	50.1	G, V, N [NL](2)	N_c,NM_yM_z	5.99	2.72	-0.13	0.10	-0.34	Cumple
											G, V, N [NL](1)	M_y	5.49	2.73	-0.13	0.10	-0.34	
											G, V, N [NL](5)	M_z	4.35	1.81	-0.21	0.16	-0.25	
											G, V, N [NL](4)	V_z,M_tV_z	2.14	1.57	-0.02	0.01	-0.98	
		Pie	Cumple	5.3	28.6	5.5	1.8	36.8	1.8	36.8	G, V, N [NL](2)	N_c,NM_yM_z	6.10	1.88	0.11	0.10	-0.34	Cumple
											G, V, N [NL](1)	M_y	5.61	1.88	0.11	0.10	-0.34	
											G, V, N [NL](5)	M_z	4.46	1.19	0.18	0.16	-0.25	
											G, V, N [NL](4)	V_z,M_tV_z	2.25	-0.11	0.01	0.01	-0.37	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.4	28.2	1.4	3.6	35.2	3.6	35.2	G, V, N [NL](2)	N_c,NM_yM_z	7.40	1.85	0.01	0.00	-0.73	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	6.41	1.85	0.01	0.00	-0.73	
											G, V, N [NL](6)	M_z	2.85	0.32	0.05	-0.04	-0.13	
		Pie	Cumple	9.9	2.5	1.8	3.6	10.5	3.6	10.5	G, V, N [NL](2)	N_c,NM_yM_z	7.51	0.02	0.01	0.00	-0.73	Cumple
											G, V, N [NL](4)	M_y	3.20	-0.16	0.00	0.00	0.27	
											G, V, N [NL](7)	M_z	3.28	0.00	0.06	0.04	-0.02	
											G, V, N [NL](1)	V_z,M_tV_z	6.52	0.02	0.01	0.00	-0.73	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	11.4	2.5	1.2	3.0	11.8	3.0	11.8	G, V, N [NL](2)	N_c,NM_yM_z	8.83	0.03	0.01	0.00	-0.61	Cumple
											G, V [NL](8)	M_y	2.60	-0.16	0.00	0.00	0.43	
											G, G, V, V, N(9)	M_z	2.60	-0.01	-0.04	0.04	0.22	
											G, V, N [NL](1)	V_z,M_tV_z	7.35	0.03	0.01	0.00	-0.61	
		Pie	Cumple	11.5	23.2	1.7	4.7	31.1	3.2	31.1	G, V, N [NL](2)	N_c,NM_yM_z	8.94	-1.44	0.00	0.00	-0.61	Cumple
											G, V [NL](10)	M_y,V_z	4.15	1.52	0.00	0.00	0.96	
											G, V, N [NL](6)	M_z	3.91	-0.27	-0.05	-0.04	-0.11	
											G, V, N [NL](11)	M_tV_z	5.76	-1.36	0.00	0.00	-0.65	

Notas:
(1) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(2) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(3) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*
(4) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(5) *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
(6) *1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]*
(7) *1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(8) *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
(9) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]*
(10) *0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]*
(11) *1.35·PP+0.8·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]*

2.2.2.1.196. P318

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	15.4	4.2	3.6	18.9	3.6	18.9	G, V, N [NL](2)	N_c,M_y,V_z,M_tV_z	0.72	1.01	0.13	-0.11	0.73	Cumple
											G, V, N [NL](3)	M_z,NM_yM_z	0.72	1.01	0.13	-0.11	0.73	
		Pie	Cumple	0.7	44.0	5.0	3.6	48.3	3.6	48.3	G, V, N [NL](2)	N_c,M_y,V_z,NM_yM_z,M_tV_z	0.83	2.89	-0.16	-0.11	0.73	Cumple
											G, V, N [NL](3)	M_z	0.83	2.88	-0.16	-0.11	0.73	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.4	47.7	6.1	4.3	54.9	4.3	54.9	G, V, N [NL](3)	N_c,NM_yM_z	3.90	3.12	-0.16	0.12	-0.80	Cumple
											G, V, N [NL](2)	M_y	3.40	3.13	-0.16	0.12	-0.80	
											G, V, N [NL](4)	M_z	2.97	1.94	-0.19	0.15	-0.48	
											G, V, N [NL](5)	V_z,M_tV_z	1.85	1.29	-0.02	0.01	-0.87	
		Pie	Cumple	3.5	17.2	5.5	4.0	23.9	4.0	23.9	G, V, N [NL](3)	N_c,NM_yM_z	4.01	1.13	0.14	0.12	-0.80	Cumple
											G, V, N [NL](2)	M_y,V_z,M_tV_z	3.52	1.13	0.14	0.12	-0.80	
											G, V, N [NL](4)	M_z	3.09	0.74	0.18	0.15	-0.48	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.7	17.6	1.6	2.2	22.5	N.P.(1)	22.5	G, V, N [NL](3)	N_c,NM_yM_z	5.35	1.15	0.00	0.01	-0.44	Cumple
											G, V, N [NL](2)	M_y,V_z	4.36	1.15	0.00	0.01	-0.44	
											G, V, N [NL](6)	M_z	2.47	0.23	0.05	-0.04	-0.09	
		Pie	Cumple	4.8	2.6	1.9	2.2	6.1	N.P.(1)	6.1	G, V, N [NL](3)	N_c	5.46	0.06	0.02	0.01	-0.44	Cumple
											G, V [NL](7)	M_y	2.03	-0.17	0.00	0.00	0.39	
											G, V, N [NL](8)	M_z	3.11	-0.01	0.06	0.04	-0.03	
											G, V, N [NL](2)	V_z	4.47	0.06	0.02	0.01	-0.44	
											G, V, N [NL](4)	NM_yM_z	4.54	0.03	0.06	0.04	-0.29	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	2.6	1.2	2.8	7.1	2.8	7.1	G, V, N [NL](3)	N_c	6.80	0.05	0.01	0.00	-0.56	Cumple
											G, V [NL](7)	M_y	2.82	-0.17	0.00	0.00	0.42	
											G, G, V, V, N(9)	M_z	3.25	-0.02	-0.04	0.04	0.20	
											G, V, N [NL](2)	V_z,M_tV_z	5.31	0.05	0.01	0.00	-0.56	
											G, V, N [NL](10)	NM_yM_z	5.22	-0.16	0.00	0.00	0.27	
		Pie	Cumple	6.0	23.0	1.7	4.7	27.0	3.6	27.0	G, V, N [NL](3)	N_c	6.91	-1.31	0.00	0.00	-0.56	Cumple
											G, V [NL](11)	M_y,V_z,NM_yM_z	4.37	1.50	0.00	0.00	0.96	
											G, V, N [NL](6)	M_z	3.53	-0.27	-0.05	-0.04	-0.11	
											G, V, N [NL](12)	M_tV_z	4.22	-1.41	0.00	0.00	-0.73	

Notas:
(1) *No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.*
(2) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(3) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]*
(5) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(6) *1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]*
(7) *0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]*
(8) *1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]*
(9) *0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]*
(10) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(11) *0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]*
(12) *1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]*

2.2.2.1.1303.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.8	17.3	5.0	0.6	21.5	0.6	21.5	G, V, N [NL][2]	N_c,M_y	0.88	1.13	0.16	-0.13	0.08	Cumple
											G, V, N [NL][4]	M_z,NM_yM_z	0.88	1.13	0.16	-0.13	0.08	
											G, V, N [NL][4]	V_z,M_yV_z	0.53	0.57	0.12	-0.10	0.12	
		Pie	Cumple	0.9	20.4	5.8	3.0	25.3	3.0	25.3	G, V, N [NL][2]	N_c,M_y,NM_yM_z	1.00	1.33	-0.18	-0.13	0.08	Cumple
											G, V, N [NL][3]	M_z	1.00	1.33	-0.19	-0.13	0.08	
											G, V, N [NL][5]	V_z,M_yV_z	0.41	0.99	0.00	0.00	0.60	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.8	35.7	7.9	4.8	45.2	4.8	45.2	G, V, N [NL][3]	N_c,NM_yM_z	5.51	2.34	-0.20	0.15	-0.28	Cumple
											G, V, N [NL][2]	M_y	5.02	2.34	-0.20	0.15	-0.28	
											G, V, N [NL][6]	M_z	4.07	1.60	-0.25	0.18	-0.22	
											G, V, N [NL][5]	V_z,M_yV_z	2.02	1.46	-0.05	0.03	-0.96	
		Pie	Cumple	4.9	24.9	6.5	1.7	33.8	1.7	33.8	G, V, N [NL][3]	N_c,NM_yM_z	5.63	1.63	0.17	0.15	-0.28	Cumple
											G, V, N [NL][4]	M_y	5.13	1.63	0.17	0.15	-0.28	
											G, V, N [NL][6]	M_z	4.19	1.06	0.21	0.18	-0.22	
											G, V, N [NL][5]	V_z,M_yV_z	2.13	-0.18	0.03	0.03	-0.35	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	6.0	24.5	1.6	3.2	31.0	N.P.[1]	31.0	G, V, N [NL][3]	N_c,NM_yM_z	6.93	1.60	0.00	0.01	-0.64	Cumple
											G, V, N [NL][2]	M_y,V_z	5.94	1.61	0.00	0.01	-0.64	
											G, V, N [NL][7]	M_z	2.90	0.32	0.05	-0.04	-0.13	
		Pie	Cumple	6.1	2.6	1.9	3.2	6.8	N.P.[1]	6.8	G, V, N [NL][3]	N_c,NM_yM_z	7.05	0.01	0.02	0.01	-0.64	Cumple
											G, V, N [NL][3]	M_y	3.08	-0.17	0.00	0.00	0.29	
											G, V, N [NL][8]	M_z	5.47	0.00	0.06	0.04	-0.39	
											G, V, N [NL][2]	V_z	6.06	0.01	0.02	0.01	-0.64	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	10.8	2.6	1.2	2.6	11.1	2.6	11.1	G, V, N [NL][3]	N_c,NM_yM_z	8.36	0.01	0.01	-0.01	-0.52	Cumple
											G, V, N [NL][5]	M_y	3.91	-0.17	0.00	0.00	0.28	
											G, G, V, V, N[9]	M_z	2.76	-0.01	-0.04	0.04	0.19	
											G, V, N [NL][2]	V_z,M_yV_z	6.88	0.01	0.01	-0.01	-0.52	
		Pie	Cumple	10.9	23.0	1.7	4.7	27.7	2.9	27.7	G, V, N [NL][3]	N_c,NM_yM_z	8.48	-1.25	-0.01	-0.01	-0.52	Cumple
											G, V [NL][10]	M_y,V_z	4.14	1.51	0.01	0.00	0.96	
											G, V, N [NL][7]	M_z	3.96	-0.27	-0.05	-0.04	-0.11	
											G, V, N [NL][11]	M_yV_z	5.47	-1.23	0.00	0.00	-0.59	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.

(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]

(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

(4) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

(5) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

(6) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]

(7) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]

(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]

(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

(11) 1.35·PP+0.8·CM1+0.9·V(90°)H1+1.5·N(EI) [NL]

2.2.2.1.1304.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.6	13.8	5.7	3.0	18.4	3.0	18.4	G, V, N [NL][2]	N_c,M_y,V_z,M_yV_z	0.64	0.91	0.18	-0.16	0.61	Cumple
											G, V, N [NL][4]	M_z,NM_yM_z	0.64	0.91	0.18	-0.16	0.61	
		Pie	Cumple	0.7	38.0	7.0	3.3	43.6	3.3	43.6	G, V, N [NL][2]	N_c,M_y,NM_yM_z	0.76	2.49	-0.22	-0.16	0.61	Cumple
											G, V, N [NL][3]	M_z	0.76	2.49	-0.22	-0.16	0.61	
											G, V, N [NL][4]	V_z,M_yV_z	0.41	1.14	-0.03	-0.02	0.67	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.2	41.4	6.9	4.1	49.4	4.1	49.4	G, V, N [NL][3]	N_c,NM_yM_z	3.69	2.71	-0.21	0.16	-0.72	Cumple
											G, V, N [NL][4]	M_y	3.20	2.71	-0.21	0.16	-0.72	
											G, V, N [NL][5]	M_z	2.87	1.71	-0.22	0.17	-0.44	
											G, V, N [NL][4]	V_z,M_yV_z	1.76	1.14	-0.02	0.01	-0.83	
		Pie	Cumple	3.3	14.1	6.3	3.5	21.6	3.5	21.6	G, V, N [NL][3]	N_c,NM_yM_z	3.80	0.92	0.19	0.16	-0.72	Cumple
											G, V, N [NL][2]	M_y,V_z,M_yV_z	3.31	0.92	0.19	0.16	-0.72	
											G, V, N [NL][5]	M_z	2.98	0.62	0.20	0.17	-0.44	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.5	14.5	1.7	1.8	19.1	N.P.[1]	19.1	G, V, N [NL][3]	N_c,NM_yM_z	5.14	0.95	0.00	0.01	-0.37	Cumple
											G, V, N [NL][4]	M_y,V_z	4.15	0.95	0.00	0.01	-0.37	
											G, V, N [NL][6]	M_z	2.92	0.04	-0.05	0.05	-0.02	
		Pie	Cumple	4.6	2.7	2.1	1.9	6.1	N.P.[1]	6.1	G, V, N [NL][3]	N_c	5.25	0.03	0.03	0.01	-0.37	Cumple
											G, V [NL][7]	M_y	2.01	-0.18	-0.01	0.00	0.39	
											G, V, N [NL][8]	M_z	4.34	0.02	0.07	0.04	-0.23	
											G, V [NL][9]	V_z	3.00	-0.18	-0.01	0.00	0.39	
											G, V, N [NL][10]	NM_yM_z	3.81	-0.18	0.00	0.00	0.29	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.7	2.7	1.2	2.4	7.2	2.4	7.2	G, V, N [NL][3]	N_c	6.58	0.03	0.01	-0.01	-0.48	Cumple
											G, V, N [NL][11]	M_y	2.96	-0.18	-0.01	0.01	0.38	
											G, G, V, V, N[12]	M_z	3.31	-0.01	-0.04	0.04	0.17	
											G, V, N [NL][2]	V_z,M_yV_z	5.10	0.03	0.01	-0.01	-0.48	
											G, V, N [NL][10]	NM_yM_z	5.14	-0.17	0.00	0.00	0.29	
		Pie	Cumple	5.8	22.8	1.7	4.7	26.9	3.3	26.9	G, V, N [NL][3]	N_c	6.70	-1.13	-0.01	-0.01	-0.48	Cumple
											G, V [NL][9]	M_y,V_z,NM_yM_z	4.34	1.49	0.01	0.00	0.95	
											G, V, N [NL][13]	M_z	3.55	-0.26	-0.05	-0.04	-0.11	
											G, V, N [NL][14]	M_yV_z	4.10	-1.29	0.00	0.00	-0.68	

Notas:

(1) No hay interacción entre momento torsor y esfuerzo cortante para ninguna combinación. Por lo tanto, la comprobación no procede.
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(7) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(9) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(12) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(13) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(14) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1305.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.7	15.6	6.0	0.5	20.5	0.5	20.5	G, V, N [NL](1)	N_c,M_y	0.78	1.02	0.19	-0.15	-0.02	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.78	1.02	0.19	-0.15	-0.02	
											G, V [NL](3)	V_z,M_tV_z	0.19	0.14	-0.01	0.01	-0.10	
		Pie	Cumple	0.8	14.8	6.2	2.8	19.8	2.8	19.8	G, V, N [NL](1)	N_c,M_y,NM_yM_z	0.90	0.97	-0.20	-0.15	-0.02	Cumple
											G, V, N [NL](2)	M_z	0.90	0.97	-0.20	-0.15	-0.02	
											G, V, N [NL](4)	V_z,M_tV_z	0.20	0.76	0.02	0.01	0.58	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.5	28.1	9.4	4.6	39.4	4.6	39.4	G, V, N [NL](2)	N_c,NM_yM_z	5.12	1.84	-0.30	0.22	-0.20	Cumple
											G, V, N [NL](1)	M_y	4.63	1.84	-0.30	0.21	-0.20	
											G, V, N [NL](5)	M_z	3.74	1.23	-0.30	0.22	-0.16	
											G, V, N [NL](6)	V_z,M_tV_z	1.92	1.30	-0.04	0.03	-0.93	
		Pie	Cumple	4.6	20.6	7.5	1.6	30.5	1.6	30.5	G, V, N [NL](2)	N_c,NM_yM_z	5.24	1.35	0.24	0.22	-0.20	Cumple
											G, V, N [NL](1)	M_y	4.74	1.35	0.24	0.21	-0.20	
											G, V, N [NL](5)	M_z	3.85	0.84	0.24	0.22	-0.16	
											G, V, N [NL](6)	V_z,M_tV_z	2.03	-0.27	0.03	0.03	-0.32	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.7	20.2	1.7	2.6	26.4	2.6	26.4	G, V, N [NL](2)	N_c,NM_yM_z	6.54	1.32	0.01	0.01	-0.53	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	5.56	1.32	0.01	0.01	-0.54	
											G, V, N [NL](7)	M_z	2.92	0.30	0.05	-0.04	-0.12	
		Pie	Cumple	5.8	2.9	2.1	2.6	6.7	2.6	6.7	G, V, N [NL](2)	N_c,NM_yM_z	6.66	-0.01	0.03	0.01	-0.53	Cumple
											G, V, N [NL](6)	M_y	2.98	-0.19	0.00	0.00	0.32	
											G, V, N [NL](8)	M_z	5.15	-0.01	0.07	0.04	-0.31	
											G, V, N [NL](1)	V_z,M_tV_z	5.67	-0.01	0.03	0.01	-0.54	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	10.3	2.9	1.2	2.1	10.6	2.1	10.6	G, V, N [NL](2)	N_c,NM_yM_z	7.98	-0.01	0.01	-0.01	-0.43	Cumple
											G, V, N [NL](6)	M_y	3.81	-0.19	0.00	0.00	0.31	
											G, G, V, V, N(9)	M_z	2.88	0.00	-0.04	0.04	0.16	
											G, V, N [NL](1)	V_z,M_tV_z	6.49	-0.01	0.01	-0.01	-0.43	
		Pie	Cumple	10.4	22.9	1.6	4.7	26.8	3.2	26.8	G, V, N [NL](2)	N_c	8.09	-1.04	-0.01	-0.01	-0.43	Cumple
											G, V [NL](10)	M_y,V_z,NM_yM_z	4.14	1.50	0.01	0.01	0.96	
											G, V, N [NL](7)	M_z	3.97	-0.25	-0.05	-0.04	-0.10	
											G, V, N [NL](11)	M_tV_z	4.94	-1.24	0.00	0.00	-0.65	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.1306.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	11.3	7.0	2.3	16.6	2.3	16.6	G, V, N [NL](1)	N_c,M_y,V_z,M_tV_z	0.55	0.74	0.22	-0.20	0.47	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.55	0.74	0.22	-0.20	0.47	
		Pie	Cumple	0.6	29.7	8.8	3.1	36.4	3.1	36.4	G, V, N [NL](1)	N_c,M_y,,NM_yM_z	0.67	1.95	-0.28	-0.20	0.47	Cumple
											G, V, N [NL](2)	M_z	0.67	1.94	-0.28	-0.20	0.47	
											G, V, N [NL](3)	V_z,M_tV_z	0.39	0.99	-0.02	-0.02	0.63	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.9	32.7	7.5	4.0	41.1	4.0	41.1	G, V, N [NL](2)	N_c,M_z,NM_yM_z	3.38	2.14	-0.24	0.18	-0.60	Cumple
											G, V, N [NL](1)	M_y	2.89	2.14	-0.24	0.18	-0.60	
											G, V, N [NL](3)	V_z,M_tV_z	1.67	0.98	-0.02	0.01	-0.81	
		Pie	Cumple	3.0	10.0	6.9	2.9	17.9	2.9	17.9	G, V, N [NL](2)	N_c,M_z,NM_yM_z	3.50	0.65	0.22	0.18	-0.60	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	3.00	0.65	0.22	0.18	-0.60	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.2	10.4	1.7	1.3	14.8	1.3	14.8	G, V, N [NL](2)	N_c,NM_yM_z	4.83	0.68	-0.01	0.02	-0.27	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	3.84	0.68	-0.01	0.02	-0.27	
											G, V, N [NL](4)	M_z	2.87	0.02	-0.06	0.05	-0.01	
		Pie	Cumple	4.3	3.0	2.3	1.9	6.4	1.6	6.4	G, V, N [NL](2)	N_c	4.94	0.01	0.04	0.02	-0.27	Cumple
											G, V, N [NL](3)	M_y	2.74	-0.20	0.00	0.00	0.32	
											G, V, N [NL](5)	M_z	4.12	0.00	0.07	0.05	-0.17	
											G, V [NL](6)	V_z	2.99	-0.20	-0.01	0.00	0.39	
											G, V, N [NL](7)	NM_yM_z	3.73	-0.20	0.00	0.00	0.32	
											G, V, N [NL](8)	M_tV_z	2.98	0.08	0.03	0.02	-0.33	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.5	3.0	1.2	2.1	7.6	1.9	7.6	G, V, N [NL](2)	N_c	6.28	0.00	0.01	-0.01	-0.37	Cumple
											G, V, N [NL](3)	M_y	3.57	-0.20	0.00	0.00	0.33	
											G, G, V, V, N(9)	M_z	3.42	0.00	-0.04	0.04	0.13	
											G, V [NL](6)	V_z	4.28	-0.19	-0.01	0.01	0.42	
											G, V, N [NL](7)	NM_yM_z	5.06	-0.20	0.00	0.00	0.33	
											G, V, N [NL](8)	M_tV_z	3.82	0.07	0.00	0.00	-0.39	
		Pie	Cumple	5.6	22.6	1.7	4.7	26.7	3.0	26.7	G, V, N [NL](2)	N_c	6.39	-0.89	-0.01	-0.01	-0.37	Cumple
											G, V [NL](6)	M_y,V_z,NM_yM_z	4.34	1.48	0.01	0.01	0.96	
											G, V, N [NL](10)	M_z	3.53	-0.22	-0.05	-0.04	-0.09	
											G, V, N [NL](8)	M_tV_z	3.93	-1.15	0.00	0.00	-0.62	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(6) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]

2.2.2.1.1307.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.5	12.8	6.6	0.6	17.9	0.6	17.9	G, V, N [NL](1)	N_c,M_y	0.63	0.84	0.21	-0.16	-0.13	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.63	0.84	0.21	-0.16	-0.13	
											G, V, N [NL](3)	V_z,M_tV_z	0.62	0.82	0.21	-0.15	-0.13	
		Pie	Cumple	0.7	12.2	6.0	2.9	12.9	2.9	12.9	G, V, N [NL](1)	N_c	0.75	0.51	-0.19	-0.16	-0.13	Cumple
											G, V, N [NL](4)	M_y	0.35	0.80	-0.02	-0.01	0.56	
											G, V, N [NL](2)	M_z	0.75	0.51	-0.19	-0.16	-0.13	
											G, V [NL](5)	V_z	0.12	0.66	0.04	0.03	0.58	
											G, V, N [NL](6)	NM_yM_z	0.35	0.80	-0.02	-0.01	0.56	
											G, V, N [NL](7)	M_tV_z	0.16	0.71	0.02	0.02	0.58	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	4.0	18.6	12.1	4.6	31.1	4.6	31.1	G, V, N [NL](2)	N_c,M_z,NM_yM_z	4.56	1.22	-0.39	0.27	-0.09	Cumple
											G, V, N [NL](1)	M_y	4.07	1.22	-0.39	0.27	-0.09	
											G, V, N [NL](4)	V_z,M_tV_z	1.76	1.14	-0.02	0.01	-0.92	
		Pie	Cumple	4.1	15.2	9.0	1.5	25.6	1.5	25.6	G, V, N [NL](2)	N_c,M_z,NM_yM_z	4.67	0.99	0.29	0.27	-0.09	Cumple
											G, V, N [NL](1)	M_y	4.18	0.99	0.29	0.27	-0.09	
											G, V, N [NL](4)	V_z,M_tV_z	1.87	-0.39	0.01	0.01	-0.31	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	5.2	14.8	1.8	2.0	20.4	2.0	20.4	G, V, N [NL](2)	N_c,NM_yM_z	5.99	0.97	0.01	0.01	-0.40	Cumple
											G, V, N [NL](1)	M_y,V_z,M_tV_z	5.00	0.97	0.01	0.01	-0.40	
											G, V, N [NL](8)	M_z	2.86	0.24	0.06	-0.04	-0.10	
		Pie	Cumple	5.3	3.3	2.3	2.3	6.7	2.0	6.7	G, V, N [NL](2)	N_c	6.10	-0.03	0.03	0.01	-0.40	Cumple
											G, V, N [NL](4)	M_y	2.82	-0.22	0.00	0.00	0.35	
											G, V, N [NL](9)	M_z	4.74	-0.02	0.07	0.04	-0.23	
											G, V [NL](10)	V_z	2.78	-0.21	-0.01	0.00	0.46	
											G, V, N [NL](6)	NM_yM_z	3.81	-0.22	0.00	0.00	0.35	
											G, V, N [NL](11)	M_tV_z	3.69	0.06	0.03	0.01	-0.41	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.5	3.3	1.2	2.2	7.9	1.8	7.9	G, V, N [NL](2)	N_c	7.42	-0.02	0.01	-0.01	-0.31	Cumple
											G, V, N [NL](4)	M_y	3.65	-0.22	-0.01	0.01	0.35	
											G, G, V, V, N(12)	M_z	3.07	0.01	-0.04	0.04	0.11	
											G, V [NL](10)	V_z	4.07	-0.21	-0.01	0.01	0.44	
											G, V, N [NL](6)	NM_yM_z	5.14	-0.22	-0.01	0.01	0.35	
											G, V, N [NL](11)	M_tV_z	4.52	0.07	0.00	0.00	-0.36	
		Pie	Cumple	6.6	22.8	1.6	4.8	26.8	2.9	26.8	G, V, N [NL](2)	N_c	7.53	-0.77	-0.01	-0.01	-0.31	Cumple
											G, V [NL](10)	M_y,V_z,NM_yM_z	4.13	1.50	0.01	0.01	0.97	
											G, V, N [NL](8)	M_z	3.92	-0.20	-0.05	-0.04	-0.08	
											G, V, N [NL](11)	M_tV_z	4.63	-1.09	0.00	0.00	-0.59	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(8) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(12) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]

2.2.2.1.1308.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	8.1	7.7	1.4	13.8	1.4	13.8	G, V, N [NL][1]	N_c,M_y,V_z,M_tV_z	0.44	0.53	0.24	-0.21	0.27	Cumple
											G, V, N [NL][2]	M_z,NM_yM_z	0.44	0.53	0.25	-0.22	0.27	
		Pie	Cumple	0.5	19.0	9.7	2.9	26.1	2.9	26.1	G, V, N [NL][1]	N_c,M_y	0.56	1.24	-0.31	-0.21	0.27	Cumple
											G, V, N [NL][2]	M_z,NM_yM_z	0.56	1.24	-0.31	-0.22	0.27	
											G, V, N [NL][3]	V_z,M_tV_z	0.36	0.84	-0.02	-0.01	0.59	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.5	21.3	8.1	3.9	29.5	3.9	29.5	G, V, N [NL][2]	N_c,M_z,NM_yM_z	2.90	1.40	-0.26	0.20	-0.42	Cumple
											G, V, N [NL][1]	M_y	2.40	1.40	-0.26	0.20	-0.42	
											G, V, N [NL][3]	V_z,M_tV_z	1.58	0.82	-0.02	0.01	-0.79	
		Pie	Cumple	2.6	7.3	7.5	2.1	13.3	2.1	13.3	G, V, N [NL][2]	N_c,M_z,NM_yM_z	3.01	0.36	0.24	0.20	-0.42	Cumple
											G, V [NL][4]	M_y	1.67	-0.48	-0.06	-0.05	-0.07	
											G, V, N [NL][1]	V_z,M_tV_z	2.52	0.36	0.24	0.20	-0.42	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.8	7.4	1.8	1.2	10.4	0.8	10.4	G, V, N [NL][2]	N_c	4.35	0.38	-0.02	0.02	-0.16	Cumple
											G, V [NL][4]	M_y	2.96	-0.49	0.00	0.00	-0.19	
											G, V, N [NL][5]	M_z	2.88	0.02	-0.06	0.05	-0.01	
											G, V, N [NL][3]	V_z	2.53	-0.38	0.00	0.00	-0.24	
											G, V, N [NL][6]	NM_yM_z	3.59	0.45	-0.01	0.02	-0.02	
											G, V, N [NL][1]	M_tV_z	3.36	0.38	-0.02	0.02	-0.16	
		408.7 cm	Cumple	3.8	8.6	0.6	0.8	11.3	0.8	11.3	G, V, N [NL][2]	N_c	4.39	0.25	0.01	0.02	-0.16	Cumple
											G, V [NL][4]	M_y,NM_yM_z	2.98	-0.56	0.00	0.00	0.01	
											G, V, N [NL][7]	M_z	2.41	0.07	0.02	-0.04	-0.05	
											G, V, N [NL][1]	V_z,M_tV_z	3.40	0.25	0.01	0.02	-0.16	
		Pie	Cumple	3.9	3.6	2.6	1.9	6.9	1.3	6.9	G, V, N [NL][2]	N_c	4.46	-0.01	0.05	0.02	-0.16	Cumple
											G, V, N [NL][8]	M_y,NM_yM_z	3.63	-0.24	0.00	0.00	0.34	
											G, V, N [NL][9]	M_z	3.83	-0.01	0.08	0.06	-0.10	
											G, V [NL][4]	V_z	3.02	-0.23	-0.01	0.00	0.39	
											G, V, N [NL][10]	M_tV_z	2.71	0.08	0.04	0.02	-0.27	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.0	3.6	1.2	2.2	8.1	1.6	8.1	G, V, N [NL][2]	N_c	5.80	-0.02	0.01	-0.01	-0.24	Cumple
											G, V, N [NL][8]	M_y,NM_yM_z	4.96	-0.24	-0.01	0.01	0.38	
											G, V, N [NL][11]	M_z	4.11	-0.02	0.04	-0.04	-0.20	
											G, V [NL][4]	V_z	4.30	-0.23	-0.01	0.01	0.44	
											G, V, N [NL][10]	M_tV_z	3.55	0.08	0.01	0.00	-0.33	
		Pie	Cumple	5.1	22.7	1.6	4.8	26.9	2.7	26.9	G, V, N [NL][2]	N_c	5.91	-0.59	-0.01	-0.01	-0.24	Cumple
											G, V [NL][4]	M_y,V_z,NM_yM_z	4.37	1.49	0.01	0.01	0.97	
											G, V, N [NL][7]	M_z	3.44	-0.16	-0.05	-0.04	-0.06	
											G, V, N [NL][10]	M_tV_z	3.66	-0.99	0.00	0.00	-0.55	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]

2.2.2.1.1309.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	8.7	7.1	1.0	14.0	1.0	14.0	G, V, N [NL](1)	N_c,M_y,V_z,M_tV_z	0.45	0.57	0.23	-0.17	-0.20	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.45	0.57	0.23	-0.17	-0.20	
		Pie	Cumple	0.5	9.9	6.8	2.8	10.9	2.8	10.9	G, V, N [NL](1)	N_c	0.56	0.06	-0.22	-0.17	-0.20	Cumple
											G, V, N [NL](3)	M_y	0.16	0.65	0.01	0.01	0.56	
											G, V, N [NL](4)	M_z	0.56	0.06	-0.22	-0.17	-0.20	
											G, V [NL](4)	V_z	0.13	0.63	0.04	0.03	0.57	
											G, V, N [NL](5)	NM_yM_z	0.31	0.65	-0.03	-0.02	0.53	
											G, V, N [NL](6)	M_tV_z	0.15	0.65	0.01	0.02	0.56	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	3.4	14.3	11.9	4.3	20.7	4.2	20.7	G, V, N [NL](2)	N_c,M_z,NM_yM_z	3.85	0.59	-0.38	0.27	-0.03	Cumple
											G, V, N [NL](7)	M_y	1.64	0.94	0.00	0.00	-0.87	
											G, V, N [NL](5)	V_z	2.14	0.94	0.00	0.00	-0.87	
											G, V, N [NL](6)	M_tV_z	1.57	0.81	0.07	-0.05	-0.86	
		Pie	Cumple	3.5	9.2	9.0	1.3	17.8	1.2	17.8	G, V, N [NL](4)	N_c,M_z,NM_yM_z	3.96	0.52	0.29	0.27	-0.03	Cumple
											G, V [NL](4)	M_y	1.48	-0.60	-0.08	-0.08	-0.24	
											G, V, N [NL](5)	V_z	2.25	-0.47	0.00	0.00	-0.26	
											G, V, N [NL](6)	M_tV_z	1.63	-0.56	-0.05	-0.05	-0.25	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	4.6	9.1	1.9	1.1	12.5	1.1	12.5	G, V, N [NL](2)	N_c,NM_yM_z	5.28	0.51	0.00	0.02	-0.23	Cumple
											G, V [NL](4)	M_y	2.77	-0.59	-0.01	0.00	-0.14	
											G, V, N [NL](8)	M_z	2.88	-0.03	-0.06	0.05	0.01	
											G, V, N [NL](1)	V_z,M_tV_z	4.29	0.51	0.00	0.02	-0.23	
		Pie	Cumple	4.7	3.5	2.5	2.2	6.8	2.2	6.8	G, V, N [NL](4)	N_c	5.39	-0.06	0.04	0.02	-0.23	Cumple
											G, V, N [NL](7)	M_y	2.70	-0.23	0.01	0.00	0.38	
											G, V, N [NL](9)	M_z	4.34	-0.04	0.08	0.05	-0.13	
											G, V [NL](4)	V_z,M_tV_z	2.84	-0.21	-0.01	0.00	0.44	
											G, V, N [NL](5)	NM_yM_z	3.69	-0.23	0.01	0.00	0.38	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	3.5	1.2	2.0	8.0	2.0	8.0	G, V, N [NL](2)	N_c	6.71	-0.05	0.01	-0.01	-0.14	Cumple
											G, V, N [NL](5)	M_y,NM_yM_z	5.02	-0.23	-0.01	0.01	0.36	
											G, G, V, V, N(10)	M_z	3.33	0.02	-0.04	0.04	0.05	
											G, V [NL](4)	V_z,M_tV_z	4.12	-0.21	-0.01	0.01	0.40	
		Pie	Cumple	5.9	21.3	1.6	4.6	25.4	4.6	25.4	G, V, N [NL](2)	N_c	6.82	-0.39	-0.01	-0.01	-0.14	Cumple
											G, V [NL](4)	M_y,V_z,NM_yM_z,M_tV_z	4.19	1.40	0.01	0.01	0.93	
											G, V, N [NL](11)	M_z	3.77	-0.11	-0.05	-0.04	-0.04	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(10) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(11) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]

2.2.2.1.1310.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.2	3.9	7.6	1.2	9.9	1.2	9.9	G, V, N [NL][1]	N_c,M_z,NM_yM_z	0.27	0.26	0.24	-0.21	0.13	Cumple
											G, V, N [NL][2]	M_y	0.27	0.26	0.24	-0.21	0.13	
											G, V [NL][3]	V_z,M_yV_z	0.10	0.04	-0.06	0.05	-0.24	
		Pie	Cumple	0.3	8.9	9.7	2.3	15.9	2.3	15.9	G, V, N [NL][1]	N_c,M_z,NM_yM_z	0.38	0.58	-0.31	-0.21	0.13	Cumple
											G, V, N [NL][2]	M_y	0.38	0.58	-0.31	-0.21	0.13	
											G, V, N [NL][4]	V_z,M_yV_z	0.31	0.43	-0.02	-0.01	0.46	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.0	10.3	8.1	2.8	18.0	2.8	18.0	G, V, N [NL][1]	N_c,M_z,NM_yM_z	2.34	0.67	-0.26	0.20	-0.30	Cumple
											G, V, N [NL][2]	M_y	1.84	0.68	-0.26	0.20	-0.30	
											G, V, N [NL][4]	V_z,M_yV_z	1.45	0.42	-0.01	0.01	-0.56	
		Pie	Cumple	2.1	3.2	7.4	1.5	10.2	1.5	10.2	G, V, N [NL][1]	N_c,M_z,NM_yM_z	2.45	-0.07	0.24	0.20	-0.30	Cumple
											G, V, N [NL][5]	M_y	2.06	-0.21	0.01	0.01	0.05	
											G, V, N [NL][2]	V_z,M_yV_z	1.95	-0.07	0.24	0.20	-0.30	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.3	3.5	2.0	1.2	6.6	1.2	6.6	G, V, N [NL][1]	N_c	3.79	-0.05	-0.03	0.03	0.00	Cumple
											G, V, N [NL][5]	M_y,NM_yM_z	3.38	-0.23	0.00	0.00	-0.23	
											G, V, N [NL][6]	M_z	3.42	-0.01	-0.06	0.06	-0.01	
											G, V, N [NL][4]	V_z,M_yV_z	2.39	-0.23	0.00	0.00	-0.23	
		387.8 cm	Cumple	3.3	5.3	0.4	0.1	8.3	0.1	8.3	G, V, N [NL][1]	N_c	3.84	-0.05	0.01	0.03	0.00	Cumple
											G, V, N [NL][5]	M_y,NM_yM_z	3.43	-0.35	0.00	0.00	0.01	
											G, V, N [NL][7]	M_z	3.74	-0.05	0.01	-0.01	0.00	
											G, V, N [NL][8]	V_z,M_yV_z	2.40	0.11	0.01	0.03	-0.02	
		Pie	Cumple	3.4	1.3	2.8	1.7	6.2	1.7	6.2	G, V, N [NL][1]	N_c	3.91	-0.06	0.06	0.03	0.00	Cumple
											G, V, N [NL][4]	M_y	2.51	-0.08	0.01	0.00	0.34	
											G, V, N [NL][6]	M_z	3.54	-0.04	0.09	0.06	-0.01	
											G, V [NL][3]	V_z,M_yV_z	3.02	-0.06	-0.01	-0.01	0.35	
											G, V, N [NL][9]	NM_yM_z	3.57	-0.04	0.09	0.06	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	1.5	1.3	0.8	6.2	0.8	6.2	G, V, N [NL][1]	N_c	5.24	-0.06	0.02	-0.01	-0.02	Cumple
											G, V, N [NL][4]	M_y	3.34	-0.10	-0.01	0.01	0.16	
											G, V, N [NL][10]	M_z	3.65	-0.05	0.04	-0.04	-0.01	
											G, V [NL][3]	V_z,M_yV_z	4.30	-0.08	-0.01	0.01	0.16	
											G, V, N [NL][7]	NM_yM_z	5.13	-0.05	0.04	-0.04	-0.01	
		Pie	Cumple	4.7	14.7	1.6	3.4	19.0	3.4	19.0	G, V, N [NL][1]	N_c	5.35	-0.10	-0.01	-0.01	-0.02	Cumple
											G, V [NL][3]	M_y,V_z,M_yV_z	4.37	0.96	0.01	0.01	0.69	
											G, V, N [NL][11]	M_z	3.32	-0.03	-0.05	-0.04	0.00	
											G, V [NL][12]	NM_yM_z	4.85	0.95	0.01	0.01	0.69	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
(11) 1.35·PP+0.8·CM1+1.5·VH5+0.75·N(R)1 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.205. P327

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.2	1.7	7.7	1.6	8.8	1.6	8.8	G, V, N [NL](1)	N_c,M_y,M_z,NM_yM_z	0.29	0.11	0.24	-0.18	0.00	Cumple
											G, V [NL](4)	V_z	0.11	0.07	-0.02	0.02	-0.33	
											G, V [NL](3)	M_tV_z	0.03	0.05	-0.06	0.05	-0.32	
		Pie	Cumple	0.4	2.0	6.5	1.7	7.8	1.7	7.8	G, V, N [NL](1)	N_c,M_z	0.40	0.12	-0.21	-0.18	0.00	Cumple
											G, Q [NL](4)	M_y	0.37	0.13	-0.19	-0.16	0.02	
											G, V, N [NL](5)	V_z	0.12	0.10	0.03	0.02	0.34	
											G, V, N [NL](6)	NM_yM_z	0.40	0.12	-0.21	-0.17	0.00	
											G, V, N [NL](7)	M_tV_z	0.24	0.12	0.00	0.00	0.34	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.0	2.8	12.7	1.3	15.8	1.3	15.8	G, V, N [NL](6)	N_c,M_z,NM_yM_z	2.25	0.13	-0.41	0.28	-0.10	Cumple
											G, V, N [NL](8)	M_y	1.55	0.18	-0.31	0.22	-0.02	
											G, V, N [NL](9)	V_z,M_tV_z	1.10	0.02	-0.04	0.03	-0.26	
		Pie	Cumple	2.1	3.0	9.5	2.0	12.7	1.9	12.7	G, V, N [NL](6)	N_c,M_z,NM_yM_z	2.37	-0.12	0.31	0.28	-0.10	Cumple
											G, V, N [NL](8)	M_y	1.66	-0.20	0.23	0.22	-0.28	
											G, V [NL](10)	V_z	1.30	0.18	-0.06	-0.05	0.40	
											G, V, N [NL](11)	M_tV_z	1.34	0.17	-0.03	-0.03	0.38	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.2	1.5	2.2	1.0	5.7	1.0	5.7	G, V, N [NL](6)	N_c,M_y	3.69	-0.10	-0.02	0.03	0.04	Cumple
											G, V, N [NL](12)	M_z,NM_yM_z	3.35	-0.07	-0.07	0.07	0.03	
											G, V [NL](3)	V_z,M_tV_z	1.49	0.00	0.00	-0.01	-0.20	
		Pie	Cumple	3.3	3.5	3.0	1.9	6.3	1.9	6.3	G, V, N [NL](6)	N_c	3.80	0.00	0.06	0.03	0.04	Cumple
											G, V [NL](10)	M_y	2.52	0.23	-0.01	0.00	0.38	
											G, V, N [NL](12)	M_z	3.47	0.00	0.10	0.07	0.03	
											G, V, N [NL](7)	V_z,M_tV_z	3.01	0.22	0.01	0.01	0.39	
											G, V, N [NL](13)	NM_yM_z	2.98	0.23	0.01	0.01	0.39	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	0.5	1.4	0.6	6.0	0.6	6.0	G, V, N [NL](14)	N_c	5.15	-0.02	0.04	-0.04	0.03	Cumple
											G, V [NL](3)	M_y,V_z,M_tV_z	2.19	0.04	-0.01	0.01	-0.11	
											G, G, V, V, N(15)	M_z	3.91	0.01	-0.04	0.04	-0.01	
											G, V, N [NL](16)	NM_yM_z	5.15	-0.02	0.04	-0.04	0.02	
		Pie	Cumple	4.6	6.4	1.7	2.1	10.5	2.1	10.5	G, V, N [NL](14)	N_c	5.26	0.04	-0.05	-0.04	0.03	Cumple
											G, V, N [NL](7)	M_y,V_z,M_tV_z	4.31	0.42	0.01	0.01	0.43	
											G, V, N [NL](17)	M_z	4.02	-0.01	0.05	0.04	0.00	
											G, V, N [NL](13)	NM_yM_z	4.28	0.42	0.02	0.01	0.42	

Notas:
(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(13) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(14) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(15) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
(16) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(17) 0.8·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]

2.2.2.1.206. P328

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)		Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	18.2	58.6	0.4	1.3	59.7	59.7		G, G, V, V(1)	N_t	-39.41	-0.02	0.21	-0.29	0.03	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	106.32	0.04	-0.41	0.72	-0.08	
											G, Q [NL](3)	M_y	105.86	0.05	-0.41	0.72	-0.08	
		Pie	Cumple	19.9	65.6	2.0	5.1	69.7	69.7		G, G, V, V(1)	N_t	-39.26	0.07	-0.57	-0.29	0.03	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	106.57	-0.18	1.56	0.72	-0.08	
											G, V, N [NL](4)	M_y	74.25	-0.26	1.09	0.50	-0.11	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.207. P329

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)		Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.5	51.9	0.1	1.3	52.7	52.7		G, V [NL](1)	N_t	-31.70	0.00	-0.14	0.23	0.01	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	93.73	0.01	0.40	-0.70	-0.02	
											G, V, N [NL](3)	M_y	62.70	0.01	0.26	-0.46	-0.06	
		Pie	Cumple	16.2	58.6	1.1	4.9	61.4	61.4		G, V [NL](1)	N_t	-31.56	0.02	0.50	0.23	0.01	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	93.98	-0.03	-1.51	-0.70	-0.02	
											G, V, N [NL](4)	M_y	65.20	-0.15	-1.05	-0.49	-0.06	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.208. P330

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.5	52.4	0.1	1.3	53.1	53.1	G, G, V, V(1)	N_t	-35.77	0.00	0.20	-0.27	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.75	0.01	-0.40	0.70	-0.01	
										G, V, N [NL](3)	M_y	63.32	0.01	-0.25	0.46	-0.05	
		Pie	Cumple	18.3	59.3	1.0	5.0	61.9	61.9	G, G, V, V(1)	N_t	-35.62	0.01	-0.56	-0.27	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	95.00	-0.01	1.53	0.70	-0.01	
										G, V, N [NL](4)	M_y	66.03	-0.13	1.06	0.49	-0.05	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.209. P331

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.6	52.3	0.1	1.3	53.0	53.0	G, V [NL](1)	N_t	-32.01	0.00	-0.14	0.23	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.57	0.01	0.40	-0.71	-0.01	
										G, V [NL](3)	M_y	4.51	-0.01	0.13	-0.13	0.01	
		Pie	Cumple	16.4	59.2	1.1	5.0	62.0	62.0	G, V [NL](1)	N_t	-31.86	0.01	0.50	0.23	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.82	-0.03	-1.53	-0.71	-0.01	
										G, V, N [NL](4)	M_y	65.85	-0.15	-1.06	-0.49	-0.06	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH4 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.210. P332

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.5	52.2	1.3	53.4	53.4	G, G, V, V(1)	N_t	-35.53	0.04	0.21	-0.28	-0.02	Cumple
									G, Q [NL](2)	N_c,M_z,NM_yM_z	94.22	-0.06	-0.41	0.71	0.02	
		Pie	Cumple	18.2	59.1	5.0	61.7	61.7	G, G, V, V(1)	N_t	-35.39	0.00	-0.56	-0.28	-0.02	Cumple
									G, Q [NL](2)	N_c,M_z,NM_yM_z	94.47	0.00	1.54	0.71	0.02	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.211. P333

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.6	52.3	0.5	1.3	53.5	53.5	G, V [NL](1)	N_t	-31.93	0.04	-0.14	0.24	-0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.37	-0.06	0.41	-0.71	0.02	
										G, Q [NL](3)	M_y	94.17	-0.06	0.41	-0.71	0.02	
		Pie	Cumple	16.4	59.2	1.0	5.0	61.8	61.8	G, V [NL](1)	N_t	-31.78	0.00	0.51	0.24	-0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.62	0.00	-1.54	-0.71	0.02	
										G, V, N [NL](4)	M_y	60.61	-0.13	-1.01	-0.48	-0.04	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.212. P334

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.5	52.1	0.1	1.3	52.9	52.9	G, G, V, V(1)	N_t	-35.62	0.01	0.21	-0.28	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.01	-0.01	-0.41	0.71	0.00	
										G, V, N [NL](3)	M_y	81.59	-0.01	-0.39	0.63	0.00	
		Pie	Cumple	18.2	58.9	1.1	5.0	61.7	61.7	G, G, V, V(1)	N_t	-35.47	0.01	-0.56	-0.28	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.26	-0.02	1.53	0.71	0.00	
										G, V, N [NL](4)	M_y	65.52	-0.14	1.07	0.50	-0.05	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.213. P335

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.7	52.1	0.1	1.3	52.9	52.9	G, V [NL](1)	N_t	-32.02	0.01	-0.14	0.24	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.05	-0.01	0.41	-0.71	0.00	
										G, V, N [NL](3)	M_y	81.64	-0.02	0.39	-0.63	0.00	
		Pie	Cumple	16.4	58.9	1.1	5.0	61.6	61.6	G, V [NL](1)	N_t	-31.87	0.01	0.51	0.24	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.30	-0.01	-1.53	-0.71	0.00	
										G, V, N [NL](4)	M_y	65.35	-0.14	-1.07	-0.50	-0.05	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.214. P336

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.6	52.2	0.1	1.3	53.0	53.0	G, G, V, V(1)	N_t	-35.75	0.01	0.21	-0.28	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.18	-0.02	-0.41	0.71	0.00	
										G, V, N [NL](3)	M_y	81.65	-0.02	-0.38	0.63	0.00	
		Pie	Cumple	18.3	59.0	1.1	5.0	61.7	61.7	G, G, V, V(1)	N_t	-35.61	0.01	-0.56	-0.28	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.42	-0.01	1.53	0.71	0.00	
										G, V, N [NL](4)	M_y	65.58	-0.14	1.07	0.50	-0.05	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.215. P337

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.7	52.2	0.2	1.3	53.1	53.1	G, V [NL](1)	N_t	-32.14	0.02	-0.15	0.24	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.18	-0.02	0.41	-0.71	0.01	
										G, V, N [NL](3)	M_y	81.65	-0.02	0.38	-0.63	0.00	
		Pie	Cumple	16.5	59.0	1.0	5.0	61.6	61.6	G, V [NL](1)	N_t	-31.99	0.00	0.51	0.24	0.00	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.43	0.00	-1.53	-0.71	0.01	
										G, V, N [NL](4)	M_y	65.38	-0.13	-1.07	-0.50	-0.05	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.216. P338

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.7	52.2	0.2	1.3	53.1	53.1	G, G, V, V(1)	N_t	-35.90	0.02	0.21	-0.28	-0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.24	-0.03	-0.41	0.71	0.01	
										G, V, N [NL](3)	M_y	81.56	-0.03	-0.38	0.63	0.01	
		Pie	Cumple	18.4	59.1	1.0	5.0	61.6	61.6	G, G, V, V(1)	N_t	-35.75	0.00	-0.57	-0.28	-0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.49	0.00	1.53	0.71	0.01	
										G, V, N [NL](4)	M_y	60.72	-0.13	1.01	0.47	-0.05	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]

2.2.2.1.217. P339

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.8	52.2	0.2	1.3	53.2	53.2	G, V [NL](1)	N_t	-32.28	0.02	-0.15	0.24	-0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.23	-0.03	0.41	-0.71	0.01	
										G, V, N [NL](3)	M_y	81.57	-0.03	0.38	-0.63	0.01	
		Pie	Cumple	16.5	59.1	1.0	5.0	61.7	61.7	G, V [NL](1)	N_t	-32.13	0.00	0.51	0.24	-0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.48	0.01	-1.53	-0.71	0.01	
										G, V [NL](4)	M_y	33.75	-0.13	-0.55	-0.26	-0.05	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.218. P340

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.8	52.4	0.2	1.3	53.2	53.2	G, G, V, V[1]	N_t	-36.31	-0.01	0.20	-0.28	0.01	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	94.78	0.02	-0.39	0.70	-0.01	
										G, V [NL][3]	M_y	4.24	-0.02	-0.12	0.13	0.01	
		Pie	Cumple	18.6	59.3	1.0	5.0	61.9	61.9	G, G, V, V[1]	N_t	-36.16	0.01	-0.57	-0.28	0.01	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	95.02	0.00	1.53	0.70	-0.01	
										G, V, N [NL][4]	M_y	65.89	-0.14	1.06	0.49	-0.06	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH5 [NL]
[4] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.219. P341

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.9	52.4	0.2	1.3	53.2	53.2	G, V [NL][1]	N_t	-32.68	-0.01	-0.14	0.24	0.00	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	94.77	0.01	0.39	-0.70	0.00	
										G, V [NL][3]	M_y	4.44	-0.02	0.13	-0.13	0.01	
		Pie	Cumple	16.7	59.3	1.0	5.0	61.9	61.9	G, V [NL][1]	N_t	-32.53	0.00	0.52	0.24	0.00	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	95.01	0.00	-1.53	-0.70	0.00	
										G, V [NL][4]	M_y	33.91	-0.13	-0.54	-0.25	-0.05	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·VH4 [NL]
[4] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.220. P342

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	17.0	52.3	1.3	53.7	53.7	G, G, V, V[1]	N_t	-36.71	0.05	0.21	-0.29	-0.02	Cumple
									G, Q [NL][2]	N_c,M_z,NM_yM_z	94.47	-0.08	-0.41	0.71	0.04	
		Pie	Cumple	18.8	59.2	5.0	62.1	62.1	G, G, V, V[1]	N_t	-36.57	-0.01	-0.58	-0.29	-0.02	Cumple
									G, Q [NL][2]	N_c,M_z,NM_yM_z	94.72	0.04	1.54	0.71	0.04	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.221. P343

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	15.2	52.3	1.3	53.7	53.7	G, V [NL][1]	N_t	-33.09	0.05	-0.15	0.25	-0.02	Cumple
									G, Q [NL][2]	N_c,M_z,NM_yM_z	94.47	-0.08	0.41	-0.71	0.05	
		Pie	Cumple	17.0	59.2	5.0	62.1	62.1	G, V [NL][1]	N_t	-32.94	-0.01	0.53	0.25	-0.02	Cumple
									G, Q [NL][2]	N_c,M_z,NM_yM_z	94.72	0.04	-1.54	-0.71	0.05	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.222. P344

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	17.5	52.1	1.3	53.1	53.1	G, G, V, V[1]	N_t	-37.65	0.02	0.22	-0.30	-0.01	Cumple
									G, Q [NL][2]	N_c,M_z,NM_yM_z	94.07	-0.03	-0.41	0.71	0.02	
		Pie	Cumple	19.3	58.9	4.9	61.8	61.8	G, G, V, V[1]	N_t	-37.50	-0.01	-0.60	-0.30	-0.01	Cumple
									G, Q [NL][2]	N_c,M_z,NM_yM_z	94.32	0.03	1.53	0.71	0.02	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.223. P345

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	15.6	52.1	1.3	53.1	53.1	G, V [NL](1)	N_t	-34.04	0.02	-0.15	0.26	-0.01	Cumple
									G, Q [NL](2)	N_c,M_z,NM_yM_z	94.06	-0.04	0.41	-0.71	0.03	
		Pie	Cumple	17.4	58.9	4.9	61.8	61.8	G, V [NL](1)	N_t	-33.90	-0.01	0.54	0.26	-0.01	Cumple
									G, Q [NL](2)	N_c,M_z,NM_yM_z	94.31	0.04	-1.53	-0.71	0.03	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.224. P346

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	18.2	51.7	1.4	52.8	52.8	G, G, V, V(1)	N_t	-39.29	0.02	0.22	-0.31	-0.01	Cumple
									G, Q [NL](2)	N_c,NM_yM_z	93.40	-0.05	-0.40	0.70	0.03	
									G, V, N [NL](3)	M_z	87.69	-0.05	-0.42	0.68	0.02	
		Pie	Cumple	20.1	58.5	4.9	61.4	61.4	G, G, V, V(1)	N_t	-39.14	-0.01	-0.62	-0.31	-0.01	Cumple
									G, Q [NL](2)	N_c,M_z,NM_yM_z	93.65	0.05	1.51	0.70	0.03	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

2.2.2.1.225. P347

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.3	51.7	1.4	52.8	52.8	G, V [NL](1)	N_t	-35.67	0.02	-0.16	0.27	-0.01	Cumple
									G, Q [NL](2)	N_c,NM_yM_z	93.38	-0.05	0.40	-0.70	0.04	
									G, V, N [NL](3)	M_z	87.67	-0.05	0.42	-0.68	0.03	
		Pie	Cumple	18.3	58.5	4.9	61.5	61.5	G, V [NL](1)	N_t	-35.52	-0.01	0.57	0.27	-0.01	Cumple
									G, Q [NL](2)	N_c,M_z,NM_yM_z	93.63	0.05	-1.51	-0.70	0.04	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

2.2.2.1.226. P348

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	19.5	51.6	1.4	52.8	52.8	G, G, V, V(1)	N_t	-42.15	0.02	0.24	-0.33	-0.01	Cumple
									G, V, N [NL](2)	N_c,M_z,NM_yM_z	92.76	-0.05	-0.44	0.72	0.02	
		Pie	Cumple	21.6	58.2	4.9	60.9	60.9	G, G, V, V(1)	N_t	-42.00	0.00	-0.68	-0.33	-0.01	Cumple
									G, V, N [NL](2)	N_c,M_z,NM_yM_z	93.01	0.01	1.52	0.72	0.02	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

2.2.2.1.227. P349

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones						Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	17.6	51.6	1.4	52.8	52.8	G, V [NL](1)	N_t	-38.53	0.02	-0.17	0.29	-0.01	Cumple
									G, V, N [NL](2)	N_c,M_z,NM_yM_z	92.70	-0.05	0.44	-0.72	0.03	
		Pie	Cumple	19.8	58.2	4.9	60.9	60.9	G, V [NL](1)	N_t	-38.38	-0.01	0.62	0.29	-0.01	Cumple
									G, V, N [NL](2)	N_c,M_z,NM_yM_z	92.95	0.02	-1.52	-0.72	0.03	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

2.2.2.1.228. P350

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	22.6	57.8	0.5	1.2	58.8	58.8	G, G, V, V[1]	N_t	-49.42	0.00	0.21	-0.35	0.01	Cumple
										G, V, N [NL][2]	N_c,NM_yM_z	105.26	-0.04	-0.38	0.72	0.02	
										G, V, N [NL][3]	M_y	62.09	-0.07	-0.17	0.39	0.08	
										G, V, N [NL][4]	M_z	100.50	-0.03	-0.38	0.71	0.02	
		Pie	Cumple	25.1	65.3	1.2	5.2	68.0	68.0	G, G, V, V[1]	N_t	-49.27	0.03	-0.74	-0.35	0.01	Cumple
										G, V, N [NL][2]	N_c,M_z,NM_yM_z	105.51	0.01	1.60	0.72	0.02	
										G, V, N [NL][3]	M_y	62.33	0.16	0.88	0.39	0.08	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(R)1 [NL]

2.2.2.1.229. P351

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	20.6	57.8	0.5	1.3	58.8	58.8	G, V [NL][1]	N_t	-45.56	-0.01	-0.16	0.32	0.02	Cumple
										G, V, N [NL][2]	N_c,M_z,NM_yM_z	105.00	-0.03	0.40	-0.75	0.00	
										G, V, N [NL][3]	M_y	61.99	-0.07	0.18	-0.39	0.08	
		Pie	Cumple	23.3	65.4	1.2	5.3	68.2	68.2	G, V [NL][1]	N_t	-45.41	0.04	0.71	0.32	0.02	Cumple
										G, V, N [NL][2]	N_c,M_z,NM_yM_z	105.25	-0.02	-1.64	-0.75	0.00	
										G, V, N [NL][3]	M_y	62.24	0.16	-0.89	-0.39	0.08	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.230. P352

Sección de acero laminado																			
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (962 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	28.1	54.9	2.7	1.3	3.1	57.7	3.1	57.7	G, G, V, V[1]	N_t	-61.79	-0.20	0.24	-0.37	0.79	Cumple
												G, V, N [NL][2]	N_c,NM_yM_z	122.53	0.35	-0.32	0.69	-1.24	
												G, V, N [NL][3]	M_y	120.24	0.35	-0.29	0.66	-1.24	
												G, V, N [NL][4]	M_z	67.06	0.14	-0.40	0.56	-0.53	
												G, V, N [NL][5]	V_z,M_yV_z	122.29	0.35	-0.32	0.68	-1.25	
		Pie	Cumple	27.1	53.6	2.4	0.5	3.1	55.8	3.1	55.8	G, G, V, V[1]	N_t	-61.76	0.22	0.04	-0.37	0.79	Cumple
												G, V, N [NL][2]	N_c,NM_yM_z	122.58	-0.31	0.05	0.69	-1.24	
												G, V, N [NL][5]	M_y,V_z,M_yV_z	122.34	-0.32	0.05	0.68	-1.25	
												G, V, N [NL][6]	M_z	-8.87	0.08	-0.15	0.17	0.28	
FIN COLUMNA INTERNA (914 - 962 cm)	2xHE 140 B([])	Cabeza	Cumple	27.1	53.6	1.8	0.5	2.8	55.2	2.8	55.2	G, G, V, V[1]	N_t	-61.73	0.13	0.05	-0.37	0.66	Cumple
												G, V, N [NL][2]	N_c,NM_yM_z	122.59	-0.23	0.05	0.68	-1.11	
												G, V, N [NL][5]	M_y,V_z,M_yV_z	122.35	-0.23	0.05	0.68	-1.12	
												G, V, N [NL][6]	M_z	-8.82	0.02	-0.15	0.17	0.28	
		Pie	Cumple	27.5	55.3	5.9	1.2	2.8	60.9	2.8	60.9	G, G, V, V[1]	N_t	-61.70	0.45	-0.13	-0.37	0.66	Cumple
												G, V, N [NL][2]	N_c,NM_yM_z	122.64	-0.76	0.37	0.68	-1.11	
												G, V, N [NL][5]	M_y,M_z,V_z,M_yV_z	122.39	-0.77	0.38	0.68	-1.12	
FIN COLUMNA INTERNA (742 - 914 cm)	2xHE 140 B([])	Cabeza	Cumple	27.4	59.1	5.9	1.2	1.4	65.2	1.4	65.2	G, G, V, V[1]	N_t	-61.36	0.45	-0.13	-0.37	-0.32	Cumple
												G, V, N [NL][2]	N_c,NM_yM_z	122.07	-0.76	0.37	0.68	0.57	
												G, V, N [NL][5]	M_y,M_z,V_z,M_yV_z	121.82	-0.77	0.38	0.68	0.57	
		Pie	Cumple	30.5	65.3	1.9	5.0	1.4	69.2	1.4	69.2	G, G, V, V[1]	N_t	-61.27	-0.11	-0.77	-0.37	-0.32	Cumple
												G, V, N [NL][2]	N_c,M_z,NM_yM_z	122.23	0.21	1.55	0.68	0.57	
												G, V, N [NL][7]	M_y	62.69	0.25	0.85	0.39	0.31	
												G, V, N [NL][5]	V_z,M_yV_z	121.98	0.22	1.55	0.68	0.57	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(R)2 [NL]
[4] 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
[5] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.231. P353

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (962 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	25.0	55.0	2.6	1.2	3.0	57.7	3.0	57.7	G, V [NL](1)	N_t	-56.23	-0.14	-0.11	0.29	0.60	Cumple
												G, V, N [NL](2)	N_t,NM_yM_z	122.92	0.34	0.29	-0.66	-1.19	
												G, V, N [NL](3)	M_y,V_z,M_yV_z	122.67	0.34	0.29	-0.66	-1.20	
												G, V, N [NL](4)	M_z	67.33	0.14	0.38	-0.54	-0.51	
		Pie	Cumple	24.7	53.8	2.3	0.5	3.0	55.9	3.0	55.9	G, V [NL](1)	N_t	-56.21	0.18	0.04	0.29	0.60	Cumple
												G, V, N [NL](2)	N_t,NM_yM_z	122.97	-0.30	-0.06	-0.66	-1.19	
												G, V, N [NL](3)	M_y,V_z,M_yV_z	122.72	-0.30	-0.06	-0.66	-1.20	
												G, V, N [NL](5)	M_z	-8.81	0.08	0.15	-0.16	0.26	
FIN COLUMNA INTERNA (914 - 962 cm)	2xHE 140 B([])	Cabeza	Cumple	24.7	53.8	1.6	0.5	2.8	55.4	2.8	55.4	G, V [NL](1)	N_t	-56.16	0.10	0.04	0.28	0.60	Cumple
												G, V, N [NL](2)	N_t,NM_yM_z	122.97	-0.21	-0.06	-0.65	-1.13	
												G, V, N [NL](3)	M_y,V_z,M_yV_z	122.73	-0.21	-0.06	-0.65	-1.14	
												G, V, N [NL](5)	M_z	-8.76	0.02	0.15	-0.16	0.28	
		Pie	Cumple	25.3	55.4	5.8	1.2	2.8	61.0	2.8	61.0	G, V [NL](1)	N_t	-56.14	0.38	0.18	0.28	0.60	Cumple
												G, V, N [NL](2)	N_t,NM_yM_z	123.02	-0.75	-0.37	-0.65	-1.13	
												G, V, N [NL](3)	M_y,M_z,V_z,M_yV_z	122.77	-0.76	-0.37	-0.65	-1.14	
FIN COLUMNA INTERNA (742 - 914 cm)	2xHE 140 B([])	Cabeza	Cumple	25.2	59.2	5.8	1.2	1.3	65.3	1.3	65.3	G, V [NL](1)	N_t	-55.83	0.38	0.18	0.28	-0.27	Cumple
												G, V, N [NL](2)	N_t,NM_yM_z	122.46	-0.75	-0.37	-0.65	0.54	
												G, V, N [NL](3)	M_y,M_z,V_z,M_yV_z	122.20	-0.76	-0.37	-0.65	0.55	
		Pie	Cumple	27.6	65.3	1.7	4.8	1.3	68.7	1.3	68.7	G, V [NL](1)	N_t	-55.74	-0.09	0.67	0.28	-0.27	Cumple
												G, V, N [NL](2)	N_t,M_z,NM_yM_z	122.61	0.17	-1.50	-0.65	0.54	
												G, V, N [NL](6)	M_y	62.95	0.22	-0.81	-0.37	0.29	
												G, V, N [NL](5)	V_z,M_yV_z	122.36	0.18	-1.49	-0.65	0.55	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(R)2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH4+0.75·N(R)2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.232. P354

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	18.2	58.7	0.7	1.3	60.0	60.0	G, G, V, V(1)	N_t	-39.39	0.06	0.21	-0.29	-0.04	Cumple
										G, Q [NL](2)	N_t,M_z,NM_yM_z	106.48	-0.08	-0.41	0.72	0.07	
										G, Q [NL](3)	M_y	106.12	-0.09	-0.41	0.72	0.07	
		Pie	Cumple	19.9	65.7	1.1	5.0	69.2	69.2	G, G, V, V(1)	N_t	-39.24	-0.04	-0.57	-0.29	-0.04	Cumple
										G, Q [NL](2)	N_t,M_z,NM_yM_z	106.73	0.12	1.56	0.72	0.07	
										G, V, N [NL](4)	M_y	74.65	0.14	1.08	0.50	0.07	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]

2.2.2.1.233. P355

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.6	52.3	0.4	1.3	53.4	53.4	G, V [NL](1)	N_t	-31.83	0.04	-0.14	0.24	-0.01	Cumple
										G, Q [NL](2)	N_t,M_z,NM_yM_z	94.40	-0.06	0.40	-0.71	0.01	
										G, Q [NL](3)	M_y	94.20	-0.06	0.40	-0.70	0.01	
		Pie	Cumple	16.3	59.1	1.1	4.9	61.9	61.9	G, V [NL](1)	N_t	-31.68	0.01	0.50	0.24	-0.01	Cumple
										G, Q [NL](2)	N_t,M_z,NM_yM_z	94.64	-0.02	-1.53	-0.71	0.01	
										G, V, N [NL](4)	M_y	65.32	-0.14	-1.06	-0.50	-0.04	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.234. P356

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.6	52.3	0.3	1.3	53.4	53.4	G, G, V, V(1)	N_t	-35.95	-0.02	0.20	-0.28	0.02	Cumple
										G, Q [NL](2)	N_t,M_y,M_z,NM_yM_z	94.58	0.04	-0.40	0.71	-0.05	
		Pie	Cumple	18.4	59.3	1.4	5.0	62.5	62.5	G, G, V, V(1)	N_t	-35.80	0.04	-0.56	-0.28	0.02	Cumple
										G, Q [NL](2)	N_t,M_z,NM_yM_z	94.83	-0.08	1.54	0.71	-0.05	
										G, V, N [NL](3)	M_y	65.67	-0.18	1.06	0.49	-0.08	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.235. P357

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.6	52.1	0.3	1.3	53.1	53.1	G, V [NL](1)	N_t	-31.95	-0.02	-0.14	0.23	0.02	Cumple
										G, Q [NL](2)	N_c,M_y,M_z,NM_yM_z	94.17	0.04	0.39	-0.70	-0.04	
		Pie	Cumple	16.3	58.9	1.3	4.9	61.9	61.9	G, V [NL](1)	N_t	-31.80	0.03	0.50	0.23	0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.42	-0.06	-1.52	-0.70	-0.04	
										G, V, N [NL](3)	M_y	65.39	-0.16	-1.05	-0.48	-0.07	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.236. P358

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.5	51.8	0.1	1.3	52.5	52.5	G, G, V, V(1)	N_t	-35.57	0.01	0.21	-0.28	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.43	0.00	-0.41	0.71	-0.02	
										G, V, N [NL](3)	M_y	59.76	0.01	-0.29	0.47	-0.06	
		Pie	Cumple	18.2	58.6	1.3	4.9	61.6	61.6	G, G, V, V(1)	N_t	-35.43	0.03	-0.56	-0.28	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.68	-0.06	1.53	0.71	-0.02	
										G, V, N [NL](4)	M_y	64.82	-0.17	1.06	0.49	-0.06	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.237. P359

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.6	51.8	0.1	1.3	52.5	52.5	G, V [NL](1)	N_t	-31.96	0.01	-0.14	0.24	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.52	-0.01	0.40	-0.70	-0.02	
										G, V, N [NL](3)	M_y	65.28	-0.01	0.29	-0.50	0.01	
		Pie	Cumple	16.4	58.6	1.2	4.9	61.6	61.6	G, V [NL](1)	N_t	-31.81	0.02	0.51	0.24	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.77	-0.05	-1.52	-0.70	-0.02	
										G, V, N [NL](4)	M_y	65.08	-0.16	-1.06	-0.49	-0.06	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.238. P360

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.6	51.9	0.1	1.3	52.6	52.6	G, G, V, V(1)	N_t	-35.66	0.00	0.21	-0.28	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.70	0.00	-0.41	0.71	-0.02	
										G, V, N [NL](3)	M_y	64.63	0.01	-0.29	0.49	-0.06	
		Pie	Cumple	18.2	58.7	1.2	4.9	61.8	61.8	G, G, V, V(1)	N_t	-35.52	0.03	-0.56	-0.28	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.95	-0.06	1.53	0.71	-0.02	
										G, V, N [NL](3)	M_y	64.88	-0.16	1.05	0.49	-0.06	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.239. P361

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.7	51.9	0.1	1.3	52.6	52.6	G, V [NL](1)	N_t	-32.05	0.00	-0.15	0.24	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.73	0.00	0.41	-0.71	-0.02	
										G, V, N [NL](3)	M_y	62.40	0.01	0.26	-0.46	-0.06	
		Pie	Cumple	16.4	58.7	1.3	4.9	61.8	61.8	G, V [NL](1)	N_t	-31.90	0.03	0.51	0.24	0.01	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.98	-0.06	-1.52	-0.71	-0.02	
										G, V, N [NL](4)	M_y	65.10	-0.16	-1.06	-0.49	-0.06	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.240. P362

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.6	52.0	0.1	1.3	52.7	52.7	G, G, V, V(1)	N_t	-35.80	0.00	0.21	-0.28	0.01	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	93.79	0.01	-0.41	0.71	-0.03	
										G, V, N [NL](3)	M_y	64.63	0.01	-0.29	0.49	-0.07	
		Pie	Cumple	18.3	58.8	1.3	4.9	61.9	61.9	G, G, V, V(1)	N_t	-35.65	0.03	-0.57	-0.28	0.01	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	94.04	-0.06	1.53	0.71	-0.03	
										G, V, N [NL](3)	M_y	64.88	-0.17	1.05	0.49	-0.07	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.241. P363

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.7	52.0	0.1	1.3	52.7	52.7	G, V [NL](1)	N_t	-32.19	0.00	-0.15	0.24	0.01	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	93.80	0.01	0.41	-0.71	-0.03	
										G, V, N [NL](3)	M_y	62.38	0.02	0.27	-0.46	-0.07	
		Pie	Cumple	16.5	58.8	1.3	4.9	61.9	61.9	G, V [NL](1)	N_t	-32.04	0.03	0.51	0.24	0.01	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	94.05	-0.07	-1.53	-0.71	-0.03	
										G, V, N [NL](4)	M_y	65.08	-0.17	-1.06	-0.49	-0.07	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.242. P364

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	16.8	52.1	0.3	1.3	53.1	53.1	G, G, V, V(1)	N_t	-36.15	0.03	0.21	-0.29	0.00	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	94.18	-0.04	-0.41	0.71	-0.01	
										G, Q [NL](3)	M_y	93.98	-0.04	-0.40	0.71	-0.01	
		Pie	Cumple	18.5	59.0	1.3	5.0	62.1	62.1	G, G, V, V(1)	N_t	-36.00	0.03	-0.57	-0.29	0.00	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	94.43	-0.06	1.53	0.71	-0.01	
										G, V, N [NL](4)	M_y	65.22	-0.17	1.06	0.50	-0.06	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.243. P365

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	14.9	52.1	0.3	1.3	53.1	53.1	G, V [NL](1)	N_t	-32.52	0.03	-0.15	0.24	0.00	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	94.18	-0.03	0.41	-0.71	-0.01	
										G, Q [NL](3)	M_y	93.98	-0.03	0.40	-0.71	-0.01	
		Pie	Cumple	16.7	59.0	1.3	5.0	62.1	62.1	G, V [NL](1)	N_t	-32.38	0.03	0.52	0.24	0.00	Cumple
										G, Q [NL](2)	N_z,M_z,NM_yM_z	94.43	-0.06	-1.53	-0.71	-0.01	
										G, V, N [NL](4)	M_y	65.42	-0.17	-1.06	-0.50	-0.06	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·Q [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.244. P366

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	17.1	52.2	0.2	1.3	53.1	53.1	G, G, V, V(1)	N_t	-36.96	-0.02	0.21	-0.29	0.02	Cumple
										G, Q [NL](2)	N_y,M_y,M_z,NM_yM_z	94.34	0.03	-0.40	0.71	-0.04	
		Pie	Cumple	18.9	59.1	1.4	4.9	62.4	62.4	G, G, V, V(1)	N_t	-36.81	0.04	-0.58	-0.29	0.02	Cumple
										G, Q [NL](2)	N_y,M_z,NM_yM_z	94.59	-0.09	1.53	0.71	-0.04	
										G, V, N [NL](3)	M_y	65.60	-0.19	1.06	0.49	-0.08	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.245. P367

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	15.2	52.2	0.3	1.3	53.2	53.2	G, V [NL](1)	N_t	-33.34	-0.01	-0.15	0.25	0.02	Cumple
										G, Q [NL](2)	N_c,M_y,M_z,NM_yM_z	94.34	0.03	0.40	-0.71	-0.04	
		Pie	Cumple	17.1	59.1	1.4	4.9	62.4	62.4	G, V [NL](1)	N_t	-33.19	0.04	0.53	0.25	0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	94.59	-0.09	-1.53	-0.71	-0.04	
										G, V, N [NL](3)	M_y	65.80	-0.19	-1.06	-0.49	-0.08	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.246. P368

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	17.7	51.7	0.3	1.4	52.7	52.7	G, G, V, V(1)	N_t	-38.19	-0.02	0.22	-0.30	0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	93.35	0.03	-0.40	0.70	-0.05	
										G, V, N [NL](3)	M_y	64.80	0.03	-0.29	0.49	-0.08	
										G, V, N [NL](4)	M_z	86.25	0.03	-0.42	0.67	-0.04	
		Pie	Cumple	19.6	58.5	1.5	4.9	61.8	61.8	G, G, V, V(1)	N_t	-38.04	0.04	-0.61	-0.30	0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.60	-0.10	1.52	0.70	-0.05	
										G, V, N [NL](3)	M_y	65.05	-0.19	1.05	0.49	-0.08	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

2.2.2.1.247. P369

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	15.8	51.7	0.3	1.4	52.7	52.7	G, V [NL](1)	N_t	-34.59	-0.02	-0.16	0.26	0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	93.35	0.03	0.40	-0.70	-0.05	
										G, V, N [NL](3)	M_y	64.80	0.03	0.29	-0.49	-0.08	
										G, V, N [NL](4)	M_z	86.25	0.03	0.42	-0.67	-0.04	
		Pie	Cumple	17.7	58.5	1.5	4.9	61.8	61.8	G, V [NL](1)	N_t	-34.44	0.04	0.55	0.26	0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	93.60	-0.10	-1.52	-0.70	-0.05	
										G, V, N [NL](3)	M_y	65.05	-0.19	-1.05	-0.49	-0.08	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]

2.2.2.1.248. P370

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	19.0	51.4	0.2	1.4	52.4	52.4	G, G, V, V(1)	N_t	-40.95	-0.01	0.23	-0.32	0.02	Cumple
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	92.29	0.03	-0.44	0.72	-0.04	
										G, V, N [NL](3)	M_y	64.36	0.03	-0.28	0.49	-0.09	
		Pie	Cumple	21.0	58.0	1.5	4.9	61.4	61.4	G, G, V, V(1)	N_t	-40.80	0.04	-0.65	-0.32	0.02	Cumple
										G, Q [NL](4)	N_c,NM_yM_z	92.89	-0.10	1.50	0.69	-0.05	
										G, V, N [NL](3)	M_y	64.60	-0.20	1.04	0.49	-0.09	
										G, V, N [NL](2)	M_z	92.54	-0.08	1.52	0.72	-0.04	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.249. P371

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	17.1	51.4	0.2	1.4	52.4	52.4	G, V [NL](1)	N_t	-37.34	-0.01	-0.17	0.28	0.02	Cumple
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	92.27	0.03	0.44	-0.72	-0.04	
										G, V, N [NL](3)	M_y	64.35	0.03	0.28	-0.49	-0.09	
		Pie	Cumple	19.1	58.0	1.5	4.9	61.4	61.4	G, V [NL](1)	N_t	-37.19	0.04	0.60	0.28	0.02	Cumple
										G, Q [NL](4)	N_c,NM_yM_z	92.88	-0.11	-1.50	-0.69	-0.05	
										G, V, N [NL](3)	M_y	64.60	-0.20	-1.04	-0.49	-0.09	
										G, V, N [NL](2)	M_z	92.52	-0.09	-1.52	-0.72	-0.04	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·Q [NL]

2.2.2.1.250. P372

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	22.5	61.4	0.3	2.1	62.8	62.8	G, G, V, V(1)	N_t	-48.11	-0.01	0.32	-0.39	0.02		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	108.80	0.03	-0.66	0.89	-0.04	Cumple	
										G, V, N [NL](3)	M_y	66.24	0.04	-0.40	0.54	-0.09		
		Pie	Cumple	24.6	68.2	1.6	5.7	71.8	71.8	G, G, V, V(1)	N_t	-47.97	0.05	-0.76	-0.39	0.02		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	109.05	-0.09	1.78	0.89	-0.04	Cumple	
										G, V, N [NL](3)	M_y	66.49	-0.21	1.08	0.54	-0.09		

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]

2.2.2.1.251. P373

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	20.6	61.4	0.3	2.1	62.8	62.8	G, V [NL](1)	N_t	-44.49	-0.01	-0.25	0.35	0.02		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	108.79	0.03	0.66	-0.89	-0.04	Cumple	
										G, V, N [NL](3)	M_y	66.23	0.04	0.40	-0.54	-0.09		
		Pie	Cumple	22.8	68.2	1.6	5.7	71.8	71.8	G, V [NL](1)	N_t	-44.34	0.05	0.70	0.35	0.02		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	109.04	-0.09	-1.78	-0.89	-0.04	Cumple	
										G, V, N [NL](3)	M_y	66.48	-0.21	-1.08	-0.54	-0.09		

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]

2.2.2.1.252. P374

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	23.4	64.3	0.5	1.4	65.5	65.5	G, G, V, V(1)	N_t	-51.00	-0.01	0.24	-0.37	0.02		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	116.93	0.05	-0.43	0.82	-0.06	Cumple	
										G, V, N [NL](3)	M_y	63.09	0.07	-0.21	0.41	-0.12		
		Pie	Cumple	26.0	72.6	1.9	5.8	76.4	76.4	G, G, V, V(1)	N_t	-50.85	0.04	-0.78	-0.37	0.02		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	117.18	-0.11	1.80	0.82	-0.06	Cumple	
										G, V, N [NL](3)	M_y	63.34	-0.25	0.93	0.41	-0.12		

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]

2.2.2.1.253. P375

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	21.4	64.4	0.5	1.4	65.4	65.4	G, V [NL](1)	N_t	-47.34	-0.01	-0.17	0.33	0.01		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	116.91	0.04	0.45	-0.83	-0.04	Cumple	
										G, V, N [NL](3)	M_y	63.08	0.07	0.21	-0.42	-0.11		
		Pie	Cumple	24.1	72.8	1.8	5.9	76.2	76.2	G, V [NL](1)	N_t	-47.19	0.03	0.73	0.33	0.01		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	117.16	-0.06	-1.83	-0.83	-0.04	Cumple	
										G, V, N [NL](3)	M_y	63.33	-0.24	-0.93	-0.42	-0.11		

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270º)H1+0.75·N(EI) [NL]

2.2.2.1.254. P376

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos								Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B([])	Cabeza	Cumple	25.1	68.5	2.9	1.4	72.3	72.3	G, G, V, V(1)	N_t	-54.76	0.14	0.24	-0.37	-0.07		
										G, V, N [NL](2)	N_c,NM_yM_z	125.05	-0.38	-0.41	0.79	0.21	Cumple	
										G, V, N [NL](3)	M_y	124.83	-0.38	-0.41	0.79	0.21		
										G, V, N [NL](4)	M_z	81.07	-0.22	-0.43	0.64	0.10		
		Pie	Cumple	27.6	76.6	1.4	5.6	80.8	80.8	G, G, V, V(1)	N_t	-54.62	-0.05	-0.77	-0.37	-0.07		
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	125.30	0.18	1.75	0.79	0.21	Cumple	
										G, V [NL](5)	M_y	111.69	0.19	1.54	0.70	0.20		

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0º) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(EI) [NL]
(5) 1.35·PP+0.8·CM1+1.5·VH3 [NL]

2.2.2.1.255. P377

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
FIN COLUMNA INTERNA (742 - 1015.5 cm)	2xHE 140 B(□)	Cabeza	Cumple	22.8	68.4	3.1	1.3	72.3	72.3	G, V [NL](1)	N_t	-50.85	0.14	-0.14	0.30	-0.08	Cumple
										G, V, N [NL](2)	N_c,NM_yM_z	125.15	-0.40	0.39	-0.77	0.23	
										G, V, N [NL](3)	M_y	124.93	-0.40	0.39	-0.77	0.24	
										G, V, N [NL](4)	M_z	81.14	-0.23	0.41	-0.62	0.13	
		Pie	Cumple	25.4	76.4	1.9	5.5	81.1	81.1	G, V [NL](1)	N_t	-50.70	-0.07	0.68	0.30	-0.08	Cumple
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	125.40	0.24	-1.70	-0.77	0.23	
										G, V, N [NL](3)	M_y	125.18	0.24	-1.70	-0.77	0.24	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]

2.2.2.1.256. P378

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	15.0	51.1	6.9	3.0	1.5	56.8	56.8	G, G, V, V(1)	N_t	-17.19	0.15	-0.09	0.06	-0.11	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	38.64	-0.28	0.09	-0.05	0.20	
											G, V, N [NL](3)	M_y,V_z	20.67	-0.45	0.05	-0.02	0.30	
											G, V, N [NL](4)	M_z	38.58	-0.28	0.10	-0.05	0.20	
		Pie	Cumple	14.9	51.2	4.5	1.6	1.5	54.3	54.3	G, G, V, V(1)	N_t	-17.12	-0.12	0.05	0.06	-0.11	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	38.75	0.22	-0.03	-0.05	0.20	
											G, V, N [NL](3)	M_y,V_z	20.79	0.29	-0.01	-0.02	0.30	
											G, G, V, V(5)	M_z	-17.07	-0.12	0.05	0.06	-0.11	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	11.6	45.1	3.6	2.4	1.0	48.1	48.1	G, G, V, V(1)	N_t	-13.29	0.02	-0.07	0.05	-0.03	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	34.10	-0.05	0.08	-0.05	0.07	
											G, V, N [NL](6)	M_y,V_z	18.41	-0.24	0.04	-0.02	0.21	
											G, V, N [NL](4)	M_z	33.93	-0.05	0.08	-0.05	0.07	
		Pie	Cumple	11.5	45.2	4.4	1.6	1.0	47.7	47.7	G, G, V, V(1)	N_t	-13.22	-0.06	0.05	0.05	-0.03	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	34.21	0.11	-0.05	-0.05	0.07	
											G, V, N [NL](6)	M_y,V_z	18.52	0.29	-0.02	-0.02	0.21	
											G, G, V, V(5)	M_z	-13.05	-0.06	0.05	0.05	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	7.6	34.6	1.7	4.1	0.9	38.9	38.9	G, V [NL](7)	N_t	-8.75	0.01	-0.07	0.06	-0.02	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	26.77	-0.02	0.13	-0.13	0.05	
											G, V, N [NL](3)	M_y,V_z	14.71	-0.11	0.07	-0.07	0.18	
											G, V, N [NL](4)	M_z	26.47	-0.02	0.13	-0.13	0.05	
		Pie	Cumple	7.6	34.7	4.8	5.6	0.9	41.4	41.4	G, V [NL](7)	N_t	-8.68	-0.04	0.08	0.06	-0.02	Cumple
											G, V, N [NL](2)	N_c,M_z,NM_yM_z	26.88	0.09	-0.18	-0.13	0.05	
											G, V, N [NL](3)	M_y,V_z	14.82	0.31	-0.10	-0.07	0.18	

Notas:
(1) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.257. P379

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	14.3	48.3	6.6	3.0	1.4	53.6	53.6	G, G, V, V[1]	N_t	-16.39	0.13	-0.09	0.06	-0.09	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	36.55	-0.23	0.09	-0.05	0.16	
											G, V, N [NL][3]	M_y,V_z	21.09	-0.43	0.05	-0.03	0.28	
											G, V, N [NL][4]	M_z	36.50	-0.23	0.10	-0.05	0.16	
		Pie	Cumple	14.2	48.5	4.1	1.6	1.4	51.1	51.1	G, G, V, V[1]	N_t	-16.32	-0.09	0.05	0.06	-0.09	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	36.66	0.16	-0.04	-0.05	0.16	
											G, V, N [NL][3]	M_y,V_z	21.20	0.27	-0.02	-0.03	0.28	
											G, G, V, V[5]	M_z	-16.27	-0.09	0.05	0.06	-0.09	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	10.8	42.2	3.9	2.3	1.1	45.3	45.3	G, G, V, V[1]	N_t	-12.45	0.04	-0.07	0.05	-0.04	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	31.90	-0.07	0.07	-0.05	0.07	
											G, V, N [NL][6]	M_y,V_z	18.57	-0.26	0.04	-0.02	0.22	
											G, V, N [NL][4]	M_z	31.73	-0.07	0.07	-0.05	0.07	
		Pie	Cumple	10.8	42.3	4.5	1.6	1.1	44.9	44.9	G, G, V, V[1]	N_t	-12.38	-0.06	0.05	0.05	-0.04	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.01	0.11	-0.05	-0.05	0.07	
											G, V, N [NL][6]	M_y,V_z	18.68	0.29	-0.02	-0.02	0.22	
											G, G, V, V[5]	M_z	-12.22	-0.06	0.05	0.05	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.9	31.6	1.8	3.9	0.9	35.9	35.9	G, V [NL][7]	N_t	-7.88	0.01	-0.06	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	24.49	-0.02	0.13	-0.13	0.05	
											G, V, N [NL][3]	M_y,V_z	14.55	-0.12	0.07	-0.08	0.18	
											G, V, N [NL][4]	M_z	24.20	-0.02	0.13	-0.13	0.05	
		Pie	Cumple	6.8	31.8	4.8	5.6	0.9	38.4	38.4	G, V [NL][7]	N_t	-7.81	-0.05	0.08	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,M_z,NM_yM_z	24.60	0.10	-0.18	-0.13	0.05	
											G, V, N [NL][3]	M_y,V_z	14.66	0.32	-0.11	-0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.258. P380

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	12.9	43.4	5.8	2.8	1.2	47.7	47.7	G, G, V, V[1]	N_t	-14.86	0.09	-0.09	0.05	-0.06	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.86	-0.16	0.09	-0.05	0.11	
											G, V, N [NL][3]	M_y,V_z	21.49	-0.38	0.06	-0.03	0.24	
											G, G, V, V[4]	M_z	-14.82	0.09	-0.09	0.05	-0.06	
		Pie	Cumple	12.9	43.6	3.5	1.5	1.2	45.6	45.6	G, G, V, V[1]	N_t	-14.80	-0.06	0.05	0.05	-0.06	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.97	0.11	-0.03	-0.05	0.11	
											G, V, N [NL][4]	M_y,V_z	21.60	0.23	-0.02	-0.03	0.24	
											G, G, V, V[4]	M_z	-14.75	-0.06	0.05	0.05	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	9.7	37.8	4.0	2.1	1.1	40.6	40.6	G, G, V, V[1]	N_t	-11.15	0.04	-0.06	0.04	-0.04	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	28.57	-0.08	0.07	-0.04	0.07	
											G, V, N [NL][5]	M_y,V_z	18.71	-0.26	0.04	-0.02	0.22	
											G, V, N [NL][6]	M_z	28.40	-0.08	0.07	-0.04	0.07	
		Pie	Cumple	9.7	37.9	4.4	1.5	1.1	40.2	40.2	G, G, V, V[1]	N_t	-11.09	-0.06	0.05	0.04	-0.04	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	28.68	0.11	-0.04	-0.04	0.07	
											G, V, N [NL][5]	M_y,V_z	18.83	0.29	-0.02	-0.02	0.22	
											G, G, V, V[4]	M_z	-10.92	-0.06	0.05	0.05	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	28.1	1.8	3.6	0.9	32.0	32.0	G, V [NL][7]	N_t	-6.82	0.01	-0.06	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	21.81	-0.02	0.11	-0.11	0.05	
											G, V, N [NL][3]	M_y,V_z	14.36	-0.12	0.08	-0.08	0.18	
											G, V, N [NL][6]	M_z	21.51	-0.02	0.11	-0.11	0.05	
		Pie	Cumple	5.9	28.3	4.8	5.1	0.9	34.4	34.4	G, V [NL][7]	N_t	-6.75	-0.05	0.07	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,M_z,NM_yM_z	21.92	0.10	-0.16	-0.11	0.05	
											G, V, N [NL][3]	M_y,V_z	14.47	0.32	-0.12	-0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.259. P381

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.5	40.5	5.6	2.6	1.1	44.7	44.7	G, G, V, V[1]	N_t	-13.26	0.09	-0.08	0.05	-0.06	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	30.61	-0.18	0.08	-0.04	0.12	
											G, V, N [NL][3]	M_y,V_z	21.36	-0.37	0.06	-0.03	0.23	
											G, G, V, V[4]	M_z	-13.21	0.09	-0.08	0.05	-0.06	
		Pie	Cumple	11.5	40.6	3.2	1.4	1.1	42.7	42.7	G, G, V, V[1]	N_t	-13.19	-0.06	0.04	0.05	-0.06	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	30.72	0.12	-0.03	-0.04	0.12	
											G, V, N [NL][3]	M_y,V_z	21.47	0.21	-0.02	-0.03	0.23	
											G, G, V, V[4]	M_z	-13.14	-0.06	0.05	0.05	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.5	35.1	4.0	1.9	1.1	37.8	37.8	G, G, V, V[1]	N_t	-9.80	0.04	-0.06	0.04	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.56	-0.08	0.06	-0.04	0.07	
											G, V, N [NL][5]	M_y,V_z	18.55	-0.26	0.04	-0.02	0.22	
											G, Q [NL][6]	M_z	26.39	-0.08	0.06	-0.04	0.07	
		Pie	Cumple	8.5	35.3	4.3	1.4	1.1	37.4	37.4	G, G, V, V[1]	N_t	-9.73	-0.06	0.05	0.04	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.67	0.10	-0.04	-0.04	0.07	
											G, V, N [NL][5]	M_y,V_z	18.67	0.28	-0.02	-0.02	0.22	
											G, G, V, V[4]	M_z	-9.57	-0.06	0.05	0.04	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.1	26.1	1.9	3.3	0.9	29.7	29.7	G, V [NL][7]	N_t	-5.83	0.01	-0.05	0.05	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.23	-0.02	0.10	-0.11	0.05	
											G, V, N [NL][3]	M_y,V_z	14.19	-0.12	0.08	-0.08	0.18	
											G, Q [NL][6]	M_z	19.93	-0.02	0.11	-0.11	0.05	
		Pie	Cumple	5.0	26.2	4.9	4.8	0.9	31.9	31.9	G, V [NL][7]	N_t	-5.76	-0.05	0.07	0.05	-0.02	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.34	0.09	-0.15	-0.11	0.05	
											G, V, N [NL][3]	M_y,V_z	14.30	0.32	-0.12	-0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+1.5·Q [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.260. P382

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.0	41.0	5.3	2.5	1.1	45.1	45.1	G, G, V, V[1]	N_t	-12.68	0.08	-0.08	0.05	-0.05	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.02	-0.16	0.08	-0.04	0.10	
											G, V, N [NL][3]	M_y,V_z	21.65	-0.35	0.06	-0.03	0.22	
											G, Q [NL][4]	M_z	30.97	-0.16	0.08	-0.04	0.10	
		Pie	Cumple	11.0	41.2	3.0	1.4	1.1	43.1	43.1	G, G, V, V[1]	N_t	-12.62	-0.05	0.04	0.05	-0.05	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.13	0.10	-0.03	-0.04	0.10	
											G, V, N [NL][4]	M_y,V_z	21.76	0.20	-0.02	-0.03	0.22	
											G, G, V, V[5]	M_z	-12.57	-0.05	0.04	0.05	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.1	35.5	4.1	2.0	1.1	38.3	38.3	G, G, V, V[1]	N_t	-9.32	0.04	-0.06	0.04	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.87	-0.08	0.06	-0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	18.77	-0.27	0.04	-0.03	0.22	
											G, Q [NL][4]	M_z	26.71	-0.08	0.06	-0.04	0.07	
		Pie	Cumple	8.1	35.7	4.3	1.4	1.1	37.8	37.8	G, G, V, V[1]	N_t	-9.25	-0.05	0.04	0.04	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.99	0.10	-0.04	-0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	18.89	0.28	-0.02	-0.03	0.22	
											G, G, V, V[5]	M_z	-9.09	-0.05	0.05	0.04	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	26.4	1.9	3.3	0.9	30.0	30.0	G, V [NL][6]	N_t	-5.47	0.01	-0.05	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.42	-0.03	0.11	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.27	-0.12	0.08	-0.08	0.18	
											G, Q [NL][4]	M_z	20.12	-0.03	0.11	-0.11	0.05	
		Pie	Cumple	4.7	26.5	4.9	4.9	0.9	32.2	32.2	G, V [NL][6]	N_t	-5.40	-0.05	0.06	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.53	0.09	-0.16	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.38	0.32	-0.12	-0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.261. P383

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.8	41.3	5.1	2.5	1.0	45.2	45.2	G, G, V, V[1]	N_t	-12.37	0.07	-0.08	0.05	-0.05	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.25	-0.14	0.08	-0.04	0.09	
											G, V, N [NL][3]	M_y,V_z	21.79	-0.33	0.06	-0.03	0.21	
											G, Q [NL][4]	M_z	31.20	-0.14	0.08	-0.04	0.09	
		Pie	Cumple	10.7	41.5	2.8	1.4	1.0	43.2	43.2	G, G, V, V[1]	N_t	-12.31	-0.05	0.04	0.05	-0.05	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.36	0.09	-0.03	-0.04	0.09	
											G, V, N [NL][3]	M_y,V_z	21.91	0.19	-0.02	-0.03	0.21	
											G, G, V, V[5]	M_z	-12.26	-0.05	0.04	0.05	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.9	35.8	4.0	2.0	1.1	38.5	38.5	G, G, V, V[1]	N_t	-9.08	0.04	-0.06	0.04	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.09	-0.07	0.06	-0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	18.96	-0.26	0.04	-0.03	0.22	
											G, Q [NL][4]	M_z	26.92	-0.07	0.06	-0.04	0.07	
		Pie	Cumple	7.9	36.0	4.2	1.4	1.1	38.0	38.0	G, G, V, V[1]	N_t	-9.01	-0.05	0.04	0.04	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.20	0.09	-0.04	-0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	19.08	0.28	-0.02	-0.03	0.22	
											G, G, V, V[5]	M_z	-8.85	-0.05	0.04	0.04	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.6	1.9	3.4	0.9	30.3	30.3	G, V [NL][6]	N_t	-5.32	0.02	-0.05	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.61	-0.03	0.11	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.51	-0.13	0.08	-0.08	0.19	
											G, Q [NL][4]	M_z	20.31	-0.03	0.11	-0.11	0.05	
		Pie	Cumple	4.6	26.7	4.9	4.9	0.9	32.5	32.5	G, V [NL][6]	N_t	-5.26	-0.05	0.06	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.72	0.09	-0.16	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.62	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.262. P384

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.6	41.1	4.9	2.5	1.0	44.8	44.8	G, G, V, V[1]	N_t	-12.18	0.07	-0.08	0.05	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.08	-0.12	0.08	-0.04	0.08	
											G, V, N [NL][3]	M_y,V_z	21.57	-0.32	0.06	-0.03	0.20	
											G, Q [NL][4]	M_z	31.04	-0.12	0.08	-0.04	0.08	
		Pie	Cumple	10.6	41.3	2.7	1.4	1.0	42.9	42.9	G, G, V, V[1]	N_t	-12.12	-0.04	0.04	0.05	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.20	0.07	-0.03	-0.04	0.08	
											G, V, N [NL][4]	M_y,V_z	21.68	0.18	-0.02	-0.03	0.20	
											G, G, V, V[5]	M_z	-12.07	-0.04	0.04	0.05	-0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.8	35.7	4.0	2.0	1.1	38.3	38.3	G, G, V, V[1]	N_t	-8.96	0.04	-0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.98	-0.07	0.06	-0.04	0.06	
											G, V, N [NL][3]	M_y,V_z	18.83	-0.26	0.04	-0.02	0.22	
											G, Q [NL][4]	M_z	26.81	-0.07	0.06	-0.04	0.06	
		Pie	Cumple	7.7	35.8	4.2	1.4	1.1	37.8	37.8	G, G, V, V[1]	N_t	-8.89	-0.05	0.04	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.09	0.08	-0.04	-0.04	0.06	
											G, V, N [NL][3]	M_y,V_z	18.94	0.27	-0.02	-0.02	0.22	
											G, G, V, V[5]	M_z	-8.73	-0.05	0.04	0.04	-0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.5	2.0	3.3	0.9	30.2	30.2	G, V [NL][6]	N_t	-5.29	0.02	-0.05	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.57	-0.03	0.11	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.49	-0.13	0.08	-0.08	0.19	
											G, Q [NL][4]	M_z	20.27	-0.03	0.11	-0.11	0.05	
		Pie	Cumple	4.6	26.7	4.9	4.8	0.9	32.4	32.4	G, V [NL][6]	N_t	-5.23	-0.05	0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.68	0.09	-0.15	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.60	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.263. P385

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.6	41.0	4.7	2.5	0.9	44.6	44.6	G, G, V, V[1]	N_t	-12.12	0.06	-0.08	0.05	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.03	-0.11	0.08	-0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	21.58	-0.31	0.06	-0.03	0.19	
											G, Q [NL][4]	M_z	30.98	-0.11	0.08	-0.04	0.07	
		Pie	Cumple	10.5	41.2	2.5	1.4	0.9	42.7	42.7	G, G, V, V[1]	N_t	-12.06	-0.04	0.04	0.05	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.14	0.06	-0.03	-0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	21.69	0.17	-0.02	-0.03	0.19	
											G, G, V, V[5]	M_z	-12.01	-0.04	0.04	0.05	-0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.7	35.6	4.0	2.0	1.1	38.2	38.2	G, G, V, V[1]	N_t	-8.89	0.04	-0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.91	-0.07	0.06	-0.04	0.06	
											G, V, N [NL][3]	M_y,V_z	18.78	-0.26	0.04	-0.03	0.21	
											G, Q [NL][4]	M_z	26.75	-0.07	0.06	-0.04	0.06	
		Pie	Cumple	7.7	35.7	4.1	1.4	1.1	37.7	37.7	G, G, V, V[1]	N_t	-8.83	-0.04	0.04	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.02	0.08	-0.04	-0.04	0.06	
											G, V, N [NL][3]	M_y,V_z	18.90	0.27	-0.02	-0.03	0.21	
											G, G, V, V[5]	M_z	-8.66	-0.04	0.04	0.04	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	26.4	2.0	3.3	0.9	30.1	30.1	G, V [NL][6]	N_t	-5.22	0.02	-0.05	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.49	-0.03	0.11	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.37	-0.13	0.08	-0.08	0.19	
											G, Q [NL][4]	M_z	20.19	-0.03	0.11	-0.11	0.05	
		Pie	Cumple	4.5	26.6	4.9	4.8	0.9	32.3	32.3	G, V [NL][6]	N_t	-5.16	-0.05	0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.60	0.09	-0.16	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.48	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.264. P386

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.5	40.9	4.6	2.5	0.9	44.4	44.4	G, G, V, V[1]	N_t	-12.09	0.05	-0.08	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	30.95	-0.09	0.08	-0.04	0.06	
											G, V, N [NL][3]	M_y,V_z	21.59	-0.30	0.06	-0.03	0.18	
											G, Q [NL][4]	M_z	30.91	-0.09	0.08	-0.04	0.06	
		Pie	Cumple	10.5	41.1	2.4	1.4	0.9	42.6	42.6	G, G, V, V[1]	N_t	-12.02	-0.03	0.04	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.07	0.05	-0.03	-0.04	0.06	
											G, V, N [NL][4]	M_y,V_z	21.71	0.16	-0.02	-0.03	0.18	
											G, G, V, V[5]	M_z	-11.98	-0.03	0.04	0.05	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.7	35.5	4.0	2.0	1.1	38.1	38.1	G, G, V, V[1]	N_t	-8.85	0.04	-0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.82	-0.07	0.06	-0.04	0.05	
											G, V, N [NL][3]	M_y,V_z	18.77	-0.26	0.04	-0.03	0.21	
											G, Q [NL][4]	M_z	26.65	-0.07	0.06	-0.04	0.05	
		Pie	Cumple	7.6	35.6	4.1	1.4	1.1	37.5	37.5	G, G, V, V[1]	N_t	-8.78	-0.04	0.04	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.93	0.07	-0.04	-0.04	0.05	
											G, V, N [NL][3]	M_y,V_z	18.89	0.27	-0.02	-0.03	0.21	
											G, G, V, V[5]	M_z	-8.62	-0.04	0.04	0.04	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	26.3	2.0	3.3	0.9	30.0	30.0	G, V [NL][6]	N_t	-5.18	0.02	-0.05	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.38	-0.03	0.11	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.34	-0.13	0.08	-0.08	0.19	
											G, Q [NL][4]	M_z	20.08	-0.03	0.11	-0.11	0.05	
		Pie	Cumple	4.5	26.4	4.9	4.9	0.9	32.2	32.2	G, V [NL][6]	N_t	-5.11	-0.05	0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.49	0.09	-0.16	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.45	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.265. P387

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.6	41.0	4.5	2.6	0.9	44.5	44.5	G, G, V, V[1]	N_t	-12.14	0.05	-0.08	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.04	-0.09	0.08	-0.05	0.06	
											G, V, N [NL][3]	M_y,V_z	21.73	-0.30	0.06	-0.03	0.18	
											G, Q [NL][4]	M_z	30.99	-0.09	0.08	-0.05	0.06	
		Pie	Cumple	10.5	41.2	2.4	1.4	0.9	42.7	42.7	G, G, V, V[1]	N_t	-12.07	-0.03	0.04	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.15	0.06	-0.03	-0.05	0.06	
											G, V, N [NL][3]	M_y,V_z	21.84	0.16	-0.02	-0.03	0.18	
											G, G, V, V[5]	M_z	-12.02	-0.03	0.04	0.05	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.7	35.4	4.0	2.0	1.1	38.0	38.0	G, G, V, V[1]	N_t	-8.80	0.03	-0.06	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.75	-0.06	0.06	-0.04	0.05	
											G, V, N [NL][3]	M_y,V_z	18.75	-0.27	0.04	-0.03	0.21	
											G, Q [NL][4]	M_z	26.58	-0.06	0.06	-0.04	0.05	
		Pie	Cumple	7.6	35.5	4.1	1.4	1.1	37.4	37.4	G, G, V, V[1]	N_t	-8.73	-0.04	0.04	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.86	0.06	-0.04	-0.04	0.05	
											G, V, N [NL][3]	M_y,V_z	18.86	0.27	-0.02	-0.03	0.21	
											G, G, V, V[5]	M_z	-8.57	-0.04	0.04	0.04	-0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.4	25.9	2.0	3.4	0.9	29.7	29.7	G, V [NL][6]	N_t	-5.06	0.02	-0.05	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.09	-0.04	0.11	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.10	-0.13	0.08	-0.08	0.19	
											G, Q [NL][4]	M_z	19.79	-0.04	0.11	-0.11	0.05	
		Pie	Cumple	4.4	26.1	4.9	5.0	0.9	31.9	31.9	G, V [NL][6]	N_t	-5.00	-0.05	0.06	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.20	0.09	-0.16	-0.11	0.05	
											G, V, N [NL][7]	M_y,V_z	14.21	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[7] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.266. P388

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.0	43.6	4.9	2.3	1.0	47.1	47.1	G, G, V, V[1]	N_t	-12.64	0.05	-0.07	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	32.96	-0.12	0.07	-0.04	0.08	
											G, V, N [NL][3]	M_y,V_z	23.07	-0.32	0.05	-0.03	0.20	
											G, Q [NL][4]	M_z	32.88	-0.12	0.07	-0.04	0.08	
		Pie	Cumple	11.0	43.7	2.7	1.3	1.0	45.3	45.3	G, G, V, V[1]	N_t	-12.58	-0.03	0.04	0.05	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	33.07	0.08	-0.02	-0.04	0.08	
											G, V, N [NL][4]	M_y,V_z	23.19	0.17	-0.02	-0.03	0.20	
											G, G, V, V[5]	M_z	-12.49	-0.03	0.04	0.05	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.3	38.6	4.0	2.0	1.0	41.1	41.1	G, G, V, V[1]	N_t	-9.48	0.03	-0.05	0.04	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	29.17	-0.05	0.07	-0.04	0.04	
											G, V, N [NL][6]	M_y,V_z	20.64	-0.26	0.04	-0.03	0.21	
											G, Q [NL][4]	M_z	28.96	-0.05	0.07	-0.04	0.04	
		Pie	Cumple	8.2	38.7	4.1	1.3	1.0	40.5	40.5	G, G, V, V[1]	N_t,M_z	-9.41	-0.03	0.04	0.04	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	29.28	0.06	-0.04	-0.04	0.04	
											G, V, N [NL][3]	M_y	20.56	0.27	-0.02	-0.03	0.21	
											G, V, N [NL][6]	V_z	20.75	0.27	-0.02	-0.03	0.21	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.3	29.6	2.1	3.4	1.0	33.5	33.5	G, V [NL][7]	N_t	-6.09	0.02	-0.05	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	22.97	-0.05	0.11	-0.11	0.06	
											G, V, N [NL][6]	M_y,V_z	16.13	-0.14	0.08	-0.08	0.19	
											G, Q [NL][4]	M_z	22.67	-0.05	0.11	-0.11	0.06	
		Pie	Cumple	5.2	29.8	5.0	4.8	1.0	35.5	35.5	G, V [NL][7]	N_t	-6.03	-0.05	0.05	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	23.08	0.09	-0.15	-0.11	0.06	
											G, V, N [NL][6]	M_y,V_z	16.24	0.33	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.267. P389

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.0	43.4	4.1	2.3	0.8	46.1	46.1	G, G, V, V[1]	N_t	-12.62	0.03	-0.07	0.04	-0.01	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	32.81	-0.04	0.07	-0.04	0.02	
											G, V, N [NL][3]	M_y,V_z	23.14	-0.27	0.06	-0.03	0.16	
											G, Q [NL][4]	M_z	32.72	-0.04	0.07	-0.04	0.02	
		Pie	Cumple	10.9	43.5	2.1	1.3	0.8	44.5	44.5	G, G, V, V[1]	N_t	-12.55	-0.01	0.04	0.04	-0.01	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	32.93	0.01	-0.02	-0.04	0.02	
											G, V, N [NL][3]	M_y,V_z	23.26	0.14	-0.02	-0.03	0.16	
											G, G, V, V[5]	M_z	-12.46	-0.01	0.04	0.04	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.3	38.4	3.9	2.1	1.0	41.1	41.1	G, G, V, V[1]	N_t	-9.55	0.03	-0.05	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	29.07	-0.06	0.07	-0.04	0.05	
											G, V, N [NL][3]	M_y,V_z	20.34	-0.26	0.04	-0.03	0.21	
											G, Q [NL][4]	M_z	28.87	-0.06	0.07	-0.04	0.05	
		Pie	Cumple	8.3	38.6	3.9	1.3	1.0	40.4	40.4	G, G, V, V[1]	N_t,M_z	-9.48	-0.04	0.04	0.04	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	29.18	0.06	-0.04	-0.04	0.05	
											G, V, N [NL][3]	M_y,V_z	20.46	0.26	-0.02	-0.03	0.21	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.4	29.5	2.0	3.3	0.9	33.0	33.0	G, V [NL][6]	N_t	-6.15	0.01	-0.05	0.04	-0.01	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	22.86	0.00	0.11	-0.11	0.02	
											G, V, N [NL][3]	M_y,V_z	15.54	-0.13	0.08	-0.08	0.18	
											G, Q [NL][4]	M_z	22.60	0.00	0.11	-0.11	0.02	
		Pie	Cumple	5.3	29.6	4.8	4.8	0.9	34.9	34.9	G, V [NL][6]	N_t	-6.09	-0.03	0.05	0.04	-0.01	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	22.97	0.04	-0.15	-0.11	0.02	
											G, V, N [NL][3]	M_y,V_z	15.65	0.32	-0.12	-0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.268. P390

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)		Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.5	41.2	4.5	2.5	44.5	44.5		G, G, V, V[1]	N_t	-12.08	0.03	-0.08	0.05	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.17	-0.07	0.08	-0.04	0.04	
											G, V, N [NL][3]	M_y	21.94	-0.29	0.06	-0.03	0.18	
											G, Q [NL][4]	M_z	31.13	-0.07	0.08	-0.04	0.04	
		Pie	Cumple	10.5	41.4	2.4	1.3	42.7	42.7		G, G, V, V[1]	N_t	-12.02	-0.02	0.04	0.05	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.28	0.04	-0.03	-0.04	0.04	
											G, V, N [NL][3]	M_y	22.06	0.15	-0.02	-0.03	0.18	
											G, G, V, V[5]	M_z	-11.97	-0.02	0.04	0.05	-0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.7	35.8	3.8	2.0	38.2	38.2		G, G, V, V[1]	N_t	-8.86	0.03	-0.06	0.04	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.05	-0.05	0.06	-0.04	0.04	
											G, V, N [NL][6]	M_y	19.07	-0.25	0.04	-0.03	0.20	
											G, Q [NL][4]	M_z	26.89	-0.05	0.06	-0.04	0.04	
		Pie	Cumple	7.7	35.9	3.9	1.4	37.7	37.7		G, G, V, V[1]	N_t	-8.79	-0.03	0.04	0.04	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.16	0.05	-0.04	-0.04	0.04	
											G, V, N [NL][3]	M_y	19.35	0.25	-0.02	-0.03	0.20	
											G, G, V, V[5]	M_z	-8.63	-0.03	0.04	0.04	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.5	26.6	2.0	3.4	30.1	30.1		G, V [NL][7]	N_t	-5.20	0.01	-0.05	0.04	-0.01	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.58	-0.01	0.11	-0.11	0.02	
											G, V, N [NL][6]	M_y	14.30	-0.13	0.08	-0.08	0.18	
											G, Q [NL][4]	M_z	20.29	-0.01	0.11	-0.11	0.02	
		Pie	Cumple	4.5	26.7	4.8	4.9	32.1	32.1		G, V [NL][7]	N_t	-5.13	-0.03	0.06	0.04	-0.01	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.69	0.04	-0.16	-0.11	0.02	
											G, V, N [NL][6]	M_y	14.41	0.32	-0.12	-0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.269. P391

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.5	41.0	4.4	2.5	44.2	44.2	G, G, V, V[1]	N_t	-12.07	0.03	-0.08	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.03	-0.06	0.08	-0.04	0.04	
										G, V, N [NL][3]	M_y	21.74	-0.29	0.06	-0.03	0.18	
										G, Q [NL][4]	M_z	30.98	-0.06	0.08	-0.04	0.04	
		Pie	Cumple	10.5	41.2	2.3	1.3	42.5	42.5	G, G, V, V[1]	N_t	-12.00	-0.02	0.04	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.14	0.04	-0.03	-0.04	0.04	
										G, V, N [NL][3]	M_y	21.85	0.15	-0.02	-0.03	0.18	
										G, G, V, V[5]	M_z	-11.96	-0.02	0.04	0.05	-0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.7	35.6	3.8	1.9	38.0	38.0	G, G, V, V[1]	N_t	-8.87	0.03	-0.06	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.95	-0.04	0.06	-0.04	0.04	
										G, V, N [NL][6]	M_y	18.97	-0.25	0.04	-0.02	0.20	
										G, Q [NL][4]	M_z	26.79	-0.04	0.06	-0.04	0.04	
		Pie	Cumple	7.7	35.8	3.9	1.4	37.4	37.4	G, G, V, V[1]	N_t	-8.80	-0.03	0.04	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.07	0.05	-0.04	-0.04	0.04	
										G, V, N [NL][3]	M_y	19.25	0.25	-0.02	-0.02	0.20	
										G, G, V, V[5]	M_z	-8.64	-0.03	0.04	0.04	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.6	2.0	3.3	30.1	30.1	G, V [NL][7]	N_t	-5.24	0.01	-0.05	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.57	-0.01	0.11	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.34	-0.13	0.08	-0.08	0.19	
										G, Q [NL][4]	M_z	20.28	-0.01	0.11	-0.11	0.02	
		Pie	Cumple	4.5	26.7	4.8	4.8	32.0	32.0	G, V [NL][7]	N_t	-5.18	-0.03	0.06	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.69	0.04	-0.15	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.45	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.270. P392

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.6	41.1	4.3	2.5	44.2	44.2	G, G, V, V[1]	N_t	-12.12	0.02	-0.08	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.11	-0.05	0.08	-0.04	0.03	
										G, V, N [NL][3]	M_y	21.86	-0.28	0.06	-0.03	0.17	
										G, Q [NL][4]	M_z	31.06	-0.05	0.08	-0.04	0.03	
		Pie	Cumple	10.5	41.3	2.3	1.3	42.5	42.5	G, G, V, V[1]	N_t	-12.06	-0.01	0.04	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.22	0.03	-0.03	-0.04	0.03	
										G, V, N [NL][3]	M_y	21.97	0.15	-0.02	-0.03	0.17	
										G, G, V, V[5]	M_z	-12.01	-0.01	0.04	0.05	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.7	35.7	3.8	2.0	38.0	38.0	G, G, V, V[1]	N_t	-8.90	0.02	-0.06	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.97	-0.04	0.06	-0.04	0.03	
										G, V, N [NL][6]	M_y	19.00	-0.25	0.04	-0.03	0.20	
										G, Q [NL][4]	M_z	26.81	-0.04	0.06	-0.04	0.03	
		Pie	Cumple	7.7	35.8	3.8	1.4	37.4	37.4	G, G, V, V[1]	N_t	-8.83	-0.02	0.04	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.09	0.04	-0.04	-0.04	0.03	
										G, V, N [NL][3]	M_y	19.28	0.25	-0.02	-0.03	0.20	
										G, G, V, V[5]	M_z	-8.66	-0.02	0.04	0.04	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.5	2.0	3.4	30.1	30.1	G, V [NL][7]	N_t	-5.23	0.01	-0.05	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.53	-0.02	0.11	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.26	-0.13	0.08	-0.08	0.19	
										G, Q [NL][4]	M_z	20.23	-0.02	0.11	-0.11	0.02	
		Pie	Cumple	4.5	26.6	4.8	4.9	32.0	32.0	G, V [NL][7]	N_t	-5.16	-0.03	0.06	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.64	0.04	-0.16	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.37	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.271. P393

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.6	41.2	4.2	2.5	44.2	44.2	G, G, V, V[1]	N_t	-12.17	0.02	-0.08	0.05	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.18	-0.03	0.08	-0.04	0.02	
										G, V, N [NL][3]	M_y	21.93	-0.27	0.06	-0.03	0.17	
										G, Q [NL][4]	M_z	31.13	-0.03	0.08	-0.04	0.02	
		Pie	Cumple	10.5	41.4	2.2	1.4	42.5	42.5	G, G, V, V[1]	N_t	-12.10	-0.01	0.04	0.05	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.29	0.02	-0.03	-0.04	0.02	
										G, V, N [NL][3]	M_y	22.05	0.14	-0.02	-0.03	0.17	
										G, G, V, V[5]	M_z	-12.06	-0.01	0.04	0.05	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.8	35.7	3.8	2.0	38.0	38.0	G, G, V, V[1]	N_t	-8.93	0.02	-0.06	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.03	-0.03	0.06	-0.04	0.02	
										G, V, N [NL][6]	M_y	19.05	-0.25	0.04	-0.03	0.20	
										G, Q [NL][4]	M_z	26.86	-0.03	0.06	-0.04	0.02	
		Pie	Cumple	7.7	35.9	3.8	1.4	37.4	37.4	G, G, V, V[1]	N_t	-8.87	-0.02	0.04	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.14	0.03	-0.04	-0.04	0.02	
										G, V, N [NL][3]	M_y	19.33	0.25	-0.02	-0.03	0.20	
										G, G, V, V[5]	M_z	-8.70	-0.02	0.04	0.04	-0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.5	2.1	3.4	30.1	30.1	G, V [NL][7]	N_t	-5.25	0.01	-0.05	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.57	-0.02	0.11	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.30	-0.14	0.08	-0.08	0.19	
										G, Q [NL][4]	M_z	20.27	-0.02	0.11	-0.11	0.02	
		Pie	Cumple	4.5	26.7	4.9	4.9	32.0	32.0	G, V [NL][7]	N_t	-5.18	-0.03	0.06	0.04	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.68	0.04	-0.16	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.41	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.272. P394

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.7	41.4	4.1	2.6	44.3	44.3	G, G, V, V[1]	N_t	-12.26	0.01	-0.08	0.05	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.31	-0.02	0.08	-0.05	0.01	
										G, V, N [NL][3]	M_y	22.10	-0.27	0.06	-0.03	0.16	
										G, Q [NL][4]	M_z	31.27	-0.02	0.08	-0.05	0.01	
		Pie	Cumple	10.6	41.6	2.1	1.4	42.7	42.7	G, G, V, V[1]	N_t	-12.20	0.00	0.04	0.05	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.43	0.01	-0.03	-0.05	0.01	
										G, V, N [NL][3]	M_y	22.22	0.14	-0.02	-0.03	0.16	
										G, G, V, V[5]	M_z	-12.15	0.00	0.04	0.05	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.8	35.8	3.8	2.0	38.1	38.1	G, G, V, V[1]	N_t	-8.99	0.02	-0.06	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.07	-0.03	0.06	-0.04	0.02	
										G, V, N [NL][6]	M_y	19.08	-0.25	0.04	-0.03	0.20	
										G, Q [NL][4]	M_z	26.90	-0.03	0.06	-0.04	0.02	
		Pie	Cumple	7.8	35.9	3.7	1.4	37.4	37.4	G, G, V, V[1]	N_t	-8.92	-0.02	0.04	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.18	0.02	-0.04	-0.04	0.02	
										G, V, N [NL][3]	M_y	19.35	0.24	-0.02	-0.03	0.20	
										G, G, V, V[5]	M_z	-8.75	-0.02	0.04	0.04	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.4	2.1	3.4	30.1	30.1	G, V [NL][7]	N_t	-5.25	0.01	-0.05	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.49	-0.02	0.11	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.03	-0.14	0.08	-0.09	0.19	
										G, Q [NL][4]	M_z	20.19	-0.02	0.11	-0.11	0.02	
		Pie	Cumple	4.5	26.6	4.9	4.9	32.0	32.0	G, V [NL][7]	N_t	-5.19	-0.02	0.06	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.60	0.04	-0.16	-0.11	0.02	
										G, V, N [NL][6]	M_y	14.14	0.32	-0.12	-0.09	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.273. P395

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.8	41.5	4.0	2.5	44.2	44.2	G, G, V, V[1]	N_t	-12.37	0.00	-0.08	0.05	0.00	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.38	0.00	0.08	-0.04	0.00	
										G, V, N [NL][3]	M_y	20.43	-0.26	0.06	-0.03	0.16	
										G, Q [NL][4]	M_z	31.33	0.00	0.08	-0.04	0.00	
		Pie	Cumple	10.7	41.6	2.1	1.4	42.7	42.7	G, G, V, V[1]	N_t	-12.30	0.00	0.04	0.05	0.00	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.49	0.00	-0.03	-0.04	0.00	
										G, V [NL][5]	M_y	11.58	0.14	-0.01	-0.02	0.16	
										G, G, V, V[6]	M_z	-12.25	0.00	0.04	0.05	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.9	36.0	3.7	2.0	38.2	38.2	G, G, V, V[1]	N_t	-9.08	0.02	-0.06	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.19	-0.02	0.06	-0.04	0.01	
										G, V, N [NL][7]	M_y	19.16	-0.24	0.04	-0.03	0.19	
										G, Q [NL][4]	M_z	27.02	-0.02	0.06	-0.04	0.01	
		Pie	Cumple	7.8	36.1	3.6	1.4	37.5	37.5	G, G, V, V[1]	N_t	-9.01	-0.01	0.04	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.30	0.01	-0.04	-0.04	0.01	
										G, V, N [NL][8]	M_y	19.44	0.24	-0.02	-0.03	0.19	
										G, G, V, V[6]	M_z	-8.84	-0.01	0.04	0.04	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.6	26.7	2.1	3.4	30.3	30.3	G, V [NL][9]	N_t	-5.32	0.01	-0.05	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.68	-0.02	0.11	-0.11	0.02	
										G, V, N [NL][7]	M_y	14.13	-0.14	0.08	-0.09	0.19	
										G, Q [NL][4]	M_z	20.38	-0.02	0.11	-0.11	0.03	
		Pie	Cumple	4.6	26.8	4.9	4.9	32.2	32.2	G, V [NL][9]	N_t	-5.25	-0.02	0.06	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.79	0.04	-0.16	-0.11	0.02	
										G, V, N [NL][7]	M_y	14.24	0.32	-0.13	-0.09	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[6] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[8] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[9] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.274. P396

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.9	41.0	4.0	2.5	43.8	43.8	G, G, V, V[1]	N_t	-12.53	0.00	-0.08	0.05	0.00	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	30.99	0.02	0.08	-0.04	-0.01	
										G, V [NL][3]	M_y	11.11	-0.26	0.03	-0.02	0.16	
										G, Q [NL][4]	M_z	30.95	0.02	0.08	-0.04	-0.01	
		Pie	Cumple	10.9	41.1	2.1	1.4	42.3	42.3	G, G, V, V[1]	N_t	-12.47	0.01	0.04	0.05	0.00	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.11	-0.02	-0.03	-0.04	-0.01	
										G, V [NL][3]	M_y	11.17	0.14	-0.01	-0.02	0.16	
										G, G, V, V[5]	M_z	-12.42	0.01	0.04	0.05	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.1	35.6	3.8	1.9	37.8	37.8	G, G, V, V[1]	N_t	-9.24	0.01	-0.06	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.94	-0.02	0.06	-0.04	0.01	
										G, V, N [NL][6]	M_y	18.78	-0.25	0.04	-0.03	0.19	
										G, Q [NL][4]	M_z	26.77	-0.02	0.06	-0.04	0.01	
		Pie	Cumple	8.0	35.8	3.6	1.4	37.1	37.1	G, G, V, V[1]	N_t	-9.18	-0.01	0.04	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.05	0.01	-0.04	-0.04	0.01	
										G, V, N [NL][7]	M_y	17.43	0.24	-0.02	-0.02	0.19	
										G, G, V, V[5]	M_z	-9.01	-0.01	0.04	0.04	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.8	26.6	2.2	3.3	30.2	30.2	G, V [NL][8]	N_t	-5.48	0.01	-0.05	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.59	-0.02	0.11	-0.11	0.03	
										G, V, N [NL][6]	M_y	13.99	-0.14	0.08	-0.08	0.19	
										G, Q [NL][4]	M_z	20.29	-0.02	0.11	-0.11	0.03	
		Pie	Cumple	4.7	26.7	5.0	4.8	32.0	32.0	G, V [NL][8]	N_t	-5.42	-0.02	0.06	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.70	0.04	-0.15	-0.11	0.03	
										G, V, N [NL][6]	M_y	14.10	0.32	-0.12	-0.08	0.19	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[8] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.275. P397

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.2	40.7	3.9	2.5	43.8	43.8	G, G, V, V[1]	N_t	-12.91	-0.01	-0.08	0.05	0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	30.80	0.04	0.08	-0.04	-0.03	
										G, V [NL][3]	M_y	10.65	-0.25	0.03	-0.02	0.15	
										G, G, V, V[4]	M_z	-12.86	-0.01	-0.08	0.05	0.01	
		Pie	Cumple	11.2	40.9	2.0	1.4	42.2	42.2	G, G, V, V[1]	N_t	-12.84	0.01	0.04	0.05	0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	30.92	-0.04	-0.03	-0.04	-0.03	
										G, V [NL][3]	M_y	10.72	0.13	-0.01	-0.02	0.15	
										G, G, V, V[4]	M_z	-12.79	0.01	0.04	0.05	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.3	35.3	3.8	1.9	37.5	37.5	G, G, V, V[1]	N_t	-9.52	0.02	-0.06	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.71	-0.02	0.06	-0.04	0.01	
										G, V, N [NL][5]	M_y	18.29	-0.25	0.04	-0.03	0.19	
										G, Q [NL][6]	M_z	26.54	-0.02	0.06	-0.04	0.01	
		Pie	Cumple	8.2	35.5	3.6	1.4	36.7	36.7	G, G, V, V[1]	N_t	-9.45	-0.01	0.05	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.82	0.00	-0.04	-0.04	0.01	
										G, V [NL][3]	M_y	9.56	0.24	-0.01	-0.01	0.19	
										G, G, V, V[4]	M_z	-9.29	-0.01	0.05	0.04	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.9	26.2	2.2	3.3	29.8	29.8	G, V [NL][7]	N_t	-5.63	0.02	-0.05	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.31	-0.03	0.11	-0.11	0.03	
										G, V, N [NL][5]	M_y	13.50	-0.15	0.08	-0.08	0.20	
										G, Q [NL][6]	M_z	20.02	-0.03	0.11	-0.11	0.03	
		Pie	Cumple	4.9	26.4	5.0	4.8	31.6	31.6	G, V [NL][7]	N_t	-5.57	-0.02	0.06	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.42	0.04	-0.15	-0.11	0.03	
										G, V, N [NL][5]	M_y	13.61	0.33	-0.12	-0.08	0.20	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+1.5·Q [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]

2.2.2.1.276. P398

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.8	40.1	3.7	2.6	43.4	43.4	G, G, V, V[1]	N_t	-13.55	-0.02	-0.08	0.05	0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	30.34	0.08	0.08	-0.04	-0.06	
										G, V [NL][3]	M_y	9.55	-0.24	0.03	-0.01	0.15	
										G, G, V, V[4]	M_z	-13.50	-0.02	-0.08	0.05	0.02	
		Pie	Cumple	11.7	40.3	1.9	1.4	41.8	41.8	G, G, V, V[1]	N_t	-13.48	0.02	0.05	0.05	0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	30.46	-0.07	-0.03	-0.04	-0.06	
										G, V [NL][3]	M_y	9.62	0.12	-0.01	-0.01	0.15	
										G, G, V, V[4]	M_z	-13.43	0.02	0.05	0.05	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.7	34.8	3.8	1.9	37.0	37.0	G, G, V, V[1]	N_t	-10.02	0.02	-0.06	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.33	-0.02	0.06	-0.04	0.01	
										G, V, N [NL][5]	M_y	17.46	-0.25	0.04	-0.02	0.19	
										G, Q [NL][6]	M_z	26.16	-0.02	0.06	-0.04	0.01	
		Pie	Cumple	8.7	35.0	3.6	1.5	36.3	36.3	G, G, V, V[1]	N_t	-9.95	0.00	0.05	0.04	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	26.44	-0.01	-0.04	-0.04	0.01	
										G, V [NL][3]	M_y	8.61	0.24	-0.01	-0.01	0.19	
										G, G, V, V[4]	M_z	-9.78	0.00	0.05	0.04	-0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.2	25.9	2.3	3.3	29.5	29.5	G, V [NL][7]	N_t	-5.96	0.02	-0.05	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.04	-0.03	0.10	-0.11	0.03	
										G, V, N [NL][8]	M_y	12.79	-0.15	0.08	-0.08	0.20	
										G, Q [NL][6]	M_z	19.74	-0.03	0.10	-0.11	0.03	
		Pie	Cumple	5.1	26.0	5.1	4.8	31.2	31.2	G, V [NL][7]	N_t	-5.89	-0.02	0.07	0.05	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.15	0.04	-0.15	-0.11	0.03	
										G, V, N [NL][8]	M_y	12.90	0.33	-0.11	-0.08	0.20	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+0.8·CM1+1.5·Q [NL]
[7] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[8] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.277. P399

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	13.1	42.4	3.5	2.8	0.7	45.4	45.4	G, G, V, V[1]	N_t	-15.06	-0.02	-0.09	0.06	0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.03	0.03	0.08	-0.05	-0.03	
											G, V [NL][3]	M_y	7.21	-0.23	0.03	-0.01	0.14	
											G, G, V, V[4]	M_z	-15.02	-0.02	-0.09	0.06	0.02	
											G, V, N [NL][5]	V_z	20.48	0.21	0.05	-0.03	-0.14	
		Pie	Cumple	13.1	42.5	2.2	1.6	0.7	43.9	43.9	G, G, V, V[1]	N_t	-15.00	0.02	0.05	0.06	0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.14	-0.04	-0.03	-0.05	-0.03	
											G, V, N [NL][5]	M_y,V_z	20.60	-0.14	-0.01	-0.03	-0.14	
											G, G, V, V[4]	M_z	-14.95	0.02	0.05	0.06	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	9.8	36.7	3.9	2.0	1.0	39.3	39.3	G, G, V, V[1]	N_t	-11.20	0.02	-0.06	0.05	-0.01	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	27.76	-0.05	0.06	-0.04	0.03	
											G, V, N [NL][6]	M_y,V_z	15.07	-0.25	0.03	-0.02	0.19	
											G, V, N [NL][7]	M_z	27.60	-0.05	0.07	-0.04	0.03	
		Pie	Cumple	9.7	36.9	3.6	1.6	1.0	38.3	38.3	G, G, V, V[1]	N_t	-11.13	0.00	0.05	0.05	-0.01	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	27.88	0.02	-0.04	-0.04	0.03	
											G, V [NL][8]	M_y	6.37	0.24	-0.01	-0.01	0.19	
											G, G, V, V[4]	M_z	-10.96	0.00	0.05	0.05	-0.01	
											G, V, N [NL][6]	V_z	15.18	0.23	-0.02	-0.02	0.19	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	27.2	2.3	3.5	1.0	31.1	31.1	G, V [NL][9]	N_t	-6.75	0.02	-0.06	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	21.06	-0.04	0.11	-0.11	0.04	
											G, V, N [NL][10]	M_y,V_z	10.60	-0.15	0.07	-0.07	0.20	
											G, V, N [NL][7]	M_z	20.77	-0.04	0.11	-0.11	0.04	
		Pie	Cumple	5.8	27.3	5.2	5.0	1.0	33.0	33.0	G, V [NL][9]	N_t	-6.69	-0.03	0.08	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,M_z,NM_yM_z	21.18	0.06	-0.16	-0.11	0.04	
											G, V, N [NL][10]	M_y,V_z	10.71	0.34	-0.11	-0.07	0.20	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[8] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[9] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.278. P400

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	15.8	48.5	3.6	2.9	0.8	51.6	51.6	G, G, V, V[1]	N_t	-18.13	0.00	-0.09	0.06	0.01	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	36.69	0.03	0.09	-0.05	-0.04	
											G, V [NL][3]	M_y	3.54	-0.24	0.02	-0.01	0.14	
											G, G, V, V[4]	M_z	-18.08	0.00	-0.09	0.06	0.01	
											G, V, N [NL][5]	V_z	20.33	0.24	0.05	-0.02	-0.16	
		Pie	Cumple	15.7	48.7	2.7	1.6	0.8	50.2	50.2	G, G, V, V[1]	N_t	-18.06	0.03	0.05	0.06	0.01	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	36.80	-0.06	-0.03	-0.05	-0.04	
											G, V, N [NL][5]	M_y,V_z	20.44	-0.17	-0.01	-0.02	-0.16	
											G, G, V, V[4]	M_z	-18.01	0.03	0.05	0.06	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	12.4	43.1	3.8	2.2	0.9	45.8	45.8	G, G, V, V[1]	N_t	-14.24	0.02	-0.07	0.05	-0.01	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.61	-0.05	0.07	-0.04	0.02	
											G, V, N [NL][6]	M_y,V_z	11.89	-0.25	0.02	-0.01	0.19	
											G, V, N [NL][7]	M_z	32.43	-0.05	0.07	-0.04	0.02	
		Pie	Cumple	12.3	43.3	3.5	1.6	0.9	44.7	44.7	G, G, V, V[1]	N_t	-14.17	0.00	0.05	0.05	-0.01	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	32.72	0.01	-0.04	-0.04	0.02	
											G, V [NL][8]	M_y	3.26	0.23	0.00	0.00	0.19	
											G, G, V, V[4]	M_z	-14.00	0.00	0.05	0.05	-0.01	
											G, V, N [NL][6]	V_z	12.01	0.22	-0.01	-0.01	0.19	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	8.2	33.6	2.4	3.7	1.0	37.8	37.8	G, V [NL][9]	N_t	-9.45	0.02	-0.07	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	26.02	-0.05	0.12	-0.12	0.05	
											G, V, N [NL][10]	M_y,V_z	8.36	-0.16	0.06	-0.06	0.21	
											G, V, N [NL][7]	M_z	25.72	-0.05	0.12	-0.12	0.05	
		Pie	Cumple	8.2	33.7	5.3	5.1	1.0	39.6	39.6	G, V [NL][9]	N_t	-9.39	-0.03	0.08	0.06	-0.02	Cumple
											G, V, N [NL][2]	N_c,M_z,NM_yM_z	26.14	0.07	-0.16	-0.12	0.05	
											G, V, N [NL][10]	M_y,V_z	8.47	0.35	-0.09	-0.06	0.21	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
[4] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[7] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[8] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[9] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[10] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.279. P401

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.3	0.9	8.1	1.3	1.8	9.4	1.8	9.4	G, G, V, V[1]	N_t	-0.29	-0.29	-0.04	0.03	0.19	Cumple
												G, V, N [NL][2]	N_c	1.06	0.52	-0.02	0.01	-0.35	
												G, V, N [NL][3]	M_y,V_z,NM_yM_z,M_tV_z	1.04	0.53	-0.02	0.01	-0.36	
												G, G, V, V, N[4]	M_z	-0.01	-0.13	-0.04	0.03	0.09	
		Pie	Cumple	0.2	1.0	5.5	1.0	1.8	6.7	1.8	6.7	G, G, V, V[1]	N_t	-0.22	0.19	0.03	0.03	0.19	Cumple
												G, V, N [NL][2]	N_c	1.17	-0.36	0.01	0.01	-0.35	
												G, V, N [NL][3]	M_y,V_z,NM_yM_z,M_tV_z	1.16	-0.36	0.01	0.01	-0.36	
												G, G, V, V[5]	M_z	0.02	0.13	0.03	0.03	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	1.5	2.1	3.7	1.3	1.0	4.7	0.5	4.7	G, V, N [NL][6]	N_t	-1.72	-0.01	0.01	-0.01	-0.01	Cumple
												G, G, V, V[7]	N_c	2.36	-0.01	-0.04	0.03	0.02	
												G, V, N [NL][8]	M_y	0.68	-0.24	0.00	0.00	0.19	
												G, G, V, V[5]	M_z	2.26	-0.01	-0.04	0.03	0.01	
												G, V [NL][9]	V_z,NM_yM_z	0.99	-0.24	-0.01	0.01	0.19	
												G, V, N [NL][10]	M_tV_z	0.52	-0.14	0.00	0.00	0.10	
		Pie	Cumple	1.4	2.1	3.7	1.2	1.0	4.8	0.5	4.8	G, V, N [NL][11]	N_t	-1.61	-0.02	-0.02	-0.01	-0.01	Cumple
												G, G, V, V[7]	N_c	2.43	0.04	0.04	0.03	0.02	
												G, V [NL][9]	M_y,V_z,NM_yM_z	1.06	0.24	0.01	0.01	0.19	
												G, G, V, V[5]	M_z	2.37	0.03	0.04	0.03	0.01	
												G, V, N [NL][10]	M_tV_z	0.63	0.11	0.00	0.00	0.10	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.4	5.7	2.5	1.8	1.1	7.6	1.1	7.6	G, V, N [NL][6]	N_t	-5.03	-0.01	0.03	-0.04	0.01	Cumple
												G, G, V, V[7]	N_c,M_z,NM_yM_z	6.57	-0.01	-0.06	0.06	0.00	
												G, V, N [NL][12]	M_y	-0.46	-0.16	0.02	-0.02	0.21	
												G, V, N [NL][13]	V_z,M_tV_z	-0.48	-0.16	0.02	-0.03	0.21	
		Pie	Cumple	4.3	5.8	5.4	2.6	1.1	8.6	1.1	8.6	G, V, N [NL][6]	N_t	-4.92	0.03	-0.07	-0.04	0.01	Cumple
												G, G, V, V[7]	N_z,NM_yM_z	6.64	-0.01	0.08	0.06	0.00	
												G, V, N [NL][13]	M_y,V_z,M_tV_z	-0.37	0.35	-0.04	-0.03	0.21	
												G, G, V, V[1]	M_z	6.37	-0.01	0.08	0.06	0.00	

Notas:
[1] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[6] 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2+0.75·N(R) 2 [NL]
[8] 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[9] 1.35·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[7] 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[10] 0.8·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[11] 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
[12] 1.35·PP+1.35·CM1+0.9·V(270°)H1+1.5·N(R)2 [NL]
[13] 0.8·PP+0.8·CM1+1.5·VH1+0.75·N(R)1 [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)1 [NL]
[5] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.280. P402

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	13.6	51.1	6.8	3.0	1.5	56.8	56.8	G, V [NL][1]	N_t	-15.59	0.14	0.07	-0.04	-0.10	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	38.65	-0.28	-0.10	0.05	0.20	
											G, V, N [NL][3]	M_y,V_z	20.69	-0.45	-0.05	0.02	0.30	
											G, V, N [NL][4]	M_z	38.60	-0.27	-0.10	0.05	0.20	
		Pie	Cumple	13.5	51.3	4.4	1.1	1.5	54.4	54.4	G, V [NL][1]	N_t	-15.53	-0.11	-0.04	-0.04	-0.10	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	38.76	0.22	0.03	0.05	0.20	
											G, V, N [NL][3]	M_y,V_z	20.80	0.29	0.01	0.02	0.30	
											G, V [NL][5]	M_z	-15.48	-0.11	-0.04	-0.04	-0.10	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	11.4	45.1	3.6	2.4	1.0	48.1	48.1	G, G, V, V[6]	N_t	-13.10	0.02	0.04	-0.03	-0.03	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	34.11	-0.06	-0.08	0.05	0.07	
											G, V, N [NL][7]	M_y,V_z	18.43	-0.23	-0.04	0.02	0.21	
											G, V, N [NL][4]	M_z	33.94	-0.06	-0.08	0.05	0.07	
		Pie	Cumple	11.4	45.3	4.3	1.4	1.0	47.8	47.8	G, G, V, V[6]	N_t	-13.03	-0.05	-0.03	-0.03	-0.03	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	34.23	0.11	0.05	0.05	0.07	
											G, V, N [NL][7]	M_y,V_z	18.54	0.28	0.02	0.02	0.21	
											G, V, N [NL][4]	M_z	34.05	0.11	0.05	0.05	0.07	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.0	34.6	1.6	4.1	0.8	38.9	38.9	G, G, V, V[6]	N_t	-10.32	0.00	0.05	-0.05	-0.02	Cumple
											G, V, N [NL][2]	N_c,NM_yM_z	26.78	-0.01	-0.13	0.13	0.04	
											G, V, N [NL][7]	M_y,V_z	14.42	-0.11	-0.07	0.07	0.17	
											G, V, N [NL][4]	M_z	26.48	-0.01	-0.13	0.13	0.04	
		Pie	Cumple	8.9	34.7	4.6	5.6	0.8	41.3	41.3	G, G, V, V[6]	N_t	-10.25	-0.04	-0.06	-0.05	-0.02	Cumple
											G, V, N [NL][2]	N_c,M_z,NM_yM_z	26.89	0.09	0.18	0.13	0.04	
											G, V, N [NL][7]	M_y,V_z	14.53	0.30	0.10	0.07	0.17	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
[5] 0.8·PP+1.35·CM1+1.5·VH6 [NL]
[6] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[7] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.281. P403

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	12.9	48.3	6.5	3.0	1.4	53.6	53.6	G, V [NL](1)	N_t	-14.83	0.12	0.07	-0.04	-0.08	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	36.55	-0.23	-0.09	0.05	0.16	
											G, V, N [NL](3)	M_y,V_z	21.09	-0.43	-0.05	0.03	0.28	
											G, V, N [NL](4)	M_z	36.50	-0.23	-0.10	0.05	0.16	
		Pie	Cumple	12.9	48.5	4.1	1.1	1.4	51.2	51.2	G, V [NL](1)	N_t	-14.76	-0.09	-0.04	-0.04	-0.08	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	36.66	0.17	0.04	0.05	0.16	
											G, V, N [NL](3)	M_y,V_z	21.20	0.27	0.02	0.03	0.28	
											G, V [NL](5)	M_z	-14.71	-0.09	-0.04	-0.04	-0.08	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	10.7	42.2	3.9	2.3	1.1	45.3	45.3	G, G, V, V(6)	N_t	-12.26	0.03	0.04	-0.03	-0.04	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	31.90	-0.07	-0.07	0.05	0.08	
											G, V, N [NL](7)	M_y,V_z	18.57	-0.25	-0.04	0.02	0.22	
											G, V, N [NL](4)	M_z	31.74	-0.07	-0.07	0.05	0.08	
		Pie	Cumple	10.6	42.3	4.4	1.4	1.1	44.9	44.9	G, G, V, V(6)	N_t	-12.19	-0.06	-0.03	-0.03	-0.04	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	32.01	0.12	0.05	0.05	0.08	
											G, V, N [NL](7)	M_y,V_z	18.68	0.29	0.02	0.02	0.22	
											G, V, N [NL](4)	M_z	31.85	0.12	0.05	0.05	0.08	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	8.2	31.6	1.7	3.9	0.9	35.8	35.8	G, G, V, V(6)	N_t	-9.40	0.01	0.05	-0.05	-0.02	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	24.51	-0.02	-0.13	0.13	0.04	
											G, V, N [NL](7)	M_y,V_z	14.28	-0.11	-0.07	0.08	0.17	
											G, V, N [NL](4)	M_z	24.21	-0.02	-0.13	0.13	0.04	
		Pie	Cumple	8.1	31.8	4.6	5.6	0.9	38.3	38.3	G, G, V, V(6)	N_t	-9.34	-0.04	-0.06	-0.05	-0.02	Cumple
											G, V, N [NL](2)	N_c,M_z,NM_yM_z	24.62	0.09	0.18	0.13	0.04	
											G, V, N [NL](7)	M_y,V_z	14.39	0.30	0.11	0.08	0.17	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.282. P404

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.6	43.4	5.8	2.7	1.2	47.7	47.7	G, V [NL](1)	N_t	-13.30	0.08	0.06	-0.04	-0.06	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	32.85	-0.16	-0.09	0.05	0.11	
											G, V, N [NL](3)	M_y,V_z	21.48	-0.38	-0.06	0.03	0.24	
											G, V, N [NL](4)	M_z	32.80	-0.16	-0.09	0.05	0.11	
		Pie	Cumple	11.5	43.6	3.5	1.1	1.2	45.6	45.6	G, V [NL](1)	N_t	-13.24	-0.06	-0.03	-0.04	-0.06	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	32.96	0.11	0.03	0.05	0.11	
											G, V, N [NL](4)	M_y,V_z	21.60	0.23	0.02	0.03	0.24	
											G, V [NL](5)	M_z	-13.19	-0.06	-0.03	-0.04	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	9.5	37.8	3.9	2.1	1.1	40.6	40.6	G, G, V, V(6)	N_t	-10.88	0.04	0.04	-0.03	-0.03	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	28.56	-0.08	-0.07	0.04	0.07	
											G, V, N [NL](7)	M_y,V_z	18.71	-0.25	-0.04	0.02	0.21	
											G, V, N [NL](4)	M_z	28.40	-0.08	-0.07	0.04	0.07	
		Pie	Cumple	9.4	37.9	4.3	1.3	1.1	40.2	40.2	G, G, V, V(6)	N_t	-10.81	-0.05	-0.03	-0.03	-0.03	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	28.67	0.11	0.04	0.04	0.07	
											G, V, N [NL](3)	M_y	18.99	0.28	0.02	0.02	0.21	
											G, V, N [NL](4)	M_z	28.51	0.11	0.04	0.04	0.07	
											G, V, N [NL](7)	V_z	18.83	0.28	0.02	0.02	0.21	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	7.2	28.1	1.7	3.6	0.9	31.9	31.9	G, G, V, V(6)	N_t	-8.25	0.01	0.05	-0.04	-0.02	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	21.80	-0.01	-0.11	0.11	0.04	
											G, V, N [NL](7)	M_y,V_z	14.06	-0.11	-0.08	0.08	0.17	
											G, V, N [NL](4)	M_z	21.50	-0.01	-0.11	0.11	0.04	
		Pie	Cumple	7.1	28.3	4.7	5.1	0.9	34.3	34.3	G, G, V, V(6)	N_t	-8.18	-0.04	-0.05	-0.04	-0.02	Cumple
											G, V, N [NL](2)	N_c,M_z,NM_yM_z	21.91	0.09	0.16	0.11	0.04	
											G, V, N [NL](7)	M_y,V_z	14.17	0.31	0.12	0.08	0.17	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.283. P405

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.2	40.5	5.6	2.5	1.1	44.7	44.7	G, V [NL](1)	N_t	-11.70	0.08	0.06	-0.04	-0.05	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	30.61	-0.18	-0.08	0.04	0.12	
											G, V, N [NL](3)	M_y,V_z	21.36	-0.37	-0.06	0.03	0.23	
											G, Q [NL](4)	M_z	30.56	-0.18	-0.08	0.04	0.12	
		Pie	Cumple	10.1	40.6	3.3	1.0	1.1	42.7	42.7	G, V [NL](1)	N_t	-11.63	-0.05	-0.03	-0.04	-0.05	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	30.73	0.12	0.03	0.04	0.12	
											G, V, N [NL](3)	M_y,V_z	21.47	0.21	0.02	0.03	0.23	
											G, V [NL](5)	M_z	-11.58	-0.05	-0.03	-0.04	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.3	35.1	3.9	1.9	1.1	37.8	37.8	G, G, V, V(6)	N_t	-9.52	0.04	0.03	-0.02	-0.04	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	26.56	-0.08	-0.06	0.04	0.07	
											G, V, N [NL](7)	M_y,V_z	18.55	-0.26	-0.04	0.02	0.22	
											G, Q [NL](4)	M_z	26.40	-0.08	-0.06	0.04	0.07	
		Pie	Cumple	8.2	35.3	4.3	1.2	1.1	37.4	37.4	G, G, V, V(6)	N_t	-9.45	-0.05	-0.03	-0.02	-0.04	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	26.67	0.11	0.04	0.04	0.07	
											G, V, N [NL](3)	M_y	18.83	0.28	0.02	0.02	0.22	
											G, Q [NL](4)	M_z	26.51	0.11	0.04	0.04	0.07	
											G, V, N [NL](7)	V_z	18.67	0.28	0.02	0.02	0.22	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.3	26.1	1.8	3.3	0.9	29.6	29.6	G, G, V, V(6)	N_t	-7.24	0.01	0.04	-0.04	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	20.23	-0.02	-0.10	0.11	0.04	
											G, V, N [NL](7)	M_y,V_z	13.89	-0.12	-0.08	0.08	0.18	
											G, Q [NL](4)	M_z	19.93	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	6.2	26.2	4.7	4.8	0.9	31.8	31.8	G, G, V, V(6)	N_t	-7.17	-0.04	-0.04	-0.04	-0.02	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	20.34	0.08	0.15	0.11	0.04	
											G, V, N [NL](7)	M_y,V_z	14.00	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.284. P406

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.7	41.0	5.3	2.5	1.1	45.1	45.1	G, V [NL](1)	N_t	-11.12	0.08	0.05	-0.03	-0.05	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.02	-0.16	-0.08	0.04	0.11	
											G, V, N [NL](3)	M_y,V_z	21.70	-0.35	-0.06	0.03	0.22	
											G, Q [NL](4)	M_z	30.97	-0.16	-0.08	0.04	0.11	
		Pie	Cumple	9.6	41.2	3.1	1.0	1.1	43.1	43.1	G, V [NL](1)	N_t	-11.05	-0.05	-0.03	-0.03	-0.05	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.14	0.11	0.03	0.04	0.11	
											G, V, N [NL](3)	M_y,V_z	21.81	0.20	0.02	0.03	0.22	
											G, V [NL](5)	M_z	-11.01	-0.05	-0.03	-0.03	-0.05	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.9	35.5	4.0	2.0	1.1	38.2	38.2	G, G, V, V(6)	N_t	-9.02	0.04	0.03	-0.02	-0.04	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	26.88	-0.08	-0.06	0.04	0.07	
											G, V, N [NL](7)	M_y,V_z	18.78	-0.26	-0.04	0.03	0.21	
											G, Q [NL](4)	M_z	26.71	-0.08	-0.06	0.04	0.07	
		Pie	Cumple	7.8	35.7	4.2	1.2	1.1	37.8	37.8	G, G, V, V(6)	N_t	-8.96	-0.05	-0.02	-0.02	-0.04	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	26.99	0.10	0.04	0.04	0.07	
											G, V, N [NL](3)	M_y	19.05	0.28	0.02	0.03	0.21	
											G, Q [NL](4)	M_z	26.83	0.10	0.04	0.04	0.07	
											G, V, N [NL](7)	V_z	18.89	0.28	0.02	0.03	0.21	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	26.4	1.8	3.4	0.9	29.9	29.9	G, G, V, V(6)	N_t	-6.87	0.01	0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	20.42	-0.02	-0.11	0.11	0.04	
											G, V, N [NL](7)	M_y,V_z	13.97	-0.12	-0.08	0.08	0.18	
											G, Q [NL](4)	M_z	20.12	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	5.9	26.5	4.7	4.9	0.9	32.2	32.2	G, G, V, V(6)	N_t	-6.81	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	20.53	0.08	0.16	0.11	0.04	
											G, V, N [NL](7)	M_y,V_z	14.08	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.285. P407

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.4	41.3	5.1	2.5	1.0	45.3	45.3	G, V [NL](1)	N_t	-10.80	0.07	0.05	-0.03	-0.05	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.26	-0.14	-0.08	0.04	0.09	
											G, V, N [NL](3)	M_y,V_z	21.85	-0.34	-0.06	0.03	0.21	
											G, Q [NL](4)	M_z	31.21	-0.14	-0.08	0.04	0.09	
		Pie	Cumple	9.4	41.5	2.9	1.0	1.0	43.3	43.3	G, V [NL](1)	N_t	-10.74	-0.04	-0.03	-0.03	-0.05	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.37	0.09	0.03	0.04	0.09	
											G, V, N [NL](3)	M_y,V_z	21.96	0.19	0.02	0.03	0.21	
											G, Q [NL](4)	M_z	31.32	0.09	0.03	0.04	0.09	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	35.8	3.9	2.0	1.0	38.5	38.5	G, G, V, V(5)	N_t	-8.78	0.04	0.03	-0.02	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.10	-0.07	-0.06	0.04	0.07	
											G, V, N [NL](6)	M_y,V_z	18.97	-0.25	-0.04	0.03	0.21	
											G, Q [NL](4)	M_z	26.93	-0.07	-0.06	0.04	0.07	
		Pie	Cumple	7.6	36.0	4.1	1.2	1.0	38.1	38.1	G, G, V, V(5)	N_t	-8.71	-0.05	-0.02	-0.02	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.21	0.09	0.04	0.04	0.07	
											G, V, N [NL](3)	M_y	19.25	0.27	0.02	0.03	0.21	
											G, Q [NL](4)	M_z	27.04	0.09	0.04	0.04	0.07	
											G, V, N [NL](6)	V_z	19.08	0.27	0.02	0.03	0.21	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	26.6	1.8	3.4	0.9	30.2	30.2	G, G, V, V(5)	N_t	-6.73	0.01	0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	20.62	-0.02	-0.11	0.11	0.04	
											G, V, N [NL](6)	M_y,V_z	14.21	-0.12	-0.08	0.08	0.18	
											G, Q [NL](4)	M_z	20.32	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	5.8	26.7	4.7	4.9	0.9	32.4	32.4	G, G, V, V(5)	N_t	-6.67	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	20.73	0.08	0.16	0.11	0.04	
											G, V, N [NL](6)	M_y,V_z	14.32	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.286. P408

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.3	41.1	4.9	2.5	1.0	44.9	44.9	G, V [NL](1)	N_t	-10.62	0.07	0.05	-0.03	-0.04	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.11	-0.13	-0.08	0.04	0.08	
											G, V, N [NL](3)	M_y,V_z	21.63	-0.32	-0.06	0.03	0.20	
											G, Q [NL](4)	M_z	31.06	-0.13	-0.08	0.04	0.08	
		Pie	Cumple	9.2	41.3	2.8	1.0	1.0	43.0	43.0	G, V [NL](1)	N_t	-10.55	-0.04	-0.03	-0.03	-0.04	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.22	0.08	0.03	0.04	0.08	
											G, V, N [NL](3)	M_y,V_z	21.74	0.18	0.02	0.03	0.20	
											G, Q [NL](4)	M_z	31.17	0.08	0.03	0.04	0.08	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	35.7	3.9	2.0	1.0	38.3	38.3	G, G, V, V(5)	N_t	-8.67	0.04	0.03	-0.02	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.00	-0.07	-0.06	0.04	0.06	
											G, V, N [NL](6)	M_y,V_z	18.84	-0.26	-0.04	0.02	0.21	
											G, Q [NL](4)	M_z	26.83	-0.07	-0.06	0.04	0.06	
		Pie	Cumple	7.5	35.9	4.1	1.2	1.0	37.9	37.9	G, G, V, V(5)	N_t	-8.60	-0.05	-0.02	-0.02	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.11	0.09	0.04	0.04	0.06	
											G, V, N [NL](3)	M_y	19.12	0.27	0.02	0.02	0.21	
											G, Q [NL](4)	M_z	26.95	0.09	0.04	0.04	0.06	
											G, V, N [NL](6)	V_z	18.96	0.27	0.02	0.02	0.21	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.6	1.9	3.3	0.9	30.2	30.2	G, G, V, V(5)	N_t	-6.71	0.01	0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	20.58	-0.02	-0.11	0.11	0.04	
											G, V, N [NL](6)	M_y,V_z	14.21	-0.12	-0.08	0.08	0.18	
											G, Q [NL](4)	M_z	20.29	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	5.8	26.7	4.7	4.8	0.9	32.3	32.3	G, G, V, V(5)	N_t	-6.64	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	20.69	0.07	0.15	0.11	0.04	
											G, V, N [NL](6)	M_y,V_z	14.32	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.287. P409

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.1	4.8	2.5	1.0	44.7	44.7	G, V [NL][1]	N_t	-10.57	0.06	0.05	-0.03	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.08	-0.11	-0.08	0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	21.65	-0.31	-0.06	0.03	0.20	
											G, Q [NL][4]	M_z	31.03	-0.11	-0.08	0.04	0.07	
		Pie	Cumple	9.1	41.2	2.6	0.9	1.0	42.9	42.9	G, V [NL][1]	N_t	-10.50	-0.04	-0.03	-0.03	-0.04	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.19	0.07	0.03	0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	21.77	0.17	0.02	0.03	0.20	
											G, Q [NL][4]	M_z	31.14	0.07	0.03	0.04	0.07	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	35.6	3.9	2.0	1.0	38.3	38.3	G, G, V, V[5]	N_t	-8.61	0.04	0.03	-0.02	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.96	-0.07	-0.06	0.04	0.06	
											G, V, N [NL][6]	M_y,V_z	18.82	-0.25	-0.04	0.03	0.21	
											G, Q [NL][4]	M_z	26.79	-0.07	-0.06	0.04	0.06	
		Pie	Cumple	7.4	35.8	4.0	1.2	1.0	37.8	37.8	G, G, V, V[5]	N_t	-8.55	-0.04	-0.02	-0.02	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.07	0.08	0.04	0.04	0.06	
											G, V, N [NL][6]	M_y,V_z	18.93	0.26	0.02	0.03	0.21	
											G, Q [NL][4]	M_z	26.91	0.08	0.04	0.04	0.06	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.5	1.9	3.3	0.9	30.1	30.1	G, G, V, V[5]	N_t	-6.65	0.01	0.04	-0.03	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.54	-0.02	-0.11	0.11	0.04	
											G, V, N [NL][6]	M_y,V_z	14.11	-0.12	-0.08	0.08	0.18	
											G, Q [NL][4]	M_z	20.24	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	5.7	26.6	4.7	4.8	0.9	32.2	32.2	G, G, V, V[5]	N_t	-6.58	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.65	0.07	0.16	0.11	0.04	
											G, V, N [NL][6]	M_y,V_z	14.22	0.31	0.12	0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.288. P410

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.1	4.7	2.5	0.9	44.6	44.6	G, V [NL][1]	N_t	-10.55	0.05	0.05	-0.03	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.06	-0.10	-0.08	0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	21.71	-0.31	-0.06	0.03	0.19	
											G, Q [NL][4]	M_z	31.01	-0.10	-0.08	0.04	0.07	
		Pie	Cumple	9.1	41.2	2.6	0.9	0.9	42.7	42.7	G, V [NL][1]	N_t	-10.48	-0.03	-0.03	-0.03	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	31.17	0.06	0.03	0.04	0.07	
											G, V, N [NL][3]	M_y,V_z	21.82	0.17	0.02	0.03	0.19	
											G, Q [NL][4]	M_z	31.12	0.06	0.03	0.04	0.07	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	35.7	3.9	1.9	1.0	38.2	38.2	G, G, V, V[5]	N_t	-8.61	0.03	0.03	-0.02	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	26.96	-0.06	-0.06	0.04	0.06	
											G, V, N [NL][6]	M_y,V_z	18.87	-0.25	-0.04	0.03	0.21	
											G, Q [NL][4]	M_z	26.80	-0.06	-0.06	0.04	0.06	
		Pie	Cumple	7.4	35.8	4.0	1.2	1.0	37.7	37.7	G, G, V, V[5]	N_t	-8.54	-0.04	-0.02	-0.02	-0.03	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	27.08	0.07	0.04	0.04	0.06	
											G, V, N [NL][6]	M_y,V_z	18.99	0.26	0.02	0.03	0.21	
											G, Q [NL][4]	M_z	26.91	0.07	0.04	0.04	0.06	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.5	1.9	3.3	0.9	30.1	30.1	G, G, V, V[5]	N_t	-6.66	0.01	0.04	-0.03	-0.02	Cumple
											G, Q [NL][2]	N_c,NM_yM_z	20.57	-0.02	-0.11	0.11	0.04	
											G, V, N [NL][6]	M_y,V_z	14.18	-0.12	-0.08	0.08	0.18	
											G, Q [NL][4]	M_z	20.27	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	5.7	26.7	4.7	4.8	0.9	32.2	32.2	G, G, V, V[5]	N_t	-6.60	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL][2]	N_c,M_z,NM_yM_z	20.68	0.07	0.15	0.11	0.04	
											G, V, N [NL][6]	M_y,V_z	14.29	0.31	0.12	0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
[6] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.289. P411

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.2	4.6	2.5	0.9	44.7	44.7	G, V [NL](1)	N_t	-10.54	0.05	0.05	-0.03	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.15	-0.09	-0.08	0.04	0.06	
											G, V, N [NL](3)	M_y,V_z	21.85	-0.30	-0.06	0.03	0.19	
											G, Q [NL](4)	M_z	31.10	-0.09	-0.08	0.04	0.06	
		Pie	Cumple	9.1	41.3	2.5	0.9	0.9	42.8	42.8	G, V [NL](1)	N_t	-10.48	-0.03	-0.03	-0.03	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.27	0.06	0.03	0.04	0.06	
											G, V, N [NL](3)	M_y,V_z	21.96	0.17	0.02	0.03	0.19	
											G, Q [NL](4)	M_z	31.22	0.06	0.03	0.04	0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	35.8	3.8	1.9	1.0	38.4	38.4	G, G, V, V(5)	N_t	-8.65	0.03	0.03	-0.02	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.11	-0.06	-0.06	0.04	0.05	
											G, V, N [NL](6)	M_y,V_z	19.00	-0.25	-0.04	0.03	0.20	
											G, Q [NL](4)	M_z	26.95	-0.06	-0.06	0.04	0.05	
		Pie	Cumple	7.5	36.0	3.9	1.2	1.0	37.8	37.8	G, G, V, V(5)	N_t	-8.59	-0.04	-0.02	-0.02	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.22	0.07	0.04	0.04	0.05	
											G, V, N [NL](6)	M_y,V_z	19.11	0.26	0.02	0.03	0.20	
											G, Q [NL](4)	M_z	27.06	0.07	0.04	0.04	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	26.8	1.9	3.3	0.9	30.4	30.4	G, G, V, V(5)	N_t	-6.77	0.01	0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	20.77	-0.02	-0.11	0.11	0.04	
											G, V, N [NL](6)	M_y,V_z	14.27	-0.13	-0.08	0.08	0.18	
											G, Q [NL](4)	M_z	20.48	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	5.8	27.0	4.7	4.8	0.9	32.5	32.5	G, G, V, V(5)	N_t	-6.71	-0.04	-0.04	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	20.88	0.07	0.15	0.11	0.04	
											G, V, N [NL](6)	M_y,V_z	14.38	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.290. P412

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)		Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.4	4.6	2.5	44.8	44.8		G, V [NL](1)	N_t	-10.52	0.04	0.05	-0.03	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.33	-0.09	-0.08	0.04	0.06	
											G, V, N [NL](3)	M_y	21.92	-0.30	-0.06	0.03	0.18	
											G, Q [NL](4)	M_z	31.28	-0.09	-0.08	0.04	0.06	
		Pie	Cumple	9.1	41.6	2.5	0.9	43.0	43.0		G, V [NL](1)	N_t	-10.45	-0.03	-0.03	-0.03	-0.03	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	31.45	0.05	0.03	0.04	0.06	
											G, V, N [NL](3)	M_y	22.03	0.16	0.02	0.03	0.18	
											G, V [NL](5)	M_z	-10.40	-0.03	-0.03	-0.03	-0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	36.2	3.7	1.9	38.7	38.7		G, G, V, V(6)	N_t	-8.71	0.03	0.03	-0.02	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.41	-0.05	-0.06	0.04	0.05	
											G, V, N [NL](3)	M_y	19.25	-0.25	-0.04	0.02	0.20	
											G, Q [NL](4)	M_z	27.25	-0.05	-0.06	0.04	0.05	
		Pie	Cumple	7.5	36.4	3.9	1.1	38.1	38.1		G, G, V, V(6)	N_t	-8.64	-0.03	-0.02	-0.02	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	27.53	0.06	0.04	0.04	0.05	
											G, V, N [NL](3)	M_y	19.36	0.25	0.02	0.02	0.20	
											G, Q [NL](4)	M_z	27.36	0.06	0.04	0.04	0.05	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	27.4	1.9	3.3	30.9	30.9		G, G, V, V(6)	N_t	-6.93	0.01	0.03	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,NM_yM_z	21.21	-0.02	-0.10	0.11	0.04	
											G, V, N [NL](3)	M_y	14.68	-0.13	-0.08	0.08	0.18	
											G, Q [NL](4)	M_z	20.92	-0.02	-0.11	0.11	0.04	
		Pie	Cumple	6.0	27.5	4.7	4.7	32.9	32.9		G, G, V, V(6)	N_t	-6.87	-0.04	-0.03	-0.03	-0.02	Cumple
											G, Q [NL](2)	N_c,M_z,NM_yM_z	21.32	0.06	0.15	0.11	0.04	
											G, V, N [NL](3)	M_y	14.79	0.31	0.11	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.291. P413

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.3	4.3	2.5	44.5	44.5	G, V [NL](1)	N_t	-10.52	0.03	0.05	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.24	-0.06	-0.08	0.04	0.04	
										G, V, N [NL](3)	M_y	21.99	-0.28	-0.06	0.03	0.18	
										G, Q [NL](4)	M_z	31.19	-0.06	-0.08	0.04	0.04	
		Pie	Cumple	9.1	41.5	2.4	0.9	42.7	42.7	G, V [NL](1)	N_t	-10.46	-0.02	-0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.35	0.04	0.03	0.04	0.04	
										G, V, N [NL](5)	M_y	22.05	0.15	0.02	0.03	0.18	
										G, V [NL](6)	M_z	-10.41	-0.02	-0.03	-0.03	-0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	36.1	3.8	1.9	38.5	38.5	G, G, V, V(7)	N_t	-8.69	0.03	0.03	-0.02	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.29	-0.05	-0.06	0.04	0.04	
										G, V, N [NL](5)	M_y	19.20	-0.25	-0.04	0.03	0.20	
										G, Q [NL](4)	M_z	27.12	-0.05	-0.06	0.04	0.04	
		Pie	Cumple	7.5	36.2	3.8	1.2	37.9	37.9	G, G, V, V(7)	N_t	-8.62	-0.03	-0.02	-0.02	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.41	0.05	0.04	0.04	0.04	
										G, V, N [NL](5)	M_y	19.31	0.25	0.02	0.03	0.20	
										G, Q [NL](4)	M_z	27.24	0.05	0.04	0.04	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	27.2	2.0	3.3	30.7	30.7	G, G, V, V(7)	N_t	-6.87	0.01	0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	21.06	-0.02	-0.10	0.11	0.03	
										G, V, N [NL](5)	M_y	14.54	-0.13	-0.08	0.08	0.18	
										G, Q [NL](4)	M_z	20.75	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.9	27.3	4.7	4.7	32.7	32.7	G, G, V, V(7)	N_t	-6.81	-0.03	-0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	21.17	0.06	0.15	0.11	0.03	
										G, V, N [NL](5)	M_y	14.66	0.31	0.12	0.08	0.18	
										G, Q [NL](4)	M_z	20.86	0.06	0.15	0.11	0.03	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.292. P414

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.6	4.3	2.5	44.7	44.7	G, V [NL](1)	N_t	-10.55	0.03	0.05	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.42	-0.06	-0.08	0.04	0.04	
										G, V, N [NL](3)	M_y	22.06	-0.28	-0.06	0.03	0.17	
										G, Q [NL](4)	M_z	31.38	-0.06	-0.08	0.04	0.04	
		Pie	Cumple	9.1	41.7	2.3	1.0	43.0	43.0	G, V [NL](1)	N_t	-10.49	-0.02	-0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.54	0.03	0.03	0.04	0.04	
										G, V, N [NL](3)	M_y	22.18	0.15	0.02	0.03	0.17	
										G, Q [NL](4)	M_z	31.49	0.03	0.03	0.04	0.04	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	36.0	3.6	2.0	38.4	38.4	G, G, V, V(5)	N_t	-8.59	0.02	0.03	-0.02	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.24	-0.04	-0.06	0.04	0.03	
										G, V, N [NL](3)	M_y	19.22	-0.24	-0.04	0.03	0.19	
										G, Q [NL](4)	M_z	27.07	-0.04	-0.06	0.04	0.03	
		Pie	Cumple	7.4	36.2	3.7	1.2	37.8	37.8	G, G, V, V(5)	N_t	-8.52	-0.02	-0.02	-0.02	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.35	0.04	0.04	0.04	0.03	
										G, V, N [NL](3)	M_y	19.33	0.24	0.02	0.03	0.19	
										G, Q [NL](4)	M_z	27.19	0.04	0.04	0.04	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.7	2.0	3.4	30.4	30.4	G, G, V, V(5)	N_t	-6.61	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.72	-0.02	-0.11	0.11	0.03	
										G, V, N [NL](3)	M_y	14.44	-0.13	-0.08	0.08	0.18	
										G, Q [NL](4)	M_z	20.42	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.7	26.9	4.7	4.9	32.4	32.4	G, G, V, V(5)	N_t	-6.55	-0.03	-0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.83	0.05	0.16	0.11	0.03	
										G, V, N [NL](3)	M_y	14.55	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.293. P415

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.2	4.2	2.5	44.3	44.3	G, V [NL][1]	N_t	-10.53	0.03	0.05	-0.03	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.17	-0.05	-0.08	0.04	0.03	
										G, V, N [NL][3]	M_y	21.80	-0.28	-0.06	0.03	0.17	
										G, Q [NL][4]	M_z	31.12	-0.05	-0.08	0.04	0.03	
		Pie	Cumple	9.1	41.4	2.3	0.9	42.6	42.6	G, V [NL][1]	N_t	-10.46	-0.01	-0.03	-0.03	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.28	0.03	0.03	0.04	0.03	
										G, V, N [NL][3]	M_y	21.91	0.15	0.02	0.03	0.17	
										G, Q [NL][4]	M_z	31.24	0.03	0.03	0.04	0.03	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	35.8	3.7	2.0	38.1	38.1	G, G, V, V[5]	N_t	-8.60	0.02	0.03	-0.02	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.07	-0.03	-0.06	0.04	0.03	
										G, V, N [NL][3]	M_y	19.07	-0.24	-0.04	0.03	0.19	
										G, Q [NL][4]	M_z	26.91	-0.03	-0.06	0.04	0.03	
		Pie	Cumple	7.4	35.9	3.7	1.2	37.5	37.5	G, G, V, V[5]	N_t	-8.53	-0.02	-0.02	-0.02	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.19	0.03	0.04	0.04	0.03	
										G, V, N [NL][3]	M_y	19.18	0.24	0.02	0.03	0.19	
										G, Q [NL][4]	M_z	27.02	0.03	0.04	0.04	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.7	2.0	3.3	30.3	30.3	G, G, V, V[5]	N_t	-6.66	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.67	-0.02	-0.11	0.11	0.03	
										G, V, N [NL][3]	M_y	14.43	-0.13	-0.08	0.08	0.18	
										G, Q [NL][4]	M_z	20.37	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.7	26.8	4.7	4.8	32.2	32.2	G, G, V, V[5]	N_t	-6.60	-0.03	-0.04	-0.03	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.78	0.05	0.15	0.11	0.03	
										G, V, N [NL][3]	M_y	14.54	0.31	0.12	0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.294. P416

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.2	4.1	2.5	44.2	44.2	G, V [NL][1]	N_t	-10.57	0.02	0.05	-0.03	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.17	-0.03	-0.08	0.04	0.02	
										G, V, N [NL][3]	M_y	21.86	-0.27	-0.06	0.03	0.17	
										G, Q [NL][4]	M_z	31.12	-0.03	-0.08	0.04	0.02	
		Pie	Cumple	9.1	41.4	2.2	1.0	42.5	42.5	G, V [NL][1]	N_t	-10.50	-0.01	-0.03	-0.03	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	31.28	0.02	0.03	0.04	0.02	
										G, V, N [NL][3]	M_y	21.98	0.14	0.02	0.03	0.17	
										G, Q [NL][4]	M_z	31.24	0.02	0.03	0.04	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	35.7	3.7	2.0	38.0	38.0	G, G, V, V[5]	N_t	-8.61	0.02	0.03	-0.02	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.03	-0.03	-0.06	0.04	0.02	
										G, V, N [NL][3]	M_y	19.04	-0.24	-0.04	0.03	0.19	
										G, Q [NL][4]	M_z	26.86	-0.03	-0.06	0.04	0.02	
		Pie	Cumple	7.4	35.9	3.6	1.2	37.4	37.4	G, G, V, V[5]	N_t	-8.54	-0.02	-0.02	-0.02	-0.01	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	27.14	0.03	0.04	0.04	0.02	
										G, V, N [NL][3]	M_y	19.15	0.24	0.02	0.03	0.19	
										G, Q [NL][4]	M_z	26.98	0.03	0.04	0.04	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.5	2.0	3.4	30.2	30.2	G, G, V, V[5]	N_t	-6.65	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL][2]	N_c,NM_yM_z	20.57	-0.02	-0.11	0.11	0.03	
										G, V, N [NL][3]	M_y	14.29	-0.13	-0.08	0.08	0.18	
										G, Q [NL][4]	M_z	20.27	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.7	26.7	4.7	4.9	32.1	32.1	G, G, V, V[5]	N_t	-6.58	-0.03	-0.04	-0.03	-0.02	Cumple
										G, Q [NL][2]	N_c,M_z,NM_yM_z	20.68	0.05	0.16	0.11	0.03	
										G, V, N [NL][3]	M_y	14.40	0.31	0.12	0.08	0.18	

Notas:
[1] 0.8·PP+0.8·CM1+1.5·VH6 [NL]
[2] 1.35·PP+1.35·CM1+1.5·Q [NL]
[3] 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
[4] 1.35·PP+0.8·CM1+1.5·Q [NL]
[5] 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.295. P417

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.2	41.3	4.1	2.5	44.1	44.1	G, V [NL](1)	N_t	-10.61	0.01	0.05	-0.03	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.21	-0.02	-0.08	0.04	0.01	
										G, V, N [NL](3)	M_y	21.91	-0.27	-0.06	0.03	0.16	
										G, Q [NL](4)	M_z	31.16	-0.02	-0.08	0.04	0.01	
		Pie	Cumple	9.2	41.4	2.1	1.0	42.5	42.5	G, V [NL](1)	N_t	-10.54	-0.01	-0.03	-0.03	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.32	0.01	0.03	0.04	0.01	
										G, V, N [NL](3)	M_y	22.03	0.14	0.02	0.03	0.16	
										G, Q [NL](4)	M_z	31.27	0.01	0.03	0.04	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.5	35.8	3.6	2.0	38.0	38.0	G, G, V, V(5)	N_t	-8.64	0.02	0.03	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.05	-0.02	-0.06	0.04	0.02	
										G, V, N [NL](3)	M_y	19.07	-0.24	-0.04	0.03	0.19	
										G, Q [NL](4)	M_z	26.89	-0.02	-0.06	0.04	0.02	
		Pie	Cumple	7.5	35.9	3.6	1.2	37.4	37.4	G, G, V, V(5)	N_t	-8.57	-0.01	-0.02	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.17	0.02	0.04	0.04	0.02	
										G, V, N [NL](3)	M_y	19.19	0.24	0.02	0.03	0.19	
										G, Q [NL](4)	M_z	27.00	0.02	0.04	0.04	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.6	2.0	3.4	30.2	30.2	G, G, V, V(5)	N_t	-6.66	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.58	-0.02	-0.11	0.11	0.03	
										G, V, N [NL](3)	M_y	14.31	-0.13	-0.08	0.08	0.18	
										G, Q [NL](4)	M_z	20.29	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.7	26.7	4.7	4.9	32.1	32.1	G, G, V, V(5)	N_t	-6.60	-0.03	-0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.69	0.04	0.16	0.11	0.03	
										G, V, N [NL](3)	M_y	14.42	0.31	0.12	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]

2.2.2.1.296. P418

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.3	41.4	4.0	2.6	44.2	44.2	G, V [NL](1)	N_t	-10.70	0.01	0.05	-0.03	0.00	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.33	-0.01	-0.08	0.05	0.00	
										G, V, N [NL](3)	M_y	20.47	-0.26	-0.06	0.03	0.16	
										G, Q [NL](4)	M_z	31.29	-0.01	-0.08	0.05	0.00	
		Pie	Cumple	9.3	41.6	2.1	1.0	42.6	42.6	G, V [NL](1)	N_t	-10.63	0.00	-0.03	-0.03	0.00	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.45	0.00	0.03	0.05	0.00	
										G, V, N [NL](3)	M_y	20.58	0.14	0.02	0.03	0.16	
										G, Q [NL](4)	M_z	31.40	0.00	0.03	0.05	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	35.8	3.7	2.0	38.1	38.1	G, G, V, V(5)	N_t	-8.69	0.01	0.03	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.08	-0.02	-0.06	0.04	0.01	
										G, V, N [NL](6)	M_y	19.09	-0.24	-0.04	0.03	0.19	
										G, Q [NL](4)	M_z	26.92	-0.02	-0.06	0.04	0.01	
		Pie	Cumple	7.5	36.0	3.6	1.3	37.4	37.4	G, G, V, V(5)	N_t	-8.62	-0.01	-0.02	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.19	0.01	0.04	0.04	0.01	
										G, V, N [NL](6)	M_y	19.20	0.24	0.03	0.03	0.19	
										G, Q [NL](4)	M_z	27.03	0.01	0.04	0.04	0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.8	26.4	2.1	3.4	30.1	30.1	G, G, V, V(5)	N_t	-6.66	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.49	-0.02	-0.11	0.11	0.03	
										G, V, N [NL](6)	M_y	14.03	-0.14	-0.08	0.09	0.18	
										G, Q [NL](4)	M_z	20.19	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.7	26.6	4.7	4.9	32.0	32.0	G, G, V, V(5)	N_t	-6.59	-0.02	-0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.60	0.04	0.16	0.11	0.03	
										G, V, N [NL](6)	M_y	14.14	0.31	0.12	0.09	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.297. P419

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.4	41.5	3.9	2.5	44.2	44.2	G, V [NL](1)	N_t	-10.79	0.00	0.05	-0.03	0.00	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.39	0.01	-0.08	0.04	-0.01	
										G, V [NL](3)	M_y	11.52	-0.26	-0.03	0.02	0.16	
										G, Q [NL](4)	M_z	31.34	0.00	-0.08	0.04	-0.01	
		Pie	Cumple	9.3	41.7	2.1	1.0	42.7	42.7	G, V [NL](1)	N_t	-10.73	0.00	-0.03	-0.03	0.00	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.51	-0.01	0.03	0.04	-0.01	
										G, V [NL](3)	M_y	11.59	0.14	0.01	0.02	0.16	
										G, Q [NL](4)	M_z	31.46	-0.01	0.03	0.04	-0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	36.0	3.6	2.0	38.1	38.1	G, G, V, V(5)	N_t	-8.77	0.01	0.03	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.20	-0.01	-0.06	0.04	0.01	
										G, V, N [NL](6)	M_y	19.17	-0.23	-0.04	0.03	0.19	
										G, Q [NL](4)	M_z	27.04	-0.01	-0.06	0.04	0.01	
		Pie	Cumple	7.6	36.1	3.5	1.2	37.4	37.4	G, G, V, V(5)	N_t	-8.70	-0.01	-0.02	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.31	0.00	0.04	0.04	0.01	
										G, V, N [NL](7)	M_y	17.81	0.23	0.02	0.03	0.19	
										G, Q [NL](4)	M_z	27.15	0.00	0.04	0.04	0.01	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.9	26.7	2.1	3.4	30.4	30.4	G, G, V, V(5)	N_t	-6.72	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.69	-0.02	-0.11	0.11	0.03	
										G, V, N [NL](6)	M_y	14.14	-0.14	-0.08	0.09	0.19	
										G, Q [NL](4)	M_z	20.39	-0.02	-0.11	0.11	0.03	
		Pie	Cumple	5.8	26.8	4.8	4.9	32.2	32.2	G, G, V, V(5)	N_t	-6.66	-0.02	-0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.80	0.04	0.16	0.11	0.03	
										G, V, N [NL](6)	M_y	14.25	0.31	0.13	0.09	0.19	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.298. P420

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.6	41.0	3.9	2.5	43.9	43.9	G, V [NL](1)	N_t	-10.97	0.00	0.05	-0.03	0.00	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.00	0.03	-0.08	0.04	-0.02	
										G, V [NL](3)	M_y	11.11	-0.25	-0.03	0.02	0.16	
										G, Q [NL](4)	M_z	30.95	0.03	-0.08	0.04	-0.02	
		Pie	Cumple	9.5	41.1	2.0	1.0	42.3	42.3	G, V [NL](1)	N_t	-10.90	0.01	-0.03	-0.03	0.00	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.11	-0.02	0.03	0.04	-0.02	
										G, V [NL](3)	M_y	11.18	0.13	0.01	0.02	0.16	
										G, V [NL](5)	M_z	-10.85	0.01	-0.03	-0.03	0.00	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.8	35.6	3.6	1.9	37.7	37.7	G, G, V, V(6)	N_t	-8.95	0.01	0.03	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	26.94	-0.01	-0.06	0.04	0.00	
										G, V, N [NL](7)	M_y	18.79	-0.24	-0.04	0.03	0.19	
										G, Q [NL](4)	M_z	26.78	-0.01	-0.06	0.04	0.00	
		Pie	Cumple	7.7	35.8	3.5	1.2	37.0	37.0	G, G, V, V(6)	N_t	-8.88	0.00	-0.02	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.06	0.00	0.04	0.04	0.00	
										G, V [NL](8)	M_y	9.82	0.23	0.01	0.01	0.19	
										G, Q [NL](4)	M_z	26.89	0.00	0.04	0.04	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.0	26.6	2.1	3.3	30.2	30.2	G, G, V, V(6)	N_t	-6.89	0.01	0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.59	-0.03	-0.11	0.11	0.03	
										G, V, N [NL](7)	M_y	14.00	-0.14	-0.08	0.08	0.19	
										G, Q [NL](4)	M_z	20.29	-0.03	-0.11	0.11	0.03	
		Pie	Cumple	5.9	26.7	4.8	4.8	32.0	32.0	G, G, V, V(6)	N_t	-6.82	-0.02	-0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.70	0.04	0.15	0.11	0.03	
										G, V, N [NL](7)	M_y	14.11	0.32	0.12	0.08	0.19	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.299. P421

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.9	40.7	3.8	2.5	43.8	43.8	G, V [NL](1)	N_t	-11.35	-0.01	0.06	-0.03	0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	30.80	0.05	-0.08	0.04	-0.04	
										G, V [NL](3)	M_y	10.66	-0.25	-0.03	0.02	0.15	
										G, Q [NL](4)	M_z	30.75	0.05	-0.08	0.04	-0.04	
		Pie	Cumple	9.8	40.9	2.0	1.0	42.3	42.3	G, V [NL](1)	N_t	-11.28	0.01	-0.03	-0.03	0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	30.92	-0.05	0.03	0.04	-0.04	
										G, V [NL](3)	M_y	10.72	0.13	0.01	0.02	0.15	
										G, V [NL](5)	M_z	-11.23	0.01	-0.03	-0.04	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.0	35.3	3.7	1.9	37.4	37.4	G, G, V, V(6)	N_t	-9.23	0.01	0.03	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	26.70	-0.01	-0.06	0.04	0.00	
										G, V, N [NL](7)	M_y	18.30	-0.24	-0.04	0.03	0.19	
										G, Q [NL](4)	M_z	26.54	-0.01	-0.06	0.04	0.00	
		Pie	Cumple	8.0	35.5	3.5	1.2	36.8	36.8	G, G, V, V(6)	N_t	-9.16	0.00	-0.02	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	26.82	-0.01	0.04	0.04	0.00	
										G, V [NL](8)	M_y	9.41	0.23	0.01	0.01	0.19	
										G, Q [NL](4)	M_z	26.65	-0.01	0.04	0.04	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.1	26.2	2.2	3.3	29.8	29.8	G, G, V, V(6)	N_t	-7.04	0.02	0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.31	-0.03	-0.11	0.11	0.03	
										G, V, N [NL](7)	M_y	13.51	-0.14	-0.08	0.08	0.19	
										G, Q [NL](4)	M_z	20.01	-0.03	-0.11	0.11	0.03	
		Pie	Cumple	6.1	26.4	4.9	4.8	31.6	31.6	G, G, V, V(6)	N_t	-6.97	-0.02	-0.04	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.42	0.04	0.15	0.11	0.03	
										G, V, N [NL](7)	M_y	13.62	0.32	0.12	0.08	0.19	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.300. P422

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	10.5	40.1	3.6	2.5	43.4	43.4	G, V [NL](1)	N_t	-12.00	-0.02	0.06	-0.04	0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	30.33	0.09	-0.08	0.04	-0.06	
										G, V [NL](3)	M_y	9.55	-0.24	-0.03	0.01	0.14	
										G, Q [NL](4)	M_z	30.29	0.08	-0.08	0.04	-0.06	
		Pie	Cumple	10.4	40.3	1.8	1.0	41.8	41.8	G, V [NL](1)	N_t	-11.93	0.02	-0.03	-0.04	0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	30.45	-0.07	0.03	0.04	-0.06	
										G, V [NL](3)	M_y	9.62	0.12	0.01	0.01	0.14	
										G, V [NL](5)	M_z	-11.88	0.02	-0.03	-0.04	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	8.5	34.8	3.7	1.9	36.9	36.9	G, G, V, V(6)	N_t	-9.74	0.01	0.04	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	26.31	-0.01	-0.06	0.04	0.00	
										G, V, N [NL](7)	M_y	17.46	-0.24	-0.04	0.02	0.19	
										G, Q [NL](4)	M_z	26.14	-0.01	-0.06	0.04	0.00	
		Pie	Cumple	8.4	34.9	3.5	1.2	36.3	36.3	G, G, V, V(6)	N_t	-9.67	0.00	-0.03	-0.02	-0.01	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	26.42	-0.02	0.04	0.04	0.00	
										G, V [NL](3)	M_y	8.62	0.23	0.01	0.01	0.19	
										G, Q [NL](4)	M_z	26.25	-0.02	0.04	0.04	0.00	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.4	25.8	2.2	3.3	29.4	29.4	G, G, V, V(6)	N_t	-7.36	0.02	0.04	-0.04	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	20.01	-0.03	-0.10	0.11	0.03	
										G, V, N [NL](8)	M_y	12.80	-0.15	-0.08	0.08	0.19	
										G, Q [NL](4)	M_z	19.71	-0.03	-0.10	0.11	0.03	
		Pie	Cumple	6.4	26.0	4.9	4.8	31.2	31.2	G, G, V, V(6)	N_t	-7.30	-0.02	-0.05	-0.04	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	20.12	0.04	0.15	0.11	0.03	
										G, V, N [NL](8)	M_y	12.91	0.32	0.11	0.08	0.19	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.301. P423

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	11.8	42.3	3.4	2.6	45.4	45.4	G, V [NL](1)	N_t	-13.50	-0.02	0.07	-0.04	0.02	Cumple
										G, V, N [NL](2)	N_c,NM_yM_z	31.99	0.04	-0.08	0.05	-0.03	
										G, V [NL](3)	M_y	7.20	-0.22	-0.03	0.01	0.14	
										G, V, N [NL](4)	M_z	31.94	0.04	-0.08	0.05	-0.03	
		Pie	Cumple	11.7	42.4	2.2	1.1	43.9	43.9	G, V [NL](1)	N_t	-13.43	0.02	-0.04	-0.04	0.02	Cumple
										G, V, N [NL](2)	N_c,NM_yM_z	32.10	-0.04	0.03	0.05	-0.03	
										G, V, N [NL](5)	M_y	20.58	-0.15	0.01	0.03	-0.15	
										G, V [NL](6)	M_z	-13.38	0.02	-0.04	-0.04	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	9.5	36.6	3.7	2.1	39.1	39.1	G, G, V, V(7)	N_t	-10.94	0.02	0.04	-0.03	-0.01	Cumple
										G, V, N [NL](2)	N_c,NM_yM_z	27.66	-0.04	-0.07	0.04	0.02	
										G, V, N [NL](8)	M_y	15.04	-0.24	-0.03	0.02	0.19	
										G, V, N [NL](4)	M_z	27.49	-0.04	-0.07	0.04	0.02	
		Pie	Cumple	9.5	36.7	3.5	1.3	38.1	38.1	G, G, V, V(7)	N_t	-10.87	0.00	-0.03	-0.03	-0.01	Cumple
										G, V, N [NL](2)	N_c,NM_yM_z	27.77	0.01	0.04	0.04	0.02	
										G, V [NL](9)	M_y	6.37	0.23	0.01	0.01	0.19	
										G, V, N [NL](4)	M_z	27.60	0.01	0.04	0.04	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	7.1	26.9	2.3	3.5	30.9	30.9	G, G, V, V(7)	N_t	-8.16	0.02	0.05	-0.04	-0.02	Cumple
										G, V, N [NL](2)	N_c,NM_yM_z	20.88	-0.05	-0.11	0.11	0.04	
										G, V, N [NL](10)	M_y	10.61	-0.15	-0.07	0.07	0.20	
										G, V, N [NL](4)	M_z	20.58	-0.04	-0.11	0.11	0.04	
		Pie	Cumple	7.0	27.1	5.0	5.1	32.8	32.8	G, G, V, V(7)	N_t	-8.09	-0.02	-0.05	-0.04	-0.02	Cumple
										G, V, N [NL](2)	N_c,M_z,NM_yM_z	20.99	0.06	0.16	0.11	0.04	
										G, V, N [NL](10)	M_y	10.72	0.33	0.11	0.07	0.20	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(6) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(7) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.302. P424

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	14.1	48.5	3.6	2.7	0.8	51.6	51.6	G, V [NL](1)	N_t	-16.24	-0.01	0.07	-0.04	0.01	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	36.71	0.02	-0.09	0.05	-0.03	
											G, V, N [NL](3)	M_y,V_z	20.38	0.24	-0.05	0.02	-0.16	
											G, V, N [NL](4)	M_z	36.65	0.02	-0.09	0.05	-0.03	
		Pie	Cumple	14.1	48.7	2.7	1.1	0.8	50.3	50.3	G, V [NL](1)	N_t	-16.17	0.03	-0.04	-0.04	0.01	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	36.82	-0.06	0.03	0.05	-0.03	
											G, V, N [NL](3)	M_y,V_z	20.49	-0.18	0.01	0.02	-0.16	
											G, V [NL](5)	M_z	-16.12	0.03	-0.04	-0.04	0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	12.0	43.1	3.6	2.2	0.9	45.8	45.8	G, G, V, V(6)	N_t	-13.72	0.02	0.04	-0.03	-0.01	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	32.61	-0.04	-0.07	0.04	0.02	
											G, V, N [NL](7)	M_y	11.90	-0.24	-0.02	0.01	0.18	
											G, V, N [NL](4)	M_z	32.44	-0.04	-0.07	0.04	0.02	
											G, V [NL](8)	V_z	3.20	-0.23	-0.01	0.00	0.18	
		Pie	Cumple	11.9	43.3	3.4	1.3	0.9	44.6	44.6	G, G, V, V(6)	N_t	-13.65	0.00	-0.03	-0.03	-0.01	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	32.73	0.00	0.04	0.04	0.02	
											G, V [NL](8)	M_y,V_z	3.27	0.22	0.00	0.00	0.18	
											G, V, N [NL](4)	M_z	32.56	0.00	0.04	0.04	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	9.6	33.6	2.4	3.7	1.0	37.9	37.9	G, G, V, V(6)	N_t	-10.98	0.02	0.05	-0.05	-0.02	Cumple
											G, V, N [NL](2)	N_c,NM_yM_z	26.02	-0.05	-0.12	0.12	0.05	
											G, V, N [NL](9)	M_y,V_z	8.36	-0.16	-0.06	0.06	0.20	
											G, V, N [NL](4)	M_z	25.71	-0.05	-0.12	0.12	0.05	
		Pie	Cumple	9.5	33.7	5.2	5.1	1.0	39.6	39.6	G, G, V, V(6)	N_t	-10.92	-0.03	-0.06	-0.05	-0.02	Cumple
											G, V, N [NL](2)	N_c,M_z,NM_yM_z	26.13	0.06	0.16	0.12	0.05	
											G, V, N [NL](9)	M_y,V_z	8.47	0.34	0.09	0.06	0.20	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.1346.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones									Esfuerzos pésimos						Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_tV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.2	0.9	8.1	1.3	1.8	9.4	1.8	9.4	G, V [NL](1)	N_t	-0.26	-0.27	0.01	-0.01	0.18	Cumple
												G, V, N [NL](2)	N_c	1.08	0.52	0.02	-0.01	-0.35	
												G, V, N [NL](3)	M_y,V_z,NM_yM_z,M_tV_z	1.06	0.53	0.02	-0.01	-0.36	
												G, V, N [NL](4)	M_z	0.45	0.15	0.04	-0.03	-0.10	
		Pie	Cumple	0.2	1.0	5.5	1.0	1.8	6.8	1.8	6.8	G, V [NL](1)	N_t	-0.20	0.18	-0.01	-0.01	0.18	Cumple
												G, V, N [NL](2)	N_c	1.19	-0.36	-0.01	-0.01	-0.35	
												G, V, N [NL](3)	M_y,V_z,NM_yM_z,M_tV_z	1.18	-0.36	-0.01	-0.01	-0.36	
												G, V [NL](5)	M_z	0.48	-0.06	-0.03	-0.03	-0.06	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	1.4	2.0	3.6	0.8	0.9	4.6	0.5	4.6	G, V, N [NL](6)	N_t	-1.65	0.00	-0.01	0.01	-0.02	Cumple
												G, V [NL](7)	N_c	2.35	0.01	0.02	-0.02	0.00	
												G, V [NL](8)	M_y,V_z,NM_yM_z	1.00	-0.24	0.01	-0.01	0.19	
												G, V [NL](5)	M_z	2.28	0.01	0.03	-0.02	-0.01	
												G, V, N [NL](9)	M_tV_z	0.58	-0.13	0.00	0.00	0.09	
		Pie	Cumple	1.4	2.1	3.6	0.9	0.9	4.7	0.5	4.7	G, V, N [NL](10)	N_t	-1.56	-0.03	0.02	0.01	-0.01	Cumple
												G, V [NL](7)	N_c	2.42	0.00	-0.03	-0.02	0.00	
												G, V [NL](8)	M_y,V_z,NM_yM_z	1.07	0.23	-0.01	-0.01	0.19	
												G, V [NL](5)	M_z	2.39	-0.02	-0.03	-0.02	-0.01	
												G, V, N [NL](9)	M_tV_z	0.69	0.10	-0.01	0.00	0.09	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.2	4.2	2.5	0.9	1.0	5.2	1.0	5.2	G, V, N [NL](6)	N_t	-4.86	-0.01	-0.03	0.04	0.01	Cumple
												G, V [NL](7)	N_c	4.80	0.00	0.02	-0.02	0.00	
												G, V, N [NL](11)	M_y	-0.38	-0.16	-0.02	0.02	0.21	
												G, V, N [NL](3)	M_z	-3.52	0.00	-0.03	0.04	0.02	
												G, V, N [NL](12)	V_z,M_tV_z	-0.39	-0.16	-0.02	0.02	0.21	
												G, V, N [NL](13)	NM_yM_z	-4.85	-0.01	-0.03	0.04	0.01	
		Pie	Cumple	4.1	4.2	5.3	2.2	1.0	7.1	1.0	7.1	G, V, N [NL](6)	N_t	-4.75	0.03	0.07	0.04	0.01	Cumple
												G, V [NL](7)	N_c	4.87	0.00	-0.04	-0.02	0.00	
												G, V, N [NL](12)	M_y,V_z,M_tV_z	-0.28	0.35	0.04	0.02	0.21	
												G, V, N [NL](14)	M_z	-4.46	0.03	0.07	0.04	0.01	
												G, V, N [NL](15)	NM_yM_z	-0.54	0.35	0.04	0.03	0.21	

Notas:

(1) *0.8·PP+0.8·CM1+1.5·VH6 [NL]*
(2) *1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]*
(3) *1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]*
(4) *1.35·PP+1.35·CM1+1.5·VH5+0.75·N(R)1 [NL]*
(5) *1.35·PP+1.35·CM1+1.5·VH5 [NL]*
(6) *1.35·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]*
(7) *0.8·PP+1.35·CM1+1.5·VH5 [NL]*
(8) *0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]*
(9) *1.35·PP+1.35·CM1+0.9·V(270°)H1+1.5·N(R)1 [NL]*
(10) *0.8·PP+0.8·CM1+1.5·VH2+0.75·N(R)2 [NL]*
(11) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]*
(12) *1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*
(13) *1.35·PP+0.8·CM1+1.5·VH2+0.75·N(EI) [NL]*
(14) *1.35·PP+1.35·CM1+1.5·VH2+0.75·N(EI) [NL]*
(15) *1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]*

2.2.2.1.1347.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.2	0.7	0.6	1.0	1.0	G, Q [NL][1]	N_t	-0.46	-0.01	-0.01	-0.12	0.01	Cumple
											G, G, V, V[2]	N_c	0.27	0.00	0.00	-0.04	0.00	
											G, V, N [NL][3]	M_y	-0.19	-0.01	-0.02	-0.30	0.01	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	-0.30	-0.01	-0.02	-0.35	-0.03	
		Pie	Cumple	0.3	0.3	1.2	15.7	1.1	16.1	16.1	G, Q [NL][1]	N_t	-0.35	0.02	-0.32	-0.12	0.01	Cumple
											G, G, V, V[2]	N_c	0.34	0.00	0.24	0.23	0.00	
											G, V, N [NL][5]	M_y	-0.14	-0.08	0.09	0.40	-0.03	
											G, V, N [NL][6]	M_z,V_y,NM_yM_z	-0.21	0.02	-0.50	-0.60	0.01	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.7	4.2	3.2	10.1	0.9	13.2	13.2	G, V [NL][7]	N_t	-0.75	0.00	0.02	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	4.79	0.02	-0.17	0.10	-0.02	
											G, V [NL][8]	M_y	2.03	-0.21	0.11	-0.32	0.14	
											G, V, N [NL][6]	M_z,V_y,NM_yM_z	3.36	0.02	-0.32	0.47	-0.01	
		Pie	Cumple	0.6	4.3	1.9	5.7	0.7	10.1	10.1	G, V [NL][7]	N_t	-0.68	0.01	0.00	-0.01	0.00	Cumple
											G, Q [NL][1]	N_c	4.90	-0.03	0.07	0.10	-0.02	
											G, V [NL][8]	M_y	2.10	0.13	0.16	0.36	0.14	
											G, V, N [NL][4]	M_z,V_y,NM_yM_z	3.80	0.12	0.18	0.39	0.13	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.3	16.8	3.2	5.8	0.7	19.1	19.1	G, V [NL][7]	N_t	-2.65	0.01	0.02	-0.01	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	12.71	-0.02	-0.07	0.05	0.01	
											G, V, N [NL][9]	M_y	9.25	-0.21	0.08	-0.29	0.17	
											G, V, N [NL][10]	M_z,V_y	7.73	-0.02	-0.18	0.38	0.01	
		Pie	Cumple	2.3	17.0	3.3	5.6	0.7	20.8	20.8	G, V [NL][7]	N_t	-2.58	-0.01	-0.01	-0.01	-0.01	Cumple
											G, Q [NL][1]	N_c	12.82	0.01	0.05	0.05	0.01	
											G, V, N [NL][11]	M_y	9.08	0.21	0.18	0.36	0.17	
											G, V, N [NL][9]	M_z,V_y	9.36	0.21	0.18	0.36	0.17	
											G, V, N [NL][4]	NM_yM_z	10.09	0.21	0.18	0.36	0.17	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.3	27.9	1.7	5.9	0.7	31.0	31.0	G, V [NL][7]	N_t	-4.89	0.01	0.02	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.62	-0.02	-0.09	0.09	0.02	
											G, V, N [NL][9]	M_y	16.41	-0.11	0.05	-0.23	0.16	
											G, V, N [NL][10]	M_z	12.66	-0.01	-0.19	0.37	0.01	
											G, V, N [NL][6]	V_y	13.75	-0.01	-0.19	0.37	0.01	
		Pie	Cumple	4.2	28.0	4.2	7.1	0.7	32.5	32.5	G, V [NL][7]	N_t	-4.82	-0.02	-0.04	-0.03	-0.01	Cumple
											G, Q [NL][1]	N_c,NM_yM_z	21.73	0.03	0.13	0.09	0.02	
											G, V, N [NL][9]	M_y	16.52	0.28	0.23	0.38	0.16	
											G, V, N [NL][4]	M_z,V_y	17.61	0.28	0.23	0.38	0.16	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·V(270°)H2+0.75·N(EI) [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 0.8·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 0.8·PP+0.8·CM1+1.5·V(270°)H1 [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(R)2 [NL]

2.2.2.1.1348.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	0.6	0.5	1.1	1.1	G, Q [NL](1)	N_t	-0.47	0.02	-0.01	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.03	0.00	-0.10	-0.03	
											G, V [NL](4)	M_z,V_y	-0.09	0.01	0.02	0.27	-0.01	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.02	0.02	0.21	-0.02	
		Pie	Cumple	0.3	0.3	1.6	15.8	1.1	16.5	16.5	G, Q [NL](1)	N_t	-0.35	-0.05	-0.32	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.33	0.02	0.23	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.11	-0.09	0.17	-0.05	
											G, V, N [NL](7)	M_z,V_y,NM_yM_z	-0.22	-0.04	-0.50	-0.60	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.4	3.9	3.5	10.0	0.9	13.1	13.1	G, V [NL](8)	N_t	-0.52	0.03	0.02	-0.01	-0.02	Cumple
											G, V, N [NL](9)	N_c	4.44	-0.05	-0.08	-0.05	0.03	
											G, V, N [NL](10)	M_y	3.44	-0.23	-0.03	-0.13	0.15	
											G, V, N [NL](7)	M_z,V_y,NM_yM_z	3.03	-0.04	-0.32	0.47	0.03	
		Pie	Cumple	0.4	4.0	2.1	4.1	0.6	8.3	8.3	G, V [NL](8)	N_t	-0.45	-0.02	0.00	-0.01	-0.02	Cumple
											G, V, N [NL](9)	N_c	4.55	0.03	0.11	0.19	0.03	
											G, V, N [NL](10)	M_y,NM_yM_z	3.55	0.14	0.13	0.26	0.15	
											G, V, N [NL](11)	M_z	3.66	-0.03	0.13	0.26	-0.03	
											G, V [NL](4)	V_y	0.94	0.01	-0.12	-0.31	0.01	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	1.8	15.8	3.4	5.7	0.7	18.1	18.1	G, V [NL](8)	N_t	-2.10	0.02	0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	11.92	-0.04	-0.06	0.05	0.04	
											G, V, N [NL](10)	M_y	9.27	-0.22	0.03	-0.16	0.18	
											G, V, N [NL](5)	M_z,V_y	7.04	-0.03	-0.18	0.38	0.03	
		Pie	Cumple	1.8	15.9	3.5	4.1	0.6	18.7	18.7	G, V [NL](8)	N_t	-2.03	-0.03	-0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	12.03	0.05	0.05	0.05	0.04	
											G, V, N [NL](10)	M_y	9.39	0.23	0.12	0.23	0.18	
											G, V [NL](12)	M_z,V_y	2.66	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](9)	NM_yM_z	11.65	0.04	0.09	0.15	0.03	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	3.5	26.3	1.8	5.8	0.7	29.3	29.3	G, V [NL](8)	N_t	-3.99	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	20.40	-0.02	-0.09	0.09	0.03	
											G, V, N [NL](10)	M_y	16.13	-0.11	0.01	-0.12	0.17	
											G, V, N [NL](5)	M_z	11.58	-0.02	-0.19	0.37	0.02	
											G, V, N [NL](7)	V_y	12.68	-0.02	-0.19	0.37	0.02	
		Pie	Cumple	3.4	26.5	4.4	5.5	0.5	31.0	31.0	G, V [NL](8)	N_t	-3.92	-0.03	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	20.51	0.06	0.13	0.09	0.03	
											G, V, N [NL](6)	M_y	15.14	0.29	0.17	0.26	0.17	
											G, V, N [NL](11)	M_z	16.61	-0.08	0.18	0.26	-0.04	
											G, V [NL](4)	V_y	2.59	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(8) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(11) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(12) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]

2.2.2.1.1349.

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	V_y (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	0.2	0.4	0.6	0.5	1.1	1.1	G, Q [NL](1)	N_t	-0.46	0.03	-0.01	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.26	-0.01	0.00	-0.05	0.01	
											G, V, N [NL](3)	M_y	-0.38	0.03	0.00	-0.10	-0.03	
											G, V [NL](4)	M_z,V_y	-0.08	0.01	0.02	0.27	-0.01	
											G, V, N [NL](5)	NM_yM_z	-0.33	0.02	0.02	0.21	-0.02	
		Pie	Cumple	0.3	0.3	1.7	15.6	1.1	16.4	16.4	G, Q [NL](1)	N_t	-0.35	-0.04	-0.32	-0.12	-0.03	Cumple
											G, G, V, V(2)	N_c	0.32	0.02	0.24	0.23	0.01	
											G, V, N [NL](6)	M_y	-0.18	-0.11	-0.09	0.17	-0.05	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	-0.22	-0.03	-0.50	-0.60	-0.02	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	0.6	4.3	3.3	10.1	0.9	13.5	13.5	G, V [NL](7)	N_t	-0.74	0.02	0.01	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	4.92	-0.04	-0.18	0.10	0.02	
											G, V, N [NL](6)	M_y	3.46	-0.21	-0.03	-0.13	0.14	
											G, V, N [NL](5)	M_z,V_y,NM_yM_z	3.46	-0.03	-0.32	0.47	0.02	
		Pie	Cumple	0.6	4.4	1.9	4.2	0.6	8.6	8.6	G, V [NL](7)	N_t	-0.67	-0.01	0.00	-0.01	-0.01	Cumple
											G, Q [NL](1)	N_c	5.04	0.02	0.07	0.10	0.02	
											G, V, N [NL](6)	M_y	3.58	0.13	0.13	0.26	0.14	
											G, V, N [NL](8)	M_z	3.97	-0.04	0.13	0.26	-0.04	
											G, V [NL](4)	V_y	1.11	0.01	-0.11	-0.31	0.01	
											G, V, N [NL](9)	NM_yM_z	3.94	0.13	0.13	0.26	0.14	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	2.2	17.2	3.2	5.8	0.7	19.6	19.6	G, V [NL](7)	N_t	-2.57	0.02	0.02	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	13.01	-0.03	-0.07	0.05	0.03	
											G, V, N [NL](6)	M_y	9.39	-0.21	0.02	-0.15	0.17	
											G, V, N [NL](10)	M_z,V_y	7.96	-0.02	-0.19	0.38	0.02	
		Pie	Cumple	2.2	17.3	3.4	4.1	0.6	19.7	19.7	G, V [NL](7)	N_t	-2.51	-0.02	-0.01	-0.01	-0.02	Cumple
											G, Q [NL](1)	N_c	13.12	0.04	0.06	0.05	0.03	
											G, V, N [NL](6)	M_y	9.51	0.22	0.13	0.23	0.17	
											G, V [NL](11)	M_z,V_y	3.03	0.01	-0.13	-0.33	0.01	
											G, V, N [NL](12)	NM_yM_z	12.34	0.03	0.10	0.15	0.02	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	4.1	28.5	1.7	5.9	0.7	31.6	31.6	G, V [NL](7)	N_t	-4.72	0.01	0.02	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.08	-0.02	-0.09	0.09	0.03	
											G, V, N [NL](6)	M_y	16.35	-0.11	0.00	-0.12	0.16	
											G, V, N [NL](10)	M_z	13.01	-0.01	-0.19	0.37	0.02	
											G, V, N [NL](5)	V_y	14.09	-0.01	-0.19	0.37	0.02	
		Pie	Cumple	4.1	28.6	4.3	5.7	0.5	33.4	33.4	G, V [NL](7)	N_t	-4.66	-0.03	-0.04	-0.02	-0.02	Cumple
											G, Q [NL](1)	N_c,NM_yM_z	22.19	0.05	0.13	0.09	0.03	
											G, V, N [NL](6)	M_y	16.46	0.28	0.18	0.26	0.16	
											G, V, N [NL](8)	M_z	17.65	-0.08	0.18	0.27	-0.05	
											G, V [NL](4)	V_y	3.17	0.01	-0.11	-0.29	0.01	

Notas:

(1) 1.35·PP+1.35·CM1+1.5·Q [NL]
(2) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(3) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(4) 0.8·PP+0.8·CM1+1.5·V(180°)H2 [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(6) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(7) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(180°)H1+0.75·N(EI) [NL]
(11) 0.8·PP+1.35·CM1+1.5·V(180°)H2 [NL]
(12) 1.35·PP+1.35·CM1+1.5·V(0°)H1+0.75·N(EI) [NL]

2.2.2.1.1350.

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	N_c (%)	M_y (%)	M_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	9.1	41.1	4.5	2.4	44.3	44.3	G, V [NL](1)	N_t	-10.45	0.04	0.05	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.12	-0.07	-0.08	0.04	0.05	
										G, V, N [NL](3)	M_y	21.72	-0.29	-0.05	0.03	0.18	
										G, Q [NL](4)	M_z	31.07	-0.07	-0.08	0.04	0.05	
		Pie	Cumple	9.0	41.3	2.4	0.9	42.6	42.6	G, V [NL](1)	N_t	-10.38	-0.02	-0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	31.23	0.04	0.03	0.04	0.05	
										G, V, N [NL](3)	M_y	21.84	0.16	0.02	0.03	0.18	
										G, V [NL](5)	M_z	-10.34	-0.02	-0.03	-0.03	-0.02	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	7.6	36.3	3.7	1.8	38.6	38.6	G, G, V, V(6)	N_t	-8.75	0.03	0.03	-0.02	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.42	-0.05	-0.06	0.04	0.04	
										G, V, N [NL](7)	M_y	19.42	-0.24	-0.04	0.02	0.20	
										G, Q [NL](4)	M_z	27.25	-0.05	-0.06	0.04	0.04	
		Pie	Cumple	7.6	36.4	3.8	1.1	38.0	38.0	G, G, V, V(6)	N_t	-8.68	-0.03	-0.02	-0.02	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	27.53	0.05	0.03	0.04	0.04	
										G, V, N [NL](3)	M_y	19.37	0.25	0.02	0.02	0.20	
										G, Q [NL](4)	M_z	27.36	0.05	0.03	0.04	0.04	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	6.2	27.7	1.9	3.2	31.2	31.2	G, G, V, V(6)	N_t	-7.11	0.01	0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,NM_yM_z	21.48	-0.02	-0.10	0.10	0.03	
										G, V, N [NL](3)	M_y	14.93	-0.13	-0.07	0.08	0.18	
										G, Q [NL](4)	M_z	21.18	-0.02	-0.10	0.10	0.03	
		Pie	Cumple	6.1	27.9	4.7	4.6	33.1	33.1	G, G, V, V(6)	N_t	-7.04	-0.03	-0.03	-0.03	-0.02	Cumple
										G, Q [NL](2)	N_c,M_z,NM_yM_z	21.59	0.06	0.15	0.10	0.03	
										G, V, N [NL](3)	M_y	15.04	0.31	0.11	0.08	0.18	

Notas:
(1) 0.8·PP+0.8·CM1+1.5·VH6 [NL]
(2) 1.35·PP+1.35·CM1+1.5·Q [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 1.35·PP+0.8·CM1+1.5·Q [NL]
(5) 0.8·PP+1.35·CM1+1.5·VH6 [NL]
(6) 0.8·PP+0.8·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(7) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]

2.2.2.1.308. P434

Sección de acero laminado																	
Tramo	Sección	Posición	Comprobaciones							Esfuerzos pésimos							Estado
			λ_w	N_t (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.0	5.2	1.5	1.2	5.6	5.6	G, G, V, V(1)	N_t	-2.24	0.04	-0.05	0.04	-0.03	Cumple
										G, V, N [NL](2)	M_y,V_z	0.03	-0.34	0.01	0.00	0.25	
										G, G, V, V(3)	M_z	-2.13	0.03	-0.05	0.04	-0.02	
										G, V, N [NL](4)	NM_yM_z	-0.41	-0.34	0.00	0.00	0.25	
		Pie	Cumple	1.9	4.4	1.7	1.2	5.2	5.2	G, G, V, V(1)	N_t	-2.17	-0.04	0.05	0.04	-0.03	Cumple
										G, V, N [NL](2)	M_y,V_z	0.14	0.29	0.01	0.00	0.25	
										G, G, V, V(3)	M_z	-2.01	-0.03	0.06	0.04	-0.02	
										G, V [NL](5)	NM_yM_z	-0.59	0.28	0.02	0.01	0.24	

Notas:
(1) 0.8·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(2) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(3) 1.35·PP+1.35·CM 1+1.5·V H6+1.5·V(0°) H2 [NL]
(4) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(5) 1.35·PP+1.35·CM1+1.5·V(270°)H1 [NL]

2.2.2.1.309. P467

Sección de acero laminado																		
Tramo	Sección	Posición	Comprobaciones								Esfuerzos pésimos							Estado
			λ_w	N_c (%)	M_y (%)	M_z (%)	V_z (%)	NM_yM_z (%)	M_yV_z (%)	Aprov. (%)	Naturaleza	Comp.	N (t)	Mxx (t·m)	Myy (t·m)	Qx (t)	Qy (t)	
INICIO CUBIERTA (742 - 1000 cm)	HE 140 B	Cabeza	Cumple	0.4	7.8	7.9	1.5	13.6	1.5	13.6	G, V, N [NL](1)	N_c,M_y,V_z,M_yV_z	0.44	0.51	-0.25	0.22	0.30	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.44	0.51	-0.25	0.22	0.30	
		Pie	Cumple	0.5	19.6	10.1	2.9	27.0	3.0	27.0	G, V, N [NL](1)	N_c,M_y	0.56	1.28	0.32	0.22	0.30	Cumple
											G, V, N [NL](2)	M_z,NM_yM_z	0.56	1.28	0.32	0.22	0.30	
											G, V, N [NL](3)	V_z,M_yV_z	0.36	0.85	0.01	0.01	0.60	
INICIO CUBIERTA (492 - 742 cm)	HE 140 B	Cabeza	Cumple	2.5	21.9	7.9	3.9	30.0	3.9	30.0	G, V, N [NL](2)	N_c,M_z,NM_yM_z	2.88	1.44	0.25	-0.20	-0.44	Cumple
											G, V, N [NL](1)	M_y	2.38	1.44	0.25	-0.20	-0.44	
											G, V, N [NL](3)	V_z,M_yV_z	1.58	0.83	0.02	-0.01	-0.79	
		Pie	Cumple	2.6	7.2	7.4	2.2	12.8	2.2	12.8	G, V, N [NL](2)	N_c,M_z,NM_yM_z	2.99	0.33	-0.24	-0.20	-0.44	Cumple
											G, V [NL](4)	M_y	1.68	-0.47	0.06	0.04	-0.07	
											G, V, N [NL](1)	V_z,M_yV_z	2.50	0.33	-0.24	-0.20	-0.44	
INICIO CUBIERTA (242 - 492 cm)	HE 140 B	Cabeza	Cumple	3.8	7.3	2.0	1.2	10.2	0.7	10.2	G, V, N [NL](2)	N_c	4.34	0.35	0.03	-0.03	-0.15	Cumple
											G, V [NL](4)	M_y	2.96	-0.48	0.00	0.01	-0.19	
											G, V, N [NL](5)	M_z	3.70	0.23	0.06	-0.06	-0.10	
											G, V, N [NL](3)	V_z	2.53	-0.38	0.00	0.00	-0.24	
											G, V, N [NL](6)	NM_yM_z	3.58	0.43	0.02	-0.03	-0.02	
											G, V, N [NL](1)	M_yV_z	3.35	0.35	0.03	-0.03	-0.15	
		408.7 cm	Cumple	3.8	8.5	0.5	0.7	11.2	0.7	11.2	G, V, N [NL](2)	N_c	4.37	0.23	0.00	-0.03	-0.15	Cumple
											G, V [NL](4)	M_y,NM_yM_z	2.98	-0.56	0.00	0.01	0.00	
											G, V, N [NL](7)	M_z	2.41	0.07	-0.02	0.04	-0.04	
											G, V, N [NL](1)	V_z,M_yV_z	3.39	0.23	0.00	-0.03	-0.15	
		Pie	Cumple	3.9	3.6	2.7	1.9	6.9	1.3	6.9	G, V, N [NL](2)	N_c	4.45	-0.02	-0.06	-0.03	-0.15	Cumple
											G, V, N [NL](8)	M_y,NM_yM_z	3.63	-0.24	-0.01	0.00	0.34	
											G, V, N [NL](5)	M_z	3.82	-0.01	-0.09	-0.06	-0.10	
											G, V [NL](4)	V_z	3.02	-0.23	0.01	0.01	0.39	
											G, V, N [NL](9)	M_yV_z	2.71	0.08	-0.04	-0.02	-0.26	
INICIO CUBIERTA (0 - 242 cm)	HE 140 B	Cabeza	Cumple	5.0	3.6	1.4	2.2	8.1	1.6	8.1	G, V, N [NL](2)	N_c	5.78	-0.02	-0.01	0.00	-0.23	Cumple
											G, V, N [NL](8)	M_y,NM_yM_z	4.96	-0.23	0.01	-0.01	0.38	
											G, V, N [NL](10)	M_z	3.50	-0.01	-0.05	0.04	-0.10	
											G, V [NL](4)	V_z	4.31	-0.23	0.01	-0.01	0.44	
											G, V, N [NL](9)	M_yV_z	3.54	0.08	0.00	0.00	-0.32	
		Pie	Cumple	5.1	22.7	1.7	4.8	26.9	2.7	26.9	G, V, N [NL](2)	N_c	5.89	-0.57	0.00	0.00	-0.23	Cumple
											G, V [NL](4)	M_y,V_z,NM_yM_z	4.37	1.48	-0.01	-0.01	0.97	
											G, V, N [NL](10)	M_z	3.61	-0.26	0.06	0.04	-0.10	
											G, V, N [NL](9)	M_yV_z	3.65	-0.97	0.00	0.00	-0.55	

Notas:

(1) 1.35·PP+0.8·CM1+1.5·VH3+0.75·N(EI) [NL]
(2) 1.35·PP+1.35·CM1+1.5·VH3+0.75·N(EI) [NL]
(3) 1.35·PP+0.8·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(4) 0.8·PP+1.35·CM1+1.5·V(270°)H1 [NL]
(5) 1.35·PP+1.35·CM1+1.5·VH1+0.75·N(R)1 [NL]
(6) 1.35·PP+1.35·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(7) 1.35·PP+0.8·CM1+1.5·VH4+0.75·N(R)2 [NL]
(8) 1.35·PP+1.35·CM1+1.5·V(270°)H1+0.75·N(EI) [NL]
(9) 1.35·PP+0.8·CM1+1.5·V(90°)H1+0.75·N(EI) [NL]
(10) 1.35·PP+0.8·CM1+1.5·V(0°)H2+0.75·N(R)2 [NL]

PROYECTO DE OBRAS DE REHABILITACIÓN SOSTENIBLE DE LA FACHADA Y MEJORA DE LA EFICIENCIA ENERGETICA DEL PABELLÓN DE CRISTAL DEL RECINTO FERIAL DE LA CASA DE CAMPO DE MADRID. RECUPERACIÓN DEL PATRIMONIO CULTURAL

PABELLÓN DE CRISTAL

PROYECTO BÁSICO Y EJECUCIÓN

MADRID DESTINO

Madrid, marzo de 2025

Subdirección de Control de la Edificación y Obras
Dirección de Infraestructuras

Madrid Destino. Cultura, Turismo y Negocio S.A.

ANEXO 9 PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA PABELLÓN DE CRISTAL DE LA CASA DE CAMPO – CLIMATIZACIÓN PLANTA ALTA

PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA
PABELLON DE CRISTAL DE LA CASA DE CAMPO



PROMOTOR

DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

EQUIPO REDACTOR

CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRAS S.A.

ARQUITECTO: D. JOSÉ MORIANA PERICET

MORIANA PERICET JOSE - 48866714V

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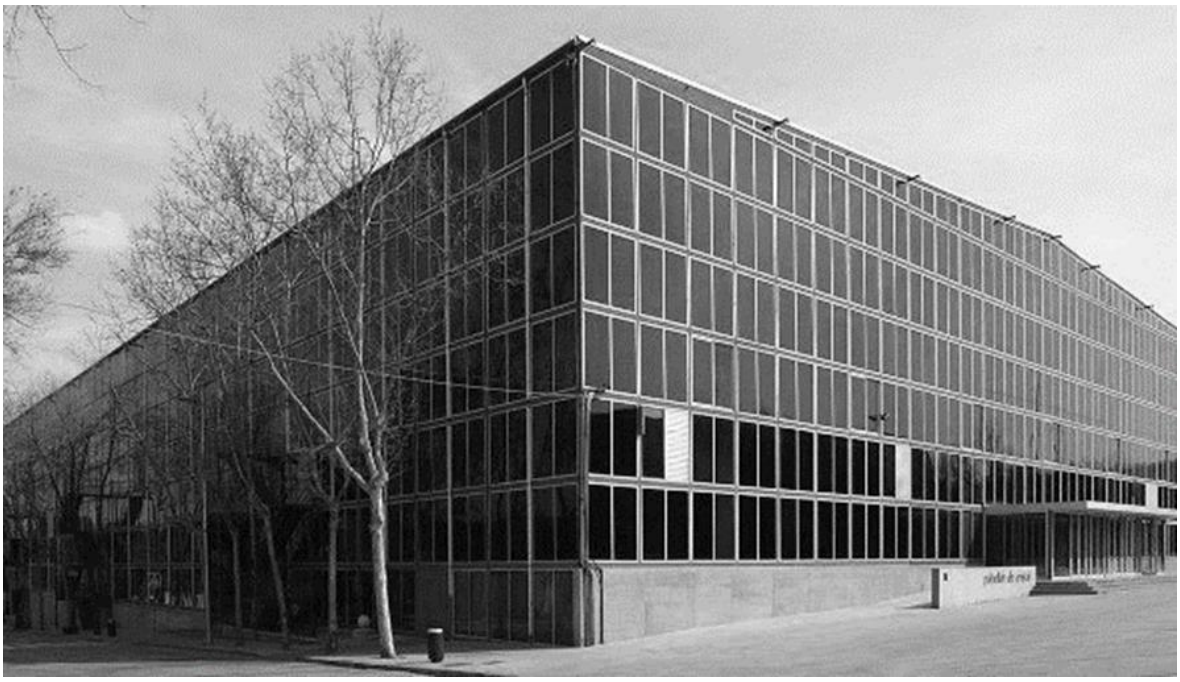
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PABELLÓN DE CRISTAL DE LA CASA DE CAMPO



PROMOTOR

Madrid Destino

EQUIPO REDACTOR

CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRAS S.A.

ARQUITECTO: D. JOSÉ MORIANA PERICET

I. MEMORIA

cemosa Ingeniería y Control

Madrid Destino

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1. MEMORIA DESCRIPTIVA

1.1. CONTEXTO GENERAL

Por encargo de La Sociedad Mercantil Municipal MADRID DESTINO CULTURA TURISMO Y NEGOCIO S.A., en adelante MADRID DESTINO se dispone a llevar a cabo parte de las actuaciones a las que se refiere la componente 14, inversión 1 del Plan de Recuperación, transformación y resiliencia, en adelante PRTR, financiado por los Fondos de la Unión Europea - Next GenerationEU.

La inversión 1 tiene por objeto implementar actuaciones de impulso de la sostenibilidad turística en su triple vertiente: medioambiental, socioeconómica y territorial; beneficiando a los destinos turísticos, a los agentes sociales y a los operadores privados del sector. Entre otras, se recogen los siguientes ejes y medidas:

- Eje 1: Actuaciones en el ámbito de la transición verde y sostenible: comprende actuaciones de restauración ambiental, gestión de espacios naturales, acciones de implantación de economía circular, rehabilitación sostenible de edificios y actuaciones de adaptación al cambio climático:

  - Restauración ambiental
  - Adaptación al cambio climático del destino y sus infraestructuras, previo análisis de los riesgos climáticos del destino y sus infraestructuras bajo los diferentes escenarios de cambio climático.
  - Implantación de medidas de economía circular en servicios públicos
  - Gestión del uso público en espacios naturales

- Eje 2: Actuaciones de mejora de la eficiencia energética: comprende actuaciones de eficiencia energética incluyendo las de mitigación del cambio climático, actuaciones orientadas a la reducción de la energía requerida para proporcionar productos y servicios turísticos, limitando la contaminación por carbono y estimulando la transición hacia energías renovables, así como actuaciones de movilidad sostenible:

  - Mitigación del cambio climático
  - Descarbonización
  - Movilidad sostenible

Los dos objetivos prioritarios del mencionado PRTR son:

- Al menos un salto de letra en la certificación energética
- Un ahorro mínimo del 30 % de energía primaria en sistemas afectados

El presente estudio ha sido financiado a través del contrato con EXPEDIENTE Nº SP23-00586 relativo al LOTE 2 suscrito por CEMOSA para la prestación de los SERVICIOS DE ASISTENCIA TÉCNICA ESPECIALIZADA EN MATERIA DE CONSULTORÍA DE DESARROLLO DE EVALUACIONES DE IMPACTO AMBIENTAL, CERTIFICACIONES ENERGÉTICAS, REDACCIÓN DE PROYECTO Y ESTUDIO DE ESTRUCTURA DE FACHADA PARA EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO, en el marco del Plan De Recuperación, Transformación y Resiliencia financiado por la Unión Europea -Next Generation EU. lote 2.

Para la realización de estos trabajos, en el informe previo se proponen una serie de actuaciones necesarias para alcanzar una reducción del 30% de energía primaria no renovable, prestando especial interés al principio de no causar daños significativos (DNSH) que establece pautas para el análisis de riesgo en relación con posibles impactos negativos en el medio ambiente, mecanismos de prevención, detección y corrección del fraude, corrupción y conflictos de interés.

1.2. AGENTES

1.2.1. Datos del solicitante

La Sociedad Mercantil MADRID DESTINO CULTURA TURISMO Y NEGOCIO, S.A., es una sociedad mercantil pública municipal que pertenece al AYUNTAMIENTO DE MADRID, con domicilio social en el Centro Cultural Conde Duque. Calle Conde Duque 9-11, 28015 (Madrid), CIF: A-84073105 e Inscripción

1.2.2. Otros agentes

Proyectista/s

Nombre:	D. José Moriana Pericet
Titulación:	Arquitecto
NIF:	48.866.714-V
Colegiado nº:	375 del C.O.A.Co
Dirección:	C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid.
Consultora:	CEMOSA. CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRA, S.A.
C.I.F.:	A-29021334
Dirección:	C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid.

Seguridad y salud

Coordinador de Seguridad y Salud en fase de proyecto

No aplica al ser un único proyectista.

Autor del Estudio o Estudio Básico

Nombre:	D. José Moriana Pericet
Titulación:	Arquitecto
NIF:	48.866.714-V
Colegiado nº:	375 del C.O.A.Co
Dirección:	C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid.

Coordinador de Seguridad y Salud en fase de ejecución de la obra

No se ha designado en el momento de redactar esta fase del Proyecto.

Constructor

No se ha designado en el momento de redactar esta fase del Proyecto.

Dirección de Obra

No se ha designado en el momento de redactar esta fase del Proyecto.

Dirección de Ejecución de Obra

No se ha designado en el momento de redactar esta fase del Proyecto

Redactor del estudio de gestión de residuos

Nombre:	D. José Moriana Pericet
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C.I.F.:	A-29021334
Dirección:	C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid.

Entidad de control de calidad

Por designar

1.3. INFORMACIÓN PREVIA

En el siguiente apartado se describen las condiciones del emplazamiento del edificio, así como sus condicionantes a nivel urbanísticos y una breve descripción de los trabajos a llevar a cabo en este proyecto derivados del estudio realizado sobre el edificio en el Informe Previo.

1.3.1. Emplazamiento

El Pabellón de Cristal se encuentra situado en la Avenida Principal, 16, sito en el distrito de Moncloa – Aravaca en la ciudad de Madrid (28011), en una parcela de 18.678 m^2 de superficie en suelo urbano según se indica en la ficha catastral de referencia 7541208VK3774B0001QY y de uso “Ocio, Hostelería”.



Figura 1. Vista aérea del edificio

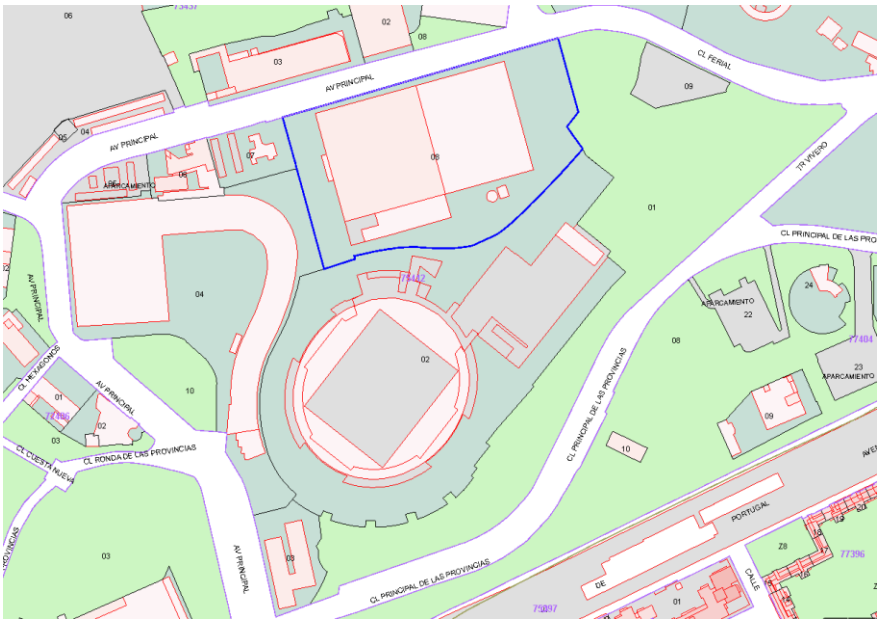


Figura 2. Parcela catastral

La parcela se encuentra urbanizada con vallado presente en parte de su perímetro para control de acceso al edificio. Cuenta con acceso de vehículos, vial rodado, aparcamientos y acerados.

1.3.2. Condiciones urbanísticas

Condiciones urbanísticas

- Área de Ordenación Especial. AOE 00.04
- Distrito 09 Moncloa-Aravaca (Casa de Campo)
- Uso y tipología característica: Dotacional. Servicios colectivos. Público

Condiciones de catalogación

- Catalogación: Singular
- Conjunto Homogéneo: Casa de Campo
- La Casa de Campo está declarada Bien de Interés Cultural en su categoría de Sitio o Territorio Histórico según Real Decreto 39/2010, de 15 de julio, del Consejo de Gobierno, (B.O.C.M. Núm. 275 de 17 noviembre 2010).



FICHA DE CONDICIONES URBANÍSTICAS

Este documento no sustituye a la Cédula Urbanística contemplada en la Ley del Suelo ya que sólamente resume, a efectos informáticos y sin carácter vinculante, las disposiciones que sobre la finca de referencia establece el nuevo P.G.O.U.M., obtenidas de la documentación aprobada por el Ayuntamiento Pleno en sesión de 17 de diciembre de 1996.
Son obligatorias las condiciones específicas de planeamiento y las especiales de catalogación, conforme a lo regulado en los artículos 4.3.3. y 4.3.18 de las normas Urbanísticas.

IDENTIFICACIÓN DE LA PARCELA

Nombre: -
Nº de Catálogo: 28764
Dirección principal: EDIFICIOS PABELLÓN DE CRISTAL -
Nº de Manzana: 0901127

19 B
19
Avenida Principal
16

Escala: 1:1000
Hoja Plan General: 072/3 (559/3-5/3)
Hoja-Cuarto Plano Parcelario: 74C

CONDICIONES DE CATALOGACIÓN

Catalogación: Singular
Protecciones en otros Catálogos:
Establecimientos comerciales:
Elementos singulares:
Parques y Jardines:
Conjunto Homogéneo: --

Figura 3. Ficha urbanística

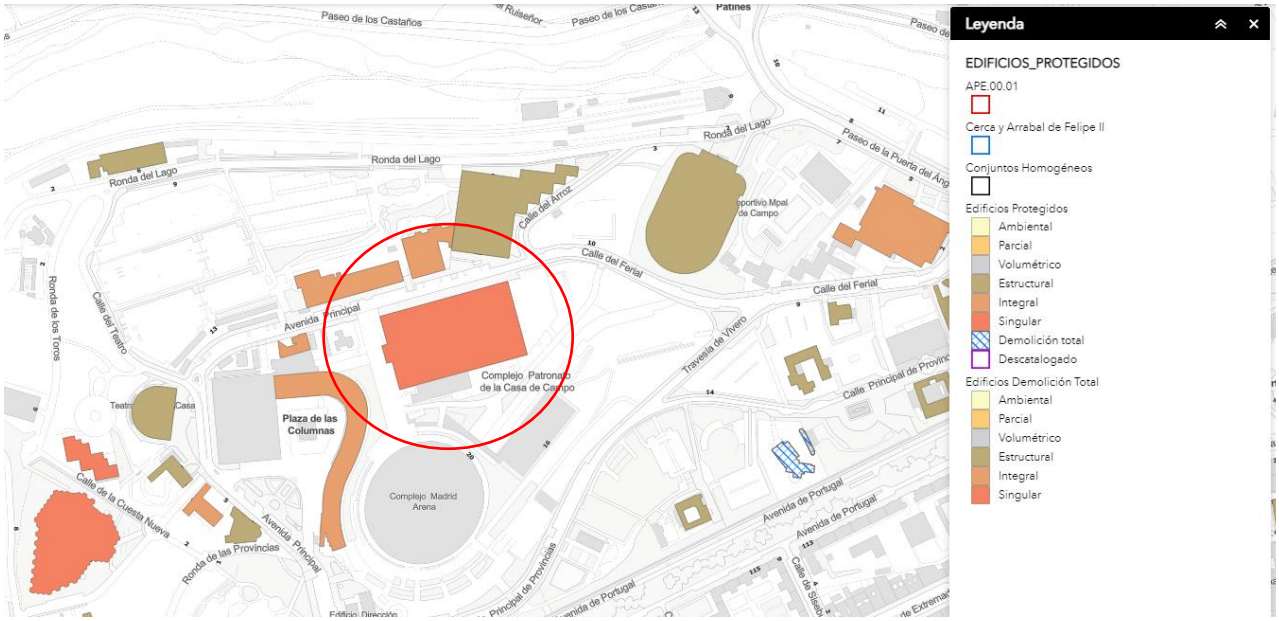


Figura 4. Edificios protegidos

A nivel urbanístico, tras realizar la consulta de documentación correspondiente se comprueba que el edificio tiene la catalogación de edificio singular, no obstante, las actuaciones previstas a llevar a cabo objeto de este proyecto no modifican la imagen exterior del edificio ni alteran su relación con el entorno . Así mismo, al no alterar en ninguna medida el contorno construido, la intervención en el edificio no conllevará un aumento de superficies.

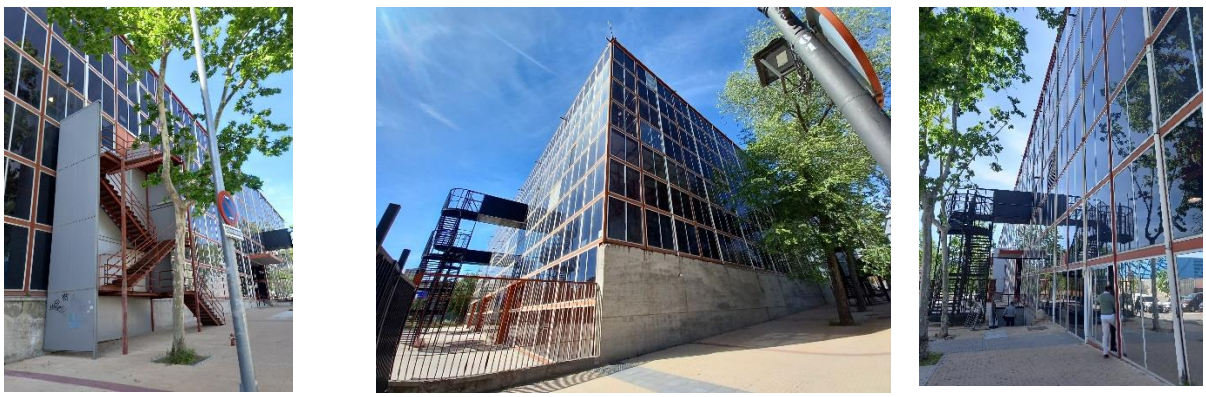


Figura 5. Urbanización de parcela

1.3.3. Tipo de obra

Nueva construcción	NO	Ampliación	NO	Adecuación estructuras	NO
Cambio de uso característico	NO	Modificación	NO	Adecuación funcional	SI
Sencillez técnica en planta única	NO	Reforma	SI	Remodelación (uso residencial)	NO
		Edificio protegido	SI	Rehabilitación integral	NO

¿El grado de intervención, incluye intervenciones en la estructura existente de la edificación? (Art. 17.1.a LOE)	NO

La clasificación de los edificios y sus zonas se realiza atendiendo a lo dispuesto en el artículo 2 de la LOE, si bien, en determinados casos, en los Documentos Básicos del CTE se podrán clasificar los edificios y sus dependencias de acuerdo con las características específicas de la actividad a la que vayan a dedicarse, con el fin de adecuar las exigencias básicas a los posibles riesgos asociados a dichas actividades. Cuando la actividad particular de un edificio o zona no se encuentre entre las clasificaciones previstas se adoptará, por analogía, una de las establecidas, o bien se realizará un estudio específico del riesgo asociado a esta actividad particular basándose en los factores y criterios de evaluación de riesgo siguientes:

- Las actividades previstas que los usuarios realicen;
- Las características de los usuarios;
- El número de personas que habitualmente los ocupan, visitan, usan o trabajan en ellos;
- La vulnerabilidad o la necesidad de una especial protección por motivos de edad, como niños o ancianos, por una discapacidad física, sensorial o psíquica u otras que puedan afectar su capacidad de tomar decisiones, salir del edificio sin ayuda de otros o tolerar situaciones adversas;
- La familiaridad con el edificio y sus medios de evacuación;
- El tiempo y período de uso habitual;
- Las características de los contenidos previstos;
- El riesgo admisible en situaciones extraordinarias; y
- El nivel de protección del edificio.

El proyecto describe y define las actuaciones con el detalle suficiente para que puedan valorarse e interpretarse inequívocamente y así obtener la correspondiente licencia para la ejecución de las obras. En base a las conclusiones del informe de Estudios Previos, se plantean una serie de trabajos en base a las Medidas de Ahorro Energético (MAEs) que se describen en el apartado siguiente.

En base a estas actuaciones, los trabajos necesarios para la consecución de estos objetivos conllevan tanto, el desmontaje y sustitución de elementos constructivos, como el desmontaje de las instalaciones actuales y

la realización de una nueva instalación adecuada a las necesidades y posibilidades tecnológicas actuales según se desarrolla a continuación en la memoria y en el resto de documentos del proyecto.

1.4. OBJETIVOS DEL C11.I4 DEL PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA

El PRTR tiene como objetivo promover el ahorro y la eficiencia energética y fomentar la utilización de energías de origen renovable en los edificios e infraestructuras, así como impulsar la movilidad sostenible.

Los proyectos deberán conseguir un ahorro mínimo de energía primaria del 30% mediante la realización de medidas de mejora de la eficiencia energética y la utilización de energías renovables. La verificación del ahorro de energía primaria y de la reducción de emisiones de CO_2 se realizará tanto ex ante como ex post, según los casos. Cuando se trate de edificios se comparará el certificado de eficiencia energética del edificio antes y después de la actuación, ya que es a través del cual se cuantifican los resultados energéticos obtenidos. Estos certificados están regulados por el Real Decreto 235/2013, de 5 de abril, y deben estar registrados en el órgano competente de la comunidad autónoma que también realiza su inspección y control, y serán emitidos por técnicos competentes.

Por tanto, para cada uno de los inmuebles o actuaciones, se deberá acreditar el cumplimiento del objetivo mediante las siguientes pruebas y elementos documentales:

- referencias oficiales de los certificados de eficiencia energética individuales antes y después de la renovación energética.
- superficie renovada energéticamente en m².
- el consumo de energía primaria en los certificados de eficiencia energética antes y después de la acción de renovación, el ahorro energético logrado.
- la reducción media ponderada del consumo de energía primaria no renovable (utilizando como ponderaciones los m² de renovación, kWh/m²).

Medidas de mejora de la eficiencia energética y la utilización de energías renovables.

En el caso de este edificio, se han planteado las siguientes medidas de mejora. Estas han sido presentadas previamente en el Informe Previo y se han propuesto en base al alcance del contrato y las necesidades detectadas en las diferentes visitas del edificio para dar una respuesta global a la mejora de la eficiencia energética del mismo. Las medidas consideradas, por tanto, son las siguientes:

1. MAE 1. Mejora de la envolvente térmica del edificio:

Esta medida de mejora estudia la sustitución de las carpinterías existentes por unas carpinterías de aluminio anodizado de alta calidad, con rotura de puente térmico, y un acristalamiento laminar estratificado, con cámara de control térmico, control solar y lámina de vidrio de seguridad. Se ha calculado la transmitancia térmica del marco y del vidrio en función de la descripción en la memoria y en planimetría:

- Vidrio doble bajo emisivo 4.4 + 16 (argón 90%)+ 4.4 con una transmitancia calculada de 1W/m^{2}K y un factor solar de 0,50

- Carpintería de aluminio anodizado de alta calidad, con rotura de puente térmico. Se valora una transmitancia de 4 W/m^{2}K.
- Permeabilidad total del hueco clase 3.

2. MAE 2. Mejora del sistema de climatización:

Esta medida de mejora estudia la renovación de los sistemas de climatización ubicados en el interior del pabellón. Con anterioridad se ha realizado la sustitución de los equipos de generación de agua caliente y agua fría para climatización. En esta medida se contempla la renovación de los sistemas de tratamiento de aire en la planta alta del edificio.

- Unidades de tratamiento de aire en planta alta con una eficiencia de recuperación de calor del 75% y capacidad free-cooling

3. CONJUNTO DE MEDIDAS DE AHORRO ENERGÉTICO (MAEs).

Esta medida de mejora estudia la implementación conjunta de las medidas de mejora propuestas, definidas anteriormente

Tipo de Mejora	Descripción de la actuación	Cto. CTE	Consumo EPNR (kWh/m^{2}año)	Calificación EPNR	Emisiones de CO_2 (kgCO_2/m^{2}año)	Calificación Emisiones	% Reducción EPNR
ESTADO ACTUAL	Evaluación actual del edificio.	-	180,54	E	42,14	E	-
CONJUNTO	MAE 1 + MAE 2	Sí	123,77	C	26,89	D	31,44

Como se puede apreciar, no se consigue satisfacer el objetivo únicamente con medidas de mejora de envolvente. La mejora de la calificación energética se consigue mediante la renovación conjunta de la envolvente térmica y los sistemas de climatización y ventilación.

El presente proyecto define las actuaciones necesarias a llevar a cabo para la renovación de los equipos de climatización y ventilación según la MAE 2 ya que las medidas previstas en la MAE 1 se redactan y definen en un proyecto paralelo.

1.5. DESCRIPCIÓN GENERAL Y DEL ESTADO ACTUAL

Descripción del edificio

El Pabellón de Cristal de la Casa de Campo de Madrid se proyecta para el uso ferial en el año 1964 por los arquitectos Francisco de Asís Cabrero, Jaime Ruiz y Luis Labiano y los ingenieros Rafael Heredia y Anselmo Moreno como parte de las edificaciones de la Feria del Campo, y construyéndose entre los años 1964-1965 en un plazo récord de 8 meses.

Los trabajos de construcción fueron ejecutados por la empresa Constructora Asturiana.

Ha mantenido su actividad ferial hasta la actualidad, perteneciendo a diferentes propiedades en el transcurso de los años, entre las que cabe mencionar el Patronato de la Feria del Campo, IFEMA y la empresa municipal

Campo de las Naciones, que manteniendo en esencia el espíritu inicial del edificio no han invertido los recursos necesarios para la conservación de un edificio sometido a un uso tan riguroso como el que nos ocupa.

La unión de los limitados recursos materiales del momento de construcción, junto con un comprometido plazo de ejecución hacen que, junto a la indiscutible calidad arquitectónica del edificio, y sus grandes aciertos de organización interna, haya detalles que se terminaran sin la calidad de ejecución suficiente, o incluso sin el mismo acierto espacial, debiendo comprometer algunas soluciones en los últimos días de ejecución de las obras.

Todos estos factores, junto con la escasez de dinero para el mantenimiento del edificio, hacen que tengamos un edificio relativamente bien conservado en cuanto a que no se han perdido las huellas del origen, pero al mismo tiempo, con grandes problemas en su estado físico que limitan en cierta manera el confort en el uso.

Si bien su superficie es diáfana en su mayoría, pues los contenidos interiores son variables con cada evento, al edificio corresponden las garantías de estanqueidad, acondicionamiento térmico, suministros básicos para la actividad interior y aquellos servicios mínimos para el desarrollo de las ferias, que, a fecha de hoy, se encuentran comprometidos.

Junto a estos, existen problemas de adecuación a las normativas vigentes, que en el momento de rehabilitación integral se deberán analizar y solucionar, siempre con el compromiso de conservación de las características espaciales y constructivas del edificio, que se encuentra catalogado por su especial valor arquitectónico, y en el cual las actuaciones deberán quedar consensuadas con la Comisión Institucional para la Protección del Patrimonio Histórico Artístico y Natural (CIPHAN).

Los trabajos de rehabilitación completa del Pabellón de Cristal se inician el año 2005 en el que se realizan las siguientes actuaciones:

Desmontaje de elementos añadidos en varias plantas

Renovación de los núcleos de aseos y vestuarios en planta alta, entreplanta y baja Revestimiento de paramentos en vestíbulo de acceso

Renovación de carpinterías y vidriería en vestíbulo de acceso

Sustitución de cafetería por vestuarios de personal en planta baja

Renovación del solado en planta alta

Durante el periodo estival del año 2006 se ha procedido a la sustitución de la cubierta del edificio de exposiciones que databa del año 1965 por una nueva cubierta realizada con bandejas continuas de aluminio prepatinado, material original de la cubierta del edificio.

En los años 2007 y 2008 se realizan obras consistentes en la construcción de un edificio industrial bajo rasante en el que se centralizan las salas de calderas, enfriadoras, grupo electrógeno, grupo de presión de incendios,

aljibe de incendios, centro de transformación y cuadro general de baja tensión, conectando con el edificio existente mediante una galería de módulos prefabricados enterrada.

Se demuele el salón de actos y el pasillo lateral del mismo, dejando libre de usos distintos del ferial la entreplanta del edificio, y se realiza la fontanería y electricidad en el interior de los pilares de hormigón, a los que se genera un nuevo acceso de registro mediante el adosamiento de un cajón metálico que permite el registro de las instalaciones y conexiones eléctricas en el interior de los pilares.

Se realiza un suelo radiante en planta baja, y el solado de toda la planta con una solera de hormigón pulido.

En la entreplanta se realiza también un nuevo solado de hormigón pulido y se dejan metidas alimentaciones eléctricas a los casetones de hormigón de planta baja en previsión para el alumbrado futuro.

Se han desarrollado trabajos de rehabilitación durante los años 2006 y 2007-2008. El año 2006 se procedió a la sustitución completa de la cubierta del edificio, y montaje de una nueva con una solución de menor peso y mayor aislamiento térmico, habiendo sido instalados unos ventiladores en la cumbrera del edificio para la ventilación de la planta alta.

En el año 2013, se redacta el proyecto de rehabilitación completa del pabellón de cristal, realizándose las obras de manera parcial. Asimismo, se realiza el proyecto de instalación eléctrica y protección contra incendios, dentro del cual se realizan los exutorios de fachada.

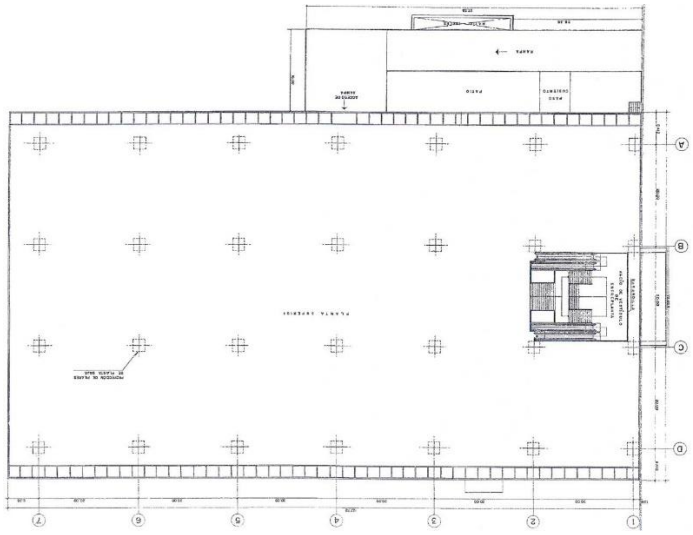


Figura 6. Planta alta. Proyecto construido 1965

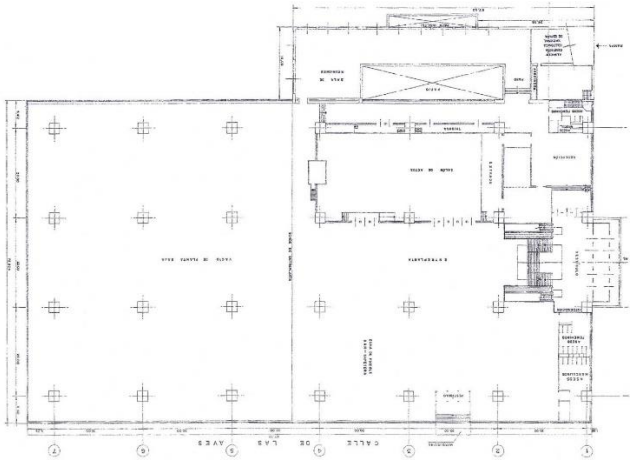


Figura 7. Entreplanta. Proyecto construido 1965

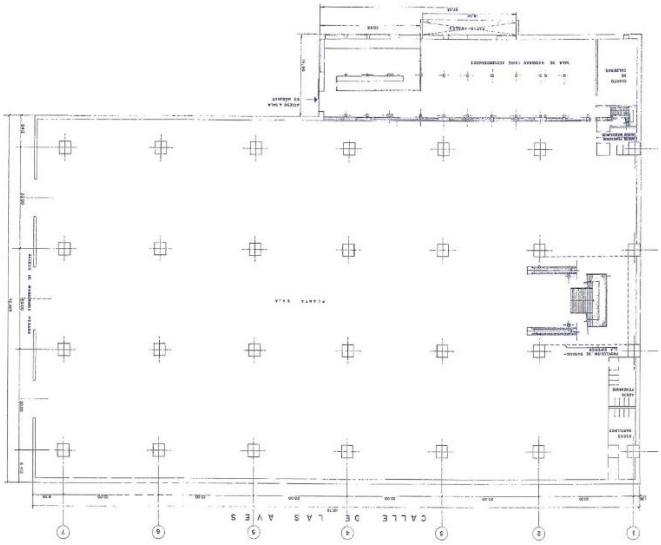


Figura 8. Planta baja. Proyecto construido 1965

Reseña crítica

(La Arquitectura de Francisco Cabrero, Alberto Grijalba Bengoetxea y Francisco Cabrero, arquitecto, Javier Climent Ortiz)

Edificio proyectado en 1964 en colaboración con los arquitectos Jaime Ruiz y Luis Labiano y los ingenieros Anselmo Moreno y Rafael de Heredia.

Una característica preocupante de este edificio fue la urgencia de su construcción. Disponiendo de pocos meses, se decidió la estructura metálica. Ello dio lugar, por de pronto, a las grandes luces de la planta alta que exigía el programa. A ella accedía la tracción rodada de gran peso, por una rampa lateral. Toda esta

amplia y ligera jaula de hierro, contrastaba con una base de hormigón de gruesos elementos apilastrados, murales y solares, que formaban unidad semienterrada.

En el Pabellón de Cristal, Cabrero reduce el programa, en contra de los complejos ajustes a los que nos tiene acostumbrados en proyectos anteriores, a una sola imagen: un espacio diáfano cubierto y representativo. Así, en el pabellón, todo está enteramente diseñado y ajustado para poder conseguir la diafanidad de su sala superior; desde su estructura multibarrada de cubierta y de pilares hasta su planta baja porticada; desde el inmaterial cristal de su fachada hasta su uniforme reticulado de fachada.

Cabrero confía el éxito de su proyecto, no en dar soluciones a todos los condicionantes de un edificio, sino a la construcción de un único espacio, una única imagen, que sea capaz de relacionarse por la inmaterialidad de su cierre tanto con el interior como con el exterior.

El Pabellón de Cristal nos presenta una imagen homogénea en todos sus alzados, compuestos por un reticulado de acero y cristal, pero en puridad tal isotropía constructiva y estructural no es cierta.

En primer lugar, la estructura de la cubierta está formada por unas vigas en celosía unidireccionales, teniendo como luz el lado más corto de las dimensiones del rectángulo que limita su planta. Estas vigas se apoyan en unos pilares perimetrales, también en celosía, de modo que su ritmo es el que se manifiesta al exterior. Sin embargo, en los testeros, que podían estar tramados de un modo libre – pues no contienen estructura portante alguna-, Cabrero reproduce el mismo reticulado que en los alzados laterales, de modo que se nos presenta el edificio como si todo él fuera una estructura espacial reticulada, mientras que, en realidad, es un edificio porticado unidireccional.

El Pabellón exhibe una fachada continua en las dos plantas que lo componen, y sin embargo, el sistema estructural de las dos es totalmente diferente. Si el techo de la planta primera, como ya hemos visto, esta soportado por unos pilares en celosía perimetrales, el techo de planta baja está sustentado por veinticuatro pilares de hormigón armado. De este modo, la supuesta imagen homogénea estructural del edificio se rompe, la retícula acristalada de la planta baja es simulada exactamente igual que la de los testeros de planta primera.

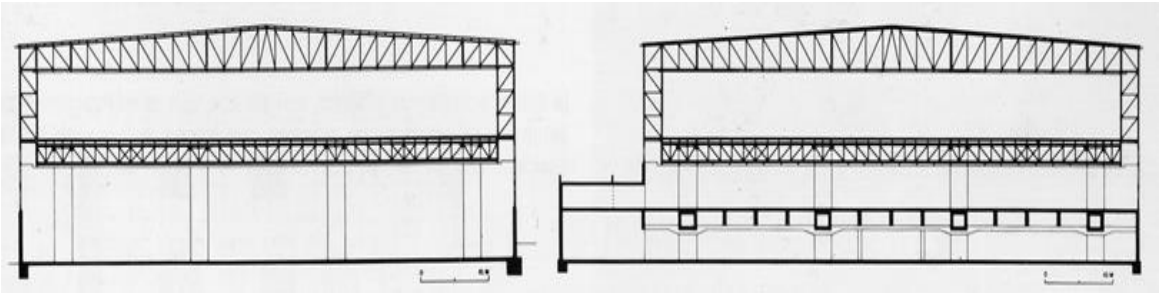


Figura 9. Secciones Transversales

La recurrente frase “less is more” con la que Mies explica su concepción de la arquitectura –que no debe entenderse como el despojar de los edificios de todo lo que se considera superfluo, sino como la reducción e insistencia en torno a un número limitado de problemas- podría aplicarse al Pabellón de Cristal de la Casa de Campo. La reducción elementarista, tanto de objetivos como de medios es una realidad en esta obra de Cabrero.

Constructiva y estructuralmente, Cabrero limita al máximo el número de elementos que componen su pabellón, en aras de una perfecta definición del mismo. Esta simplificación podría tener dos explicaciones independientes, pero a la vez complementarias: el corto tiempo con el que se había de construir la obra, ocho meses, y el deseo de un máximo control formal y constructivo de la obra. Así, Cabrero, mediante una estricta retícula cuadrada, tanto estructural como compositiva, reduce al mínimo el número de partes constituyentes del edificio, de modo que puede ejercer un control total la construcción, mejor si es sencilla, casi inmediata”. De este modo, Cabrero construye el pabellón como pretendiendo decirnos que cuanto más reducido es el número de elementos, menor es la desviación del proyecto.

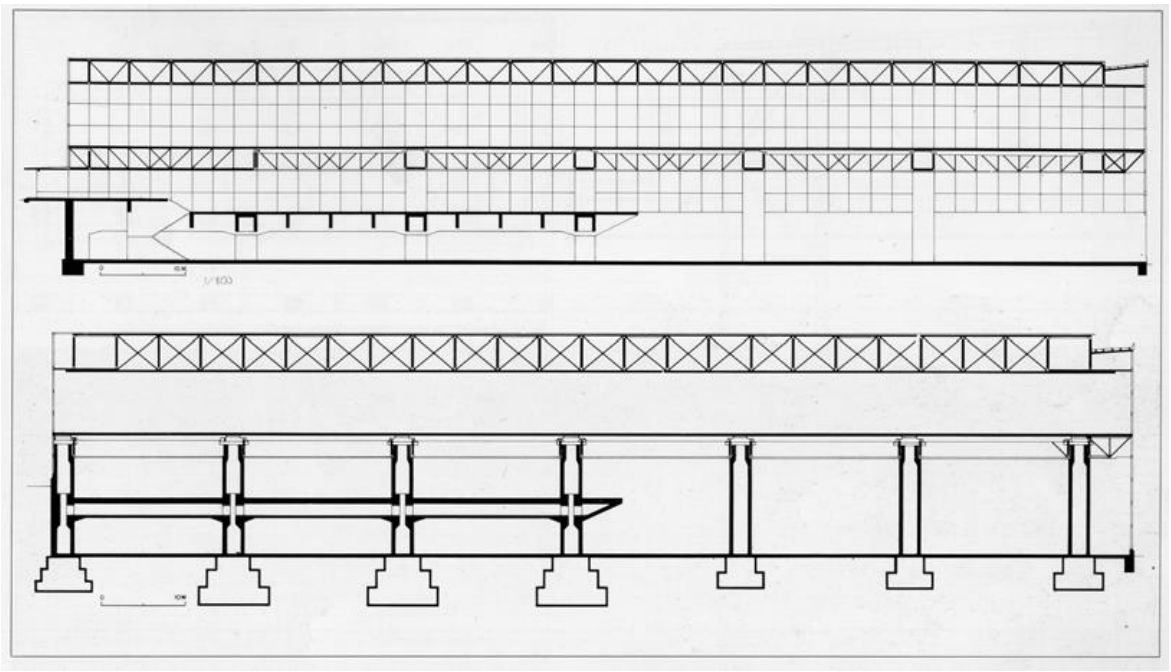


Figura 10. Secciones longitudinales

Cabrero, en su condición de constructor frío y meticuloso, sabe que el proceso de construcción de una obra está rodeado de una serie de condicionantes técnicos y programáticos -por parte de la empresa y de la propiedad- que se interponen entre la idea matriz del proyecto y la realidad construida. Así, el arquitecto, al reducir de un modo riguroso la cuantía de elementos constructivos y el programa de usos, consigue una identificación plena entre el proceso intelectual del proyecto y la presencia física del Pabellón de Cristal, sin intermediario alguno que pueda interferir, de ningún modo substancial, en el proceso de ejecución.

Cabrero desdobla la realidad de un edificio en dos. Una porticada que resuelve las necesidades programáticas del edificio y otra diáfana, que se convierte en el espacio representativo del proyecto. A dos sistemas estructurales diferentes les hace corresponder dos usos diferentes. Este desdoblamiento identifica su propuesta, mientras que el diferente tratamiento de la relación de las dos realidades del edificio los distancia, como demuestra la presencia nocturna del pabellón.

Cabrero identifica los dos espacios bajo un volumen común para reafirmar la reducción semántica de su proyecto: un espacio diáfano cerrado por cristal. De este modo, la sala representativa asimila volumétricamente su zócalo, implementando así su presencia.

El pabellón presenta una imagen homogénea en todos sus alzados, compuestos por un reticulado de acero y cristal. Desde el año 2005 se han realizado varias intervenciones dentro de un plan de rehabilitación integral del edificio, con el fin último de recuperar el aspecto edificio original. En estas rehabilitaciones se ha sustituido la cubierta de planta alta y se ha ejecutado una central térmica anexa para ubicar los sistemas primarios de climatización.



Figura 11. Fachada principal del edificio

El Pabellón de Cristal cuenta con tres plantas y un total de superficie de 24.202 metros cuadrados. La planta alta se resuelve sin pilares intermedios, ofreciendo una superficie diáfana de 72,50 x 127,50 metros. Este espacio que se utiliza como recinto ferial. También existe una zona de aseos para el público.

En la entreplanta hay una zona para eventos feriales, aseos para el público, y otra zona anexa de oficinas, cafetería, cocina y una sala polivalente.

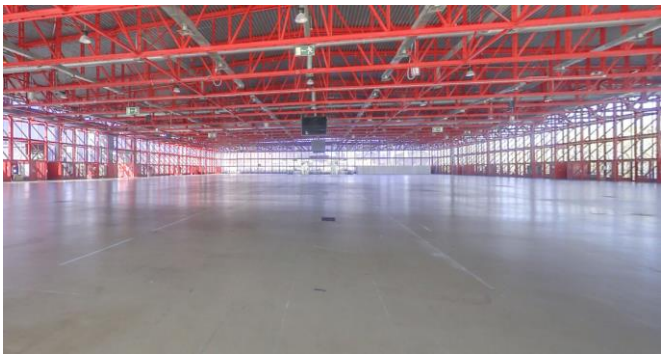
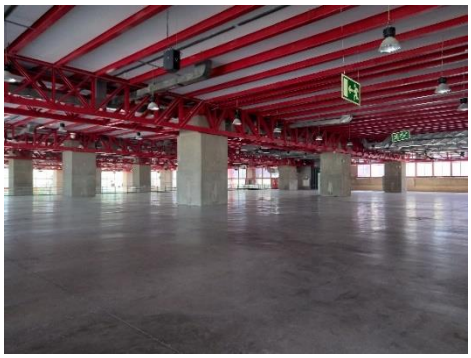



Figura 12. Planta primera y entreplanta

En planta baja existe la zona para eventos feriales, aseos de público y vestuarios para el personal, también están las salas técnicas y almacenes. La entreplanta del edificio no cubre la totalidad de la superficie de planta, por lo que en planta baja se disponen espacios a una y dos alturas.




Figura 13. Planta baja. Parte de la planta baja dispone doble altura

Planimetría estado actual

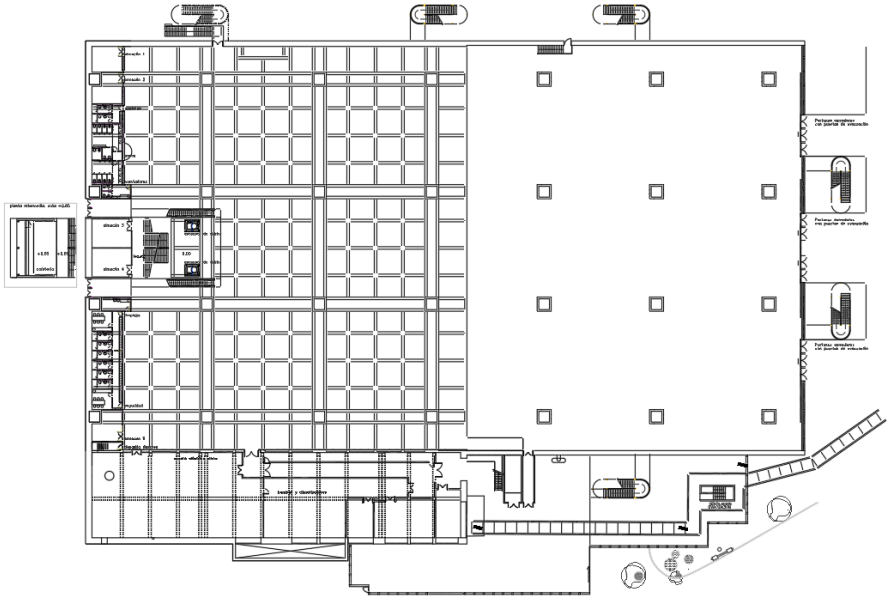


Figura 14. Planta baja.

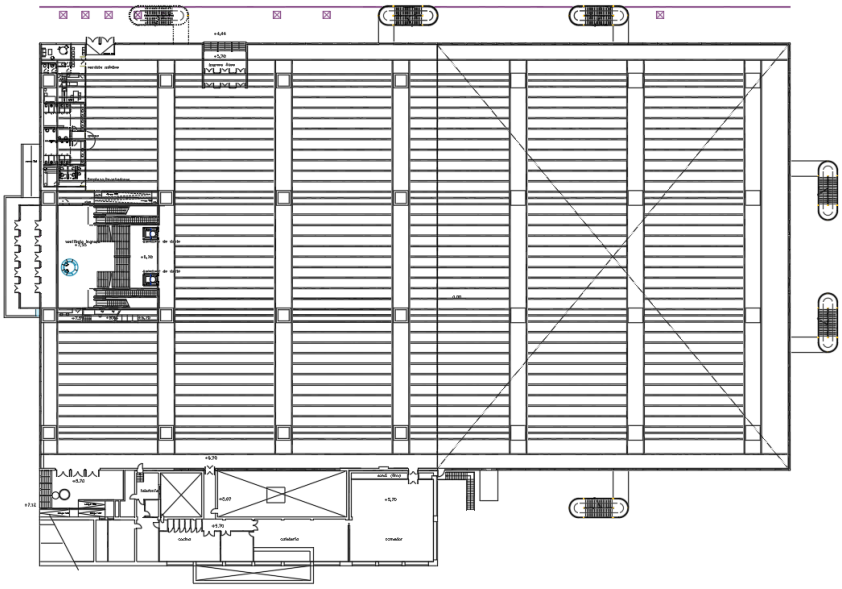


Figura 15. Entreplanta

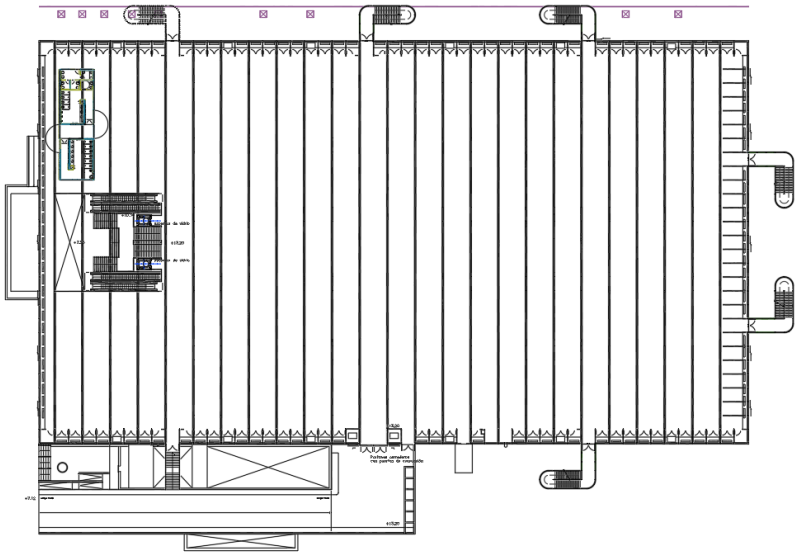


Figura 16. Planta alta

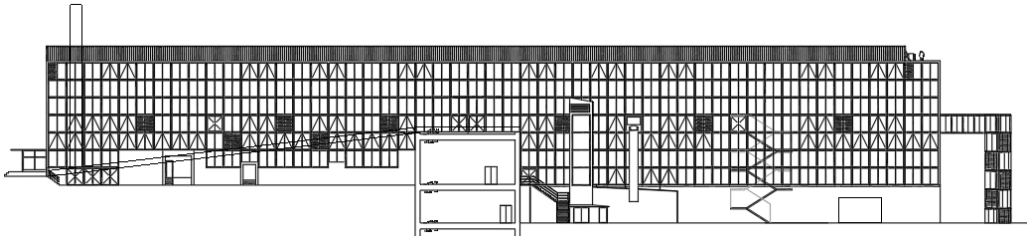


Figura 17. Alzado sur

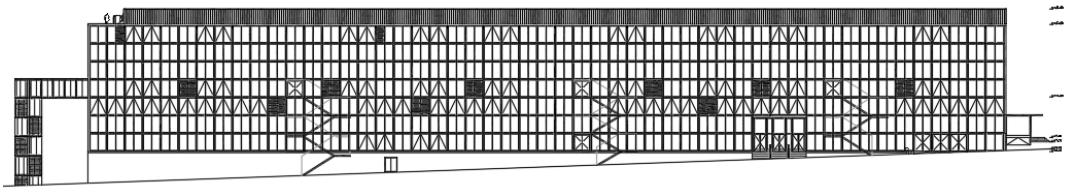


Figura 18. Alzado norte

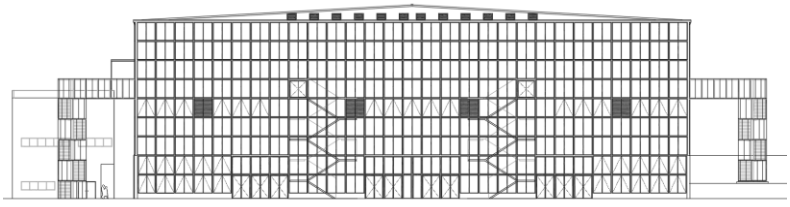


Figura 19. Alzado este

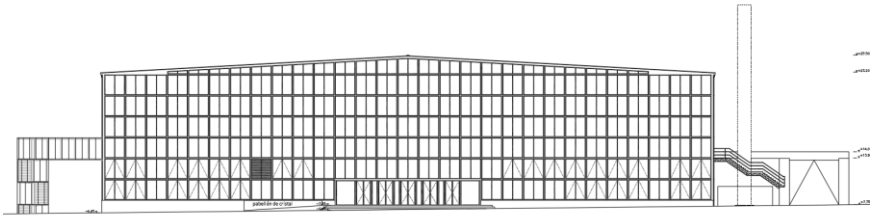


Figura 20. Alzado oeste

Envolvente térmica

- Cerramiento exteriores: Atendiendo al proyecto y a lo observado en las visitas, la fachada es en su totalidad acristalada, tipo muro cortina, con carpinterías metálicas y vidrios laminares. Parte de la fachada de planta baja y la fachada del edificio anexo se compone de muro de hormigón armado. En planta baja, este muro se encuentra parcialmente enterrado.
- Cubierta 1: Cubierta ligera de baja inclinación compuesta por una chapa de aluminio, 18 cm de aislamiento de lana de roca y aluminio anodizado por el exterior.
- Cubierta 2: Cubierta inclinada de hormigón armado para el acceso de vehículos a la planta primera.
- Suelos: El edificio no dispone de forjado sanitario, quedando el forjado de planta baja en contacto con el suelo.

Instalaciones

Para la climatización del Pabellón de Cristal se emplean principalmente equipos de generación de agua caliente y agua fría. Para la generación de agua caliente se produce en dos calderas de gas natural y la generación de agua fría mediante cuatro enfriadoras aire-agua. En algunos espacios se emplean unidades autónomas. El sistema de refrigeración empleado en el edificio genera agua fría para fan coils y climatizadoras. El inmueble cuenta con un sistema de aporte mecánico de aire exterior. En grandes estancias se han detectado equipos de extracción de aire de gran potencia. Se ha observado que en las estancias principales se dispone de luminarias muy eficientes. Actualmente se aprovecha la luz natural para iluminar gran cantidad de los espacios.

Para finalizar, el edificio no contiene ningún aporte de energía renovable (fotovoltaica, biomasa, mini eólica, etc.).

Cuadros de superficies

El presente proyecto no actúa sobre los espacios interiores ni modifica las distribuciones por lo que las superficies del estado actual no se modifican y serán las mismas en el estado actual y reformado.

CUADRO DE SUPERFICIES ÚTILES	
PLANTA BAJA	
Almacén 1	25,12 m²
Almacén 2	26,22 m²
Almacén 3	35,54 m²
Almacén 4	26,03 m²
Ascensor de vidrio	5,50 m²
Ascensor de vidrio	5,50 m²
Aseos	54,57 m²
Azafatas	17,37 m²
Bombas y climatizadores	193,07, m²
Circulación	112,17 m²
Cuadro eléctrico clima	443,87 m²
Depósito fluxores	8,05 m²
Limpieza	11,05 m²
Montadores	11,63 m²
Sala 1	31,97 m²
Sala 2	72,28 m²
Sala 3	31,97 m²
Sala 4	25,18 m²
Sala 5	48,46 m²
Salón PB	8.522,86 m²
Seguridad	89,72 m²
ÚTIL PLANTA BAJA	9.833,70 m²
ENTREPLANTA	
Cafetería	72, 73 m²
Ascensor	5,50 m²
Ascensor	5,50 m²
Aseos	69,99 m²
Cafetería	114,31 m²
Circulación	33,88 m²
Cocina	64,67 m²
Comedor	200,31 m²
Sala 6	28,33 m²
Escaleras	124,42 m²
Limpieza/montadores	23,44 m²
Rampa	22,97 m²
Salón EP	4,157,83 m²
Servicio médico	59,80 m²
Telefonía	121,24 m²

Vestíbulo ingreso	197,87 m²
ÚTIL ENTREPLANTA	5.302,79 m²
PLANTA PRIMERA	
Ascensor	5,50 m²
Ascensor	5,50 m²
Aseos 1	15,64 m²
Aseos 2	92,96 m²
Salón	8.088,91 m²
Escalera	58,49 m²
ÚTIL PLANTA PRIMERA	8.267,00 m²
SUPERFICIE ÚTIL TOTAL	23.403,49 m²

CUADRO DE SUPERFICIES CONSTRUIDAS	
Planta baja	10.541,88 m²
Entreplanta	6.100,99 m²
Planta primera	9.310,18 m²
SUPERFICIE CONSTRUIDA TOTAL	25.953,05 m²

1.6. DESCRIPCIÓN GENERAL DE LAS OBRAS A ACOMETER

El edificio tiene un uso de ocio y hostelería. Con el presente proyecto, no se modifica el uso del edificio ni los espacios existentes dentro del mismo.

Las actuaciones a realizar que se definen en el presente proyecto son:

- Renovación de toda la instalación de climatización y ventilación de la planta primera del edificio.
- Renovación de la instalación eléctrica correspondiente a la instalación de climatización.

1.6.1. Descripción de acceso y evacuación

El acceso principal del edificio se encuentra situado en la fachada oeste. En la fachada sur dispone de un acceso rodado hasta la planta primera. La fachada este también cuenta con accesos secundarios y de evacuación.



Figura 21. Alzado este acceso principal



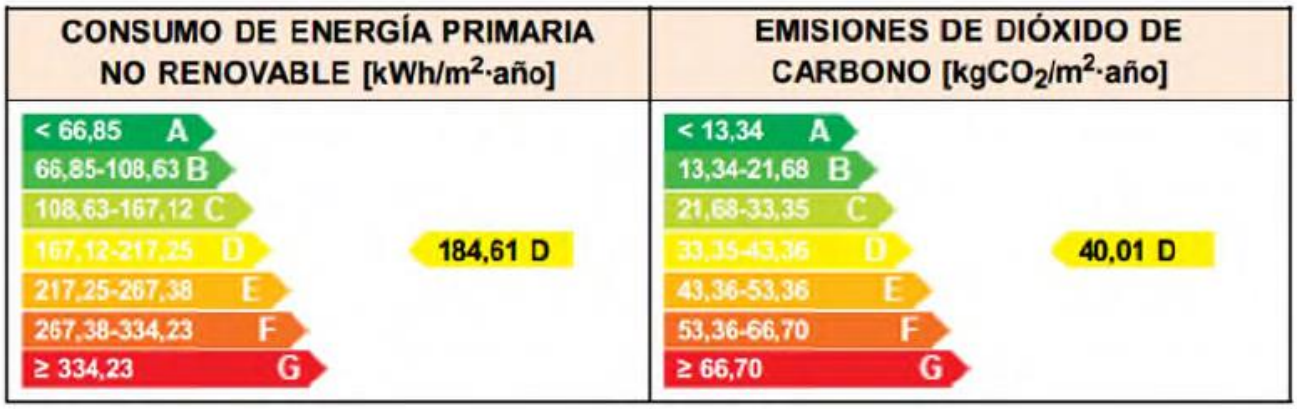
Figura 22. Alzado oeste accesos secundarios y de evacuación

1.6.2. Localización de los servicios urbanos existentes o por establecer

El edificio objeto de este proyecto cuenta con todos los servicios urbanos y acometidas.

1.7. PRESTACIONES DEL INMUEBLE

A continuación, se expondrán aquellos aspectos del estado actual del inmueble relacionados con las exigencias actuales del CTE DB HE para poner en contexto su situación a nivel energético. Se ha realizado un certificado de eficiencia energética, en el cual se ha obtenido la siguiente calificación:



Por otro lado, se han analizado aquellos aspectos de la envolvente que se van a modificar y comparado sus situaciones actuales con las exigencias del CTE. Al encontrarse a unos 600 m sobre el nivel del mar, la zona climática que le corresponde es la D3 y, por tanto, los valores a cumplir de transmitancia en los elementos de la envolvente serían los siguientes:

Tabla 3.1.1.a - HE1 Valores límite de *transmitancia térmica*, U_{lim} [W/m²K]

Elemento	Zona climática de invierno					
	α	A	B	C	D	E
Muros y suelos en contacto con el aire exterior (U_S, U_M)	0,80	0,70	0,56	0,49	0,41	0,37
Cubiertas en contacto con el aire exterior (U_C)	0,55	0,50	0,44	0,40	0,35	0,33
Muros, suelos y cubiertas en contacto con espacios no habitables o con el terreno (U_T) Medianerías o particiones interiores pertenecientes a la *envolvente térmica* (U_{MD})	0,90	0,80	0,75	0,70	0,65	0,59
Huecos (conjunto de marco, vidrio y, en su caso, cajón de persiana) (U_H)*	3,2	2,7	2,3	2,1	1,8	1,80
Puertas con superficie semitransparente igual o inferior al 50%				5,7		

En base a la información recopilada en las diferentes visitas, se ha podido observar que elementos de la envolvente no cumplen con los requisitos actuales del CTE. Esto se puede observar en más detalle en el Certificado de Eficiencia Energética. Las actuaciones necesarias para la rehabilitación de la envolvente no son objeto de este proyecto sino que se definen tal y como se ha dicho anteriormente en uno proyecto paralelo a este.

En cuanto a sus instalaciones, el comportamiento energético del edificio también tiene mucho margen de mejora. Tal y como se describirá en el primer apartado de la memoria constructiva en mayor detalle, las instalaciones se encuentran en un estado de baja eficiencia y, desde la concepción del proyecto, se han ido salvando los problemas que han ido apareciendo, sin terminar de dar una respuesta unificada al conjunto de la misma pensando en la eficiencia del edificio.

Adicionalmente, son requisitos básicos, conforme a la Ley de Ordenación de la Edificación, los relativos a la funcionalidad, seguridad y habitabilidad. Se establecen estos requisitos con el fin de garantizar la seguridad de las personas, el bienestar de la sociedad y la protección del medio ambiente, debiendo los edificios proyectarse, construirse, mantenerse y conservarse de tal forma que se satisfagan estos requisitos básicos.

Requisitos básicos relativos a la funcionalidad

1. Utilización, de tal forma que la disposición y las dimensiones de los espacios y la dotación de las instalaciones faciliten la adecuada realización de las funciones previstas en el edificio.

   No es de aplicación en el presente proyecto.

2. Accesibilidad, de tal forma que se permita a las personas con movilidad y comunicación reducidas el acceso y la circulación por el edificio en los términos previstos en su normativa específica.

   No es de aplicación en el presente proyecto.

3. Acceso a los servicios de telecomunicación, audiovisuales y de información de acuerdo con lo establecido en su normativa específica.

   No es de aplicación en el presente proyecto.

4. Facilitación para el acceso de los servicios postales, mediante la dotación de las instalaciones apropiadas para la entrega de los envíos postales, según lo dispuesto en su normativa específica.

   No es de aplicación en el presente proyecto.

Requisitos básicos relativos a la seguridad:

1. Seguridad estructural (DB-SE), de tal forma que no se produzcan en el edificio, o partes del mismo, daños que tengan su origen o afecten a la cimentación, los soportes, las vigas, los forjados, los muros de carga u otros elementos estructurales, y que comprometan directamente la resistencia mecánica y la estabilidad del edificio.

   No es de aplicación en el presente proyecto.

2. Seguridad en caso de incendio (DB-SI), de tal forma que los ocupantes puedan desalojar el edificio en condiciones seguras, se pueda limitar la extensión del incendio dentro del propio edificio y de los colindantes y se permita la actuación de los equipos de extinción y rescate.

   No es de aplicación en el presente proyecto.

3. Seguridad de utilización (DB-SU), de tal forma que el uso normal del edificio no suponga riesgo de accidente para las personas.

   No es de aplicación en el presente proyecto.

Requisitos básicos relativos a la habitabilidad:

El edificio reúne los requisitos de habitabilidad, salubridad y funcionalidad exigidos para el uso al que se destina.

1. Higiene, salud y protección del medio ambiente (DB-HS), de tal forma que se alcancen condiciones aceptables de salubridad y estanqueidad en el ambiente interior del edificio y que éste no deteriore el medio ambiente en su entorno inmediato, garantizando una adecuada gestión de toda clase de residuos.

   Es de aplicación en el presente proyecto al renovarse los sistemas de ventilación de la planta alta del edificio. Se reflejará con mayor profundidad en el apartado 3.1 Salubridad de la presente memoria de proyecto y en el anexo de cálculo de las instala

2. Protección contra el ruido (DB-HR), de tal forma que el ruido percibido no ponga en peligro la salud de las personas y les permita realizar satisfactoriamente sus actividades.

   No es de aplicación en el presente proyecto

3. Ahorro de energía y aislamiento térmico (DB-HE), de tal forma que se consiga un uso racional de la energía necesaria para la adecuada utilización del edificio.

   Como se indicaba en el apartado "Cumplimiento del Programa de necesidades", las actuaciones previstas en el Proyecto van encaminadas al ahorro energético bajo las siguientes premisas:

   I. Actuaciones que alcancen la mejor calificación energética, A o B, medida en la escala de emisiones de dióxido de carbono, de forma que el edificio obtenga la consideración de edificio de consumo de energía casi nulo y justifiquen una reducción mínima del 30% del consumo de energía primaria.

   La calificación energética se realizará y acreditará de acuerdo con el Real Decreto 390/2021, de 1 de junio, por el que se aprueba el procedimiento básico para la certificación de la eficiencia energética de los edificios, mediante la utilización de alguno de los programas informáticos o procedimientos reconocidos.

   II. Actuaciones que mejoren al menos una letra la calificación energética del edificio y que justifiquen una reducción mínima del 30% del consumo de energía primaria en los sistemas afectados por la actuación, cumpliendo con una o varias de las exigencias básicas de ahorro de energía para edificios existentes del Documento Básico DB-HE de Ahorro de Energía del Código Técnico de la Edificación, según corresponda con la actuación a realizar, incluidas las instalaciones de almacenamiento detrás del contador asociadas a instalaciones de autoconsumo eléctrico.

En el análisis previo al proyecto se estudió y determinó la composición de los elementos que conforman el edificio y como influyen en el consumo energético del edificio. Con el fin de disminuir dicho consumo se han determinado las medidas de ahorro energético que se exponen a continuación:

- Actuación sobre la envolvente de los edificios de manera que se minimicen las perdidas energéticas a través de ella para ello se procederá a:
    - Renovación de la envolvente del edificio. Esta actuación es objeto de un proyecto paralelo a este.
- Actuación sobre las instalaciones de los edificios de manera que se minimicen las perdidas energéticas para ello se procederá a:
    - Ejecución de nuevo sistema de climatización y ventilación de la planta alta mediante instalación de unidades de tratamiento de aire

Con estas actuaciones se consigue alcanzar el objetivo marcado de mejorar una letra y reducir al menos un 30% el consumo de energía primaria.

1.7.1. Limitaciones de uso

Limitaciones de uso del edificio en su conjunto

- El edificio sólo podrá destinarse a los usos previstos en el proyecto primitivo del mismo.
- La dedicación de alguna de sus dependencias a un uso distinto del proyectado requerirá de un proyecto de reforma y cambio de uso que será objeto la autorización administrativa correspondiente.
- Este cambio de uso será posible siempre y cuando el nuevo destino no altere las condiciones del resto del edificio ni menoscabe las prestaciones iniciales del mismo en cuanto a estructura, instalaciones, etc.

Limitaciones de uso de las dependencias

- Aquellas que incumplan las precauciones, prescripciones y prohibiciones de uso referidas a las dependencias del inmueble, contenidas en el Manual de Uso y Mantenimiento del edificio.

Limitaciones de uso de las instalaciones

- Aquellas que incumplan las precauciones, prescripciones y prohibiciones de uso de sus instalaciones, contenidas en el Manual de Uso y Mantenimiento del edificio.

1.7.2. Prestaciones que superan los umbrales establecidos en el CTE

No se han incluido en el presente proyecto prestaciones que superen los umbrales establecidos en el código técnico de la edificación, en relación a los requisitos básicos de funcionalidad, seguridad y habitabilidad.

2. MEMORIA CONSTRUCTIVA

2.1. DESCRIPCIÓN DETALLADA DE LA SOLUCIÓN PROPUESTA

2.1.1. Demoliciones y desmontajes.

En primer lugar, se procederá al desmontaje de las canalizaciones de la instalación de climatización y ventilación existente en la planta alta, las canalizaciones de alimentación de agua del sistema serán desmontadas hasta su encuentro con las canalizaciones generales que conducen hasta las calderas y enfriadoras, estos últimos elementos no son objeto de modificación en el presente proyecto. También se desmontarán todos los elementos existentes en la planta alta (Fan coil, extractores, Split, etc…)

Se levantará la instalación eléctrica que alimenta los actuales equipos interiores y sus cuadros eléctricos.

2.1.2. Instalación de climatización/ventilación

Se realizará la instalación de climatización y ventilación de acuerdo con las indicaciones y cálculos contenidos en el presente proyecto. Se instalarán nuevos conductos que distribuirán el aire climatizado desde los elementos productores hasta los puntos de uso. Se instalarán nuevas unidades de tratamiento de aire (UTA) que serán las encargadas de la climatización efectiva de las estancias interiores.

Con la nueva instalación no se contempla la sustitución de las calderas de gasoil ni las enfriadoras existente.

2.1.3. Justificación de la solución adoptada

Descripción de las características técnicas y energéticas de los elementos o sistemas a utilizar en base a la localización geográfica.

Tal y como se ha expuesto anteriormente, los valores límite de transmitancia del CTE DB HE debido a la zona climática son los siguientes:

Tabla 3.1.1.a - HE1 Valores límite de *transmitancia térmica*, U_{lim} [W/m²K]

Elemento	Zona climática de invierno					
	α	A	B	C	D	E
Muros y suelos en contacto con el aire exterior (U_S, U_M)	0,80	0,70	0,56	0,49	0,41	0,37
Cubiertas en contacto con el aire exterior (U_C)	0,55	0,50	0,44	0,40	0,35	0,33
Muros, suelos y cubiertas en contacto con espacios no habitables o con el terreno (U_T) Medianerías o particiones interiores pertenecientes a la *envolvente térmica* (U_{MD})	0,90	0,80	0,75	0,70	0,65	0,59
Huecos (conjunto de marco, vidrio y, en su caso, cajón de persiana) (U_H)*	3,2	2,7	2,3	2,1	1,8	1,80
Puertas con superficie semitransparente igual o inferior al 50%				5,7		

En base a estos requerimientos, las soluciones planteadas en proyecto incluyendo las actuaciones a realizar en las fachadas y que son objeto de otro proyecto independiente del presente, cumplen con estos valores según se justifica en la memoria en el apartado de cumplimiento del CTE DB HE de los anejos.

Contribución de la actuación a los Hitos y Objetivos CID (Council Implementing Decision)

Tras realizar el CEE del Estado Reformado del Edificio, se ha obtenido la siguiente calificación energética:

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m^2·año]	EMISIONES DE DIÓXIDO DE CARBONO [kgCO_2/m^2·año]
< 50,90 A 50,90-82,71 B 82,71-127,24 C 127,24-165,41 D 165,41-203,58 E 203,58-254,48 F ≥ 254,48 G 115,43 C	< 10,42 A 10,42-16,93 B 16,93-26,05 C 26,05-33,86 D 33,86-41,67 E 41,67-52,09 F ≥ 52,09 G 24,93 C

2.1.4. Planificación de la actuación

El plazo de ejecución previsto para las obras es de **SEIS (6) meses**. Se adjunta en el anejo II de esta memoria el programa de trabajos a ejecutar.

2.1.5. Criterios de intervención

Criterios sobre la intervención de adecuación, conservación y restauración

En este caso, al tratarse de un proyecto cuyo objetivo principal es la mejora del mismo en términos de consumo de energía primaria no renovable y de emisiones de CO_2.

Las soluciones se van a plantear con los siguientes criterios principales, tal y como se puede observar en los apartados posteriores:

MEDIDAS ACTIVAS:

- Se eliminan todas las unidades de climatización existentes en la planta alta del edificio manteniendo las calderas y enfriadoras ya instaladas.
- Se aprovechan las canalizaciones generales que transportan el agua climatizada desde las enfriadoras y calderas a través de la galería de instalaciones existente que conecta el pabellón con las salas de instalaciones.
- Se diseña una solución que renueva la instalación interior de climatización/ventilación de la planta alta y a su vez con un sistema BMS permite el máximo control y automatización de esta.

En base a estos criterios, se realizan las propuestas descritas y desarrolladas en profundidad en los siguientes documentos del proyecto.

3. CUMPLIMIENTO DE LA NORMATIVA VIGENTE

3.1. CUMPLIMIENTO DEL CTE

El Código Técnico de la Edificación es la normativa más general en el ámbito de la edificación y abarca diferentes aspectos de los proyectos, pero en algunas cuestiones se aplica tanto el Código Técnico como otra normativa de carácter estatal, autonómico o local que completa las exigencias del Código Técnico. Se justificará el cumplimiento de toda la normativa que afecte al proyecto en concreto.

Si se entendiera que el proyecto no entra dentro del ámbito de aplicación de alguno de los Documentos Básicos del Código Técnico o de otra normativa también se justificará este extremo. Si el proyecto entrara dentro del ámbito de aplicación de una normativa, pero concurriera alguna circunstancia que no hiciera posible el cumplimiento de sus exigencias se justificará este extremo y las medidas alternativas que, en su caso, se hubieran adoptado.

La justificación de cumplimiento de parte de la normativa puede remitirse a la memoria constructiva de la estructura o a la memoria de alguna instalación si estuviera relacionado con la misma. En cualquier caso, el apartado de "Cumplimiento de la normativa" incluirá una página donde se especifique en qué lugar de la memoria se ha justificado la normativa que no se encuentra directamente justificada en ese apartado.

3.1.1. Seguridad estructural (DB-SE)

Las actuaciones que contempla el presente proyecto no suponen ningún tipo de actuación sobre la estructura existente ni sobre las cargas que actúan sobre ella ya que únicamente se actúa sobre sistemas de climatización y ventilación. **No procede la aplicación del Documento Básico DB-SE.**

3.1.2. Seguridad en caso de incendio (DB-SI)

Sección SI-1: Propagación interior

Compartimentación en sectores de incendio

No es de aplicación en el presente proyecto.

Espacios ocultos. Paso de instalaciones a través de elementos de compartimentación de incendios

La compartimentación contra incendios de los espacios ocupables tiene continuidad en los espacios ocultos, tales como patinillos, cámaras, falsos techos, suelos elevados, etc., salvo cuando éstos se compartimentan respecto de los primeros al menos con la misma resistencia al fuego, pudiendo reducirse ésta a la mitad en los registros para mantenimiento.

Se limita a tres plantas y una altura de 10 m el desarrollo vertical de las cámaras no estancas en las que existan elementos cuya clase de reacción al fuego no sea B-s3-d2, BL-s3-d2 o mejor.

La resistencia al fuego requerida en los elementos de compartimentación de incendio se mantiene en los puntos en los que dichos elementos son atravesados por elementos de las instalaciones, tales como cables,

tuberías, conducciones, conductos de ventilación, etc., excluidas las penetraciones cuya sección de paso no exceda de 50 cm².

Para ello, se optará por una de las siguientes alternativas:

- Mediante elementos que, en caso de incendio, obturen automáticamente la sección de paso y garanticen en dicho punto una resistencia al fuego al menos igual a la del elemento atravesado; por ejemplo, una compuerta cortafuegos automática EI t(i-o) ('t' es el tiempo de resistencia al fuego requerido al elemento de compartimentación atravesado), o un dispositivo intumescente de obturación.
- Mediante elementos pasantes que aporten una resistencia al menos igual a la del elemento atravesado, por ejemplo, conductos de ventilación EI t(i-o) ('t' es el tiempo de resistencia al fuego requerido al elemento de compartimentación atravesado).

Reacción al fuego de elementos constructivos, decorativos y de mobiliario

Los elementos constructivos utilizados cumplen las condiciones de reacción al fuego que se establecen en la tabla 4.1 (CTE DB SI 1 Propagación interior).

Las condiciones de reacción al fuego de los componentes de las instalaciones eléctricas (cables, tubos, bandejas, regletas, armarios, etc.) se regulan en el Reglamento Electrotécnico de Baja Tensión (REBT-2002).

Designación del elemento	Norma	Proyecto
Zonas ocupables	Techos y paredes	
	C-s2, d0	C-s2, d0
	Suelos	
	E_{FL}	E_{FL}

Designación del elemento	Norma	Proyecto
Local de riesgo especial	Techos y paredes	
	B-s1, d0	B-s1, d0
	Suelos	
	B_{FL}-s1	B_{FL}-s1

Designación del elemento	Norma	Proyecto
Espacios ocultos no estancos: patinillos, falsos techos, suelos elevados	Techos y paredes	
	B-s3, d0	B-s3, d0
	Suelos	
	B_{FL}-s2	B_{FL}-s2

Sección SI-2: Propagación exterior

De acuerdo con los criterios generales de aplicación del DB «En las obras de reforma en las que se mantenga el uso, este DB debe aplicarse a los elementos del edificio modificados por la reforma, siempre que ello suponga una mayor adecuación a las condiciones de seguridad establecidas en este DB»

En fachadas, se limita el riesgo de propagación exterior horizontal del incendio mediante el control de la separación mínima entre huecos de fachada pertenecientes a sectores de incendio distintos, entendiendo que dichos huecos suponen áreas de fachada donde no se alcanza una resistencia al fuego mínima EI 60.

La clase de reacción al fuego de los sistemas constructivos de fachada que ocupen más del 10% de su superficie será, en función de la altura total de la fachada:

- D-s3,d0 en fachadas de altura hasta 10 m.
- C-s3,d0 en fachadas de altura hasta 18 m.
- B-s3,d0 en fachadas de altura superior a 18 m.

Dicha clasificación debe considerar la condición de uso final del sistema constructivo incluyendo aquellos materiales que constituyan capas contenidas en el interior de la solución de fachada y que no estén protegidas por una capa que sea EI30 como mínimo.

En aquellas fachadas de altura igual o inferior a 18 m cuyo arranque inferior sea accesible al público desde la rasante exterior o desde una cubierta, la clase de reacción al fuego debe ser al menos B-s3,d0 hasta una altura de 3,5 m como mínimo.

No se contemplan actuaciones por el exterior del edificio ni en fachadas ni en cubierta. No procede en el presente proyecto.

Sección SI-3: Evacuación de ocupantes

No procede en el presente proyecto.

Sección SI-4: Instalaciones de protección contra incendios

No procede su justificación ya que no se realiza ninguna actuación sobre los sistemas de protección contra incendios del edificio.

Sección SI-5: Intervención de los bomberos

No procede su justificación al tratarse de una obra de reforma que no actúa sobre el entorno del edificio.

Sección SI-6: Resistencia al fuego de la estructura

No procede su justificación ya que no se realiza ninguna actuación sobre los elementos estructurales existentes en el edificio.

3.1.3. Seguridad de utilización y accesibilidad (DB-SUA)

El presente proyecto únicamente contempla actuaciones sobre el sistema de climatización y ventilación. Por tanto, al tratarse de un proyecto exclusivamente de instalaciones del edificio, queda fuera del ámbito de aplicación del Documento Básico DB-SUA.

3.1.4. Ahorro de energía (DB-HE)

El objetivo del requisito básico "Ahorro de energía" consiste en conseguir un uso racional de la energía necesaria para la utilización de los edificios, reduciendo a límites sostenibles su consumo y conseguir, asimismo, que una parte de este consumo proceda de fuentes de energía renovable, como consecuencia de las características de su proyecto, construcción, uso y mantenimiento.

Para satisfacer este objetivo, los edificios se proyectarán, construirán, utilizarán y mantendrán de forma que se cumplan las exigencias básicas establecidas.

Sección HE-0:Limitación del consumo energético

Esta sección es de aplicación a:

a) edificios de nueva construcción;

b) intervenciones en edificios existentes, en los siguientes casos:

- ampliaciones en las que se incremente más de un 10% la superficie o el volumen construido de la unidad o unidades de uso sobre las que se intervenga, cuando la superficie útil ampliada supere los 50 m^2;
- cambios de uso, cuando la superficie útil total supere los 50 m^2;
- reformas en las que se renueven de forma conjunta las instalaciones de generación térmica y más del 25% de la superficie total de la envolvente térmica final del edificio.

Las exigencias derivadas de ampliaciones y cambios de uso son de aplicación, respectivamente, a la parte ampliada y a la unidad o unidades de uso que cambian su uso, mientras que en el caso de las reformas referidas en este apartado, son de aplicación al conjunto del edificio.

Se excluyen del ámbito de aplicación:

a) los edificios protegidos oficialmente por ser parte de un entorno declarado o en razón de su particular valor arquitectónico o histórico, en la medida en que el cumplimiento de determinadas exigencias básicas de eficiencia energética pudiese alterar de manera inaceptable su carácter o aspecto, siendo la autoridad que dicta la protección oficial quien determine los elementos inalterables;

b) construcciones provisionales con un plazo previsto de utilización igual o inferior a dos años;

c) edificios industriales, de la defensa y agrícolas no residenciales, o partes de los mismos, de baja demanda energética. Aquellas zonas que no requieran garantizar unas condiciones térmicas de confort, como las destinadas a talleres y procesos industriales, se considerarán de baja demanda energética;

d) edificios aislados con una superficie útil total inferior a 50 m^2

En el caso de este edificio, tal y como se ha mencionado anteriormente, se redacta el presente proyecto para realizar una serie de medidas de mejora en la eficiencia energética en las instalaciones de generación térmica pero no considera actuaciones en la envolvente térmica del edificio por lo que no es de aplicación esta sección del documento básico.

Sección HE-1:Condiciones para el control de la demanda energética

Esta sección es de aplicación a:

a) edificios de nueva construcción;

b) intervenciones en edificios existentes:

- ampliaciones;
- cambios de uso;
- reformas.

Se excluyen del ámbito de aplicación:

a) los edificios protegidos oficialmente por ser parte de un entorno declarado o en razón de su particular valor arquitectónico o histórico, en la medida en que el cumplimiento de determinadas exigencias básicas de eficiencia energética pudiese alterar de manera inaceptable su carácter o aspecto, siendo la autoridad que dicta la protección oficial quien determine los elementos inalterables;

b) construcciones provisionales con un plazo previsto de utilización igual o inferior a dos años;

c) edificios industriales, de la defensa y agrícolas no residenciales, o partes de los mismos, de baja demanda energética. Aquellas zonas que no requieran garantizar unas condiciones térmicas de confort, como las destinadas a talleres y procesos industriales, se considerarán de baja demanda energética;

d) edificios aislados con una superficie útil total inferior a 50 m^2

Esta exigencia básica es de aplicación en el presente proyecto ya que se incluyen todas las obras de reforma. La justificación del cumplimiento queda recogida en el Anejo XI. CEE DEL ESTADO RESULTANTE.

Sección HE-2:Condiciones de las instalaciones térmicas.

A efectos de la aplicación del RITE se considerarán como instalaciones térmicas las instalaciones fijas de climatización (calefacción, refrigeración y ventilación) destinadas a atender la demanda de bienestar térmico e higiene de las personas, o las instalaciones destinadas a la producción de agua caliente sanitaria (ACS), incluidas las interconexiones a redes urbanas de calefacción o refrigeración y los sistemas de automatización y control.

El RITE se aplicará a las instalaciones térmicas en los edificios de nueva construcción y a las instalaciones térmicas que se reformen en los edificios existentes, exclusivamente en lo que a la parte reformada se refiere,

así como en lo relativo al mantenimiento, uso e inspección de todas las instalaciones térmicas, con las limitaciones que en el mismo se determinan.

Se entenderá por reforma de una instalación térmica todo cambio que se efectúe en ella y que suponga una modificación del proyecto o memoria técnica con el que fue ejecutada y registrada. En tal sentido, se consideran reformas las que estén comprendidas en alguno de los siguientes casos:

a) La incorporación de nuevos subsistemas de climatización o de producción de agua caliente sanitaria o la modificación de los existentes.

b) La sustitución de un generador de calor o frío por otro de diferentes características o la interconexión con una red urbana de calefacción o refrigeración.

c) La ampliación del número de equipos generadores de calor o frío.

d) El cambio del tipo de energía utilizada o la incorporación de energías renovables.

e) El cambio de uso previsto del edificio.

También se considerará reforma de una instalación térmica, a efectos de aplicación del RITE, la sustitución o reposición de un generador de calor o frío por otro de similares características, aunque ello no suponga una modificación del proyecto o memoria técnica.

Con independencia de que un cambio efectuado en una instalación térmica sea considerado o no reforma de acuerdo con lo dispuesto en el apartado anterior, todos los productos que se incorporen a la misma deberán cumplir los requisitos relativos a las condiciones de los equipos y materiales en el artículo 18 de este reglamento.

La justificación de este apartado queda recogido en el anejo VIII. CÁLCULO DE LA INSTALACIÓN DE CLIMATIZACIÓN/VENTILACIÓN

Sección HE-3: Condiciones de las instalaciones de iluminación

No procede su justificación ya que no se realiza ninguna actuación sobre la instalación de iluminación del edificio.

Sección HE-4: Contribución mínima de energía renovable para cubrir la demanda de agua caliente sanitaria.

No procede su justificación ya que no se realiza ninguna actuación sobre la instalación de agua caliente sanitaria (ACS).

Sección HE-5: Generación mínima de energía eléctrica procedente de fuentes renovables.

Esta sección es de aplicación en los siguientes casos:

a) edificios de nueva construcción cuando superen los 1.000 m^2 construidos

b) ampliaciones de edificios existentes cuando se incremente la superficie construida en más de 1.000 m^2

c) edificios existentes que se reformen íntegramente, o en los que se produzca un cambio de uso característico del mismo, cuando se superen los 1.000 m^2 de superficie construida;

El proyecto contempla la renovación del sistema de climatización y ventilación de la planta alta, no una reforma o ampliación del edificio por tanto, no es de aplicación en el presente proyecto.

Sección HE-6: Dotaciones mínimas para la infraestructura de recarga de vehículos eléctricos

Las condiciones establecidas en este apartado son de aplicación a edificios que cuenten con una zona destinada a aparcamiento, ya sea interior o exterior adscrita al edificio, en los siguientes supuestos:

a) edificios de nueva construcción;

b) edificios existentes, en los siguientes casos:

- cambios de uso característico del edificio;
- ampliaciones, en aquellos casos en los que se incluyan intervenciones en el aparcamiento y se incremente más de un 10% la superficie o el volumen construido de la unidad o unidades de uso sobre las que se intervenga, siendo, además, la superficie útil ampliada superior a 50 m2;
- reformas que incluyan intervenciones en el aparcamiento y en las que se renueve más del 25% de la superficie total de la envolvente térmica final del edificio.
- intervenciones en la instalación eléctrica del edificio que afecten a más del 50% de la potencia instalada en el edificio antes de la intervención, para aquellos casos en los que el aparcamiento se sitúe en el interior de la edificación, siempre que exista un derecho para actuar en el aparcamiento por parte del promotor que realiza dicha intervención;
- intervenciones en la instalación eléctrica del aparcamiento que afecten a más del 50% de la potencia instalada en el mismo antes de la intervención;

No es de aplicación esta exigencia básica ya que en el proyecto solo se contemplan actuaciones sobre el sistema de climatización y ventilación de la planta alta del edificio.

3.1.5. Protección frente al ruido (DB HR)

Se establece con carácter general para el CTE en su artículo 2 (Parte I) exceptuándose los casos que se indican a continuación:

a) los recintos ruidosos, que se regirán por su reglamentación específica;

b) los recintos y edificios de pública concurrencia destinados a espectáculos, tales como auditorios, salas de música, teatros, cines, etc., que serán objeto de estudio especial en cuanto a su diseño para el acondicionamiento acústico, y se considerarán recintos de actividad respecto a las unidades de uso colindantes a efectos de aislamiento acústico;

c) las aulas y las salas de conferencias cuyo volumen sea mayor que 350 m^3, que serán objeto de un estudio especial en cuanto a su diseño para el acondicionamiento acústico, y se considerarán recintos protegidos respecto de otros recintos y del exterior a efectos de aislamiento acústico;

d) las obras de ampliación, modificación, reforma o rehabilitación en los edificios existentes, salvo cuando se trate de rehabilitación integral. Asimismo, quedan excluidas las obras de rehabilitación integral de los edificios protegidos oficialmente en razón de su catalogación, como bienes de interés cultural, cuando el cumplimiento de las exigencias suponga alterar la configuración de su fachada o su distribución o acabado interior, de modo incompatible con la conservación de dichos edificios.

Por tanto, no es de aplicación esta exigencia básica ya que debido a sus características como edificio protegido y en todo momento se intenta mantener su actual configuración de fachada y acabados con el objetivo de la conservación del mismo.

3.1.6. Salubridad (DB-HS)

Sección HS-1: Protección frente a la humedad

No es de aplicación esta exigencia básica ya que en el proyecto solo se contemplan actuaciones sobre los sistemas de climatización y ventilación del edificio.

Sección HS-2: Recogida y evacuación de Residuos

Esta sección se aplica a los edificios de viviendas de nueva construcción, tengan o no locales destinados a otros usos, en lo referente a la recogida de los residuos ordinarios generados en ellos.

Para los edificios y locales con otros usos la demostración de la conformidad con las exigencias básicas debe realizarse mediante un estudio específico adoptando criterios análogos a los establecidos en esta sección.

No es de aplicación al tratarse de una obra de reforma y no de obra nueva.

Sección HS-3: Calidad del aire interior

Esta sección se aplica, en los edificios de viviendas, al interior de las mismas, los almacenes de residuos, los trasteros, los aparcamientos y garajes; y, en los edificios de cualquier otro uso, a los aparcamientos y los garajes. Se considera que forman parte de los aparcamientos y garajes las zonas de circulación de los vehículos.

Se consideran incluidos en el ámbito de aplicación los edificios de viviendas de cualquier tipo, incluso las viviendas aisladas, en hilera o pareadas.

Para locales de cualquier otro tipo se considera que se cumplen las exigencias básicas si se observan las condiciones establecidas en el RITE.

La justificación y cumplimiento de este apartado se recoge en el anexo VIII. “CÁLCULO DE LA INSTALACIÓN DE CLIMATIZACIÓN/VENTILACIÓN”.

Sección HS-4: Suministro de agua.

No es de aplicación esta exigencia básica ya que en el proyecto solo se contemplan actuaciones sobre los sistemas de climatización y ventilación del edificio.

Sección HS-5: Evacuación de aguas

No es de aplicación esta exigencia básica ya que en el proyecto solo se contemplan actuaciones sobre el sistema de climatización y ventilación de la planta alta del edificio.

Sección HS-6: Protección frente a la exposición al radón

Esta sección se aplica a los edificios situados en los términos municipales incluidos en el apéndice B, en los siguientes casos:

a) edificios de nueva construcción;

b) intervenciones en edificios existentes:

i) en ampliaciones, a la parte nueva;

ii) en cambio de uso, a todo el edificio si se trata de un cambio de uso característico o a la zona afectada, si se trata de un cambio de uso que afecta únicamente a parte de un edificio o de un establecimiento;

iii) en obras de reforma, a la zona afectada, cuando se realicen modificaciones que permitan aumentar la protección frente al radón o alteren la protección inicial.

La localidad en la que se ubica el proyecto, MADRID, no se encuentra dentro del apéndice B de la exigencia básica, por lo que no exige la realización de intervenciones que permitan aumentar la protección frente al radón.

3.2. CUMPLIMIENTO DE OTROS REGLAMENTOS Y DISPOSICIONES

No se contemplan otras normas de obligado cumplimiento que hayan de tenerse en cuenta a parte de las ya mencionadas en el proyecto.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

MORIANA PERICET JOSE - 48866714V

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cemosa Ingeniería y Control

D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: noviembre de 2024

4. MEMORIA ADMINISTRATIVA

La memoria debe incorporar un apartado donde se detallen determinados aspectos que son necesarios para la futura contratación de la obra de acuerdo con la legislación de contratación vigente. La normativa de contratación pública vigente en este momento está formada por: el Texto Refundido de la Ley de Contratos del Sector Público, aprobado por Real Decreto Legislativo 3/2011, el RD 817/2009, por el que se desarrolla parcialmente la Ley de Contratos del Sector Público, y por aquellos artículos del RD 1098/2001, por el que se aprueba el Reglamento General de la Ley de Contratos de las Administraciones Públicos que no hayan sido derogados.

4.1. DECLARACIÓN DE OBRA COMPLETA

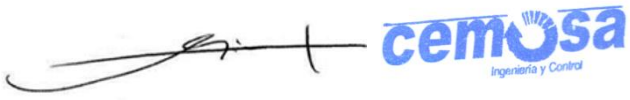
D. José Moriana Pericet, arquitecto colegiado número 375 del Colegio Oficial de Arquitectos de Córdoba con domicilio a efectos de notificaciones en C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid.

CERTIFICA:

El presente proyecto se refiere a una obra completa que, una vez ejecutada con arreglo al mismo, será susceptible de ser entregada al uso que se destina, comprendiendo todos los elementos precisos para su utilización. Lo que se hace constar por el autor del Proyecto en cumplimiento del artículo 127.2 del Reglamento General de la Ley de Contratos de las Administraciones Públicas.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:



D. José Moriana Pericet

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Fecha: noviembre de 2024

4.2. CLASIFICACIÓN DEL TIPO DE OBRA. CLASIFICACIÓN DEL CONTRATISTA

4.2.1. Clasificación del tipo de obra

De acuerdo con el artículo 232 de la Ley 9/2017, de 8 de noviembre, de Contratos del Sector Público, a los efectos de elaboración de los proyectos se clasificarán las obras, según su objeto y naturaleza, en los grupos siguientes:

a) Obras de primer establecimiento, reforma, restauración, rehabilitación o gran reparación.
b) Obras de reparación simple.
c) Obras de conservación y mantenimiento.
d) Obras de demolición.

Son obras de primer establecimiento las que dan lugar a la creación de un bien inmueble.

El concepto general de reforma abarca el conjunto de obras de ampliación, mejora, modernización, adaptación, adecuación o refuerzo de un bien inmueble ya existente.

Se consideran como obras de reparación las necesarias para enmendar un menoscabo producido en un bien inmueble por causas fortuitas o accidentales. Cuando afecten fundamentalmente a la estructura resistente tendrán la calificación de gran reparación y, en caso contrario, de reparación simple.

Si el menoscabo se produce en el tiempo por el natural uso del bien, las obras necesarias para su enmienda tendrán el carácter de conservación. Las obras de mantenimiento tendrán el mismo carácter que las de conservación.

Son obras de restauración aquellas que tienen por objeto reparar una construcción conservando su estética, respetando su valor histórico y manteniendo su funcionalidad.

Son obras de rehabilitación aquellas que tienen por objeto reparar una construcción conservando su estética, respetando su valor histórico y dotándola de una nueva funcionalidad que sea compatible con los elementos y valores originales del inmueble.

Son obras de demolición las que tengan por objeto el derribo o la destrucción de un bien inmueble.

Por tanto, atendiendo a los trabajos que se contemplan en el presente proyecto, las obras descritas se incluyen en el **Grupo a "Obras de primer establecimiento, reforma, restauración, rehabilitación o gran reparación."**

4.2.2. Propuesta de clasificación del contratista.

En este apartado se establece la propuesta de clasificación a exigir al contratista encargado de la realización de las obras objeto del proyecto. Se atenderá a la Ley 9/2017, de 8 de noviembre, de Contratos del Sector Público, por la que se transponen al ordenamiento jurídico español las Directivas del Parlamento Europeo y del Consejo 2014/23/UE y 2014/24/UE, de 26 de febrero de 2014, Libro primero, Título II, Capítulo II, Sección 1ª, Subsección 4ª Titulo II, Artículo 77 "Exigencia y efectos de la Clasificación":

"1. La clasificación de los empresarios como contratistas de obras o como contratistas de servicios de los poderes adjudicadores será exigible y surtirá efectos para la acreditación de su solvencia para contratar en los siguientes casos y términos:

a) Para los contratos de obras cuyo valor estimado sea igual o superior a 500.000 euros será requisito indispensable que el empresario se encuentre debidamente clasificado como contratista de obras de los poderes adjudicadores. Para dichos contratos, la clasificación del empresario en el grupo o subgrupo que en función del objeto del contrato corresponda, con categoría igual o superior a la exigida para el contrato, acreditará sus condiciones de solvencia para contratar.

Para los contratos de obras cuyo valor estimado sea inferior a 500.000 euros la clasificación del empresario en el grupo o subgrupo que en función del objeto del contrato corresponda, y que será recogido en los pliegos del contrato, acreditará su solvencia económica y financiera y solvencia técnica para contratar. En tales casos, el empresario podrá acreditar su solvencia indistintamente mediante su clasificación como contratista de obras en el grupo o subgrupo de clasificación correspondiente al contrato o bien acreditando el cumplimiento de los requisitos específicos de solvencia exigidos en el anuncio de licitación o en la invitación a participar en el procedimiento y detallados en los pliegos del contrato. Si los pliegos no concretaran los requisitos de solvencia económica y financiera o los requisitos de solvencia técnica o profesional, la acreditación de la solvencia se efectuará conforme a los criterios, requisitos y medios recogidos en el segundo inciso del apartado 3 del artículo 87, que tendrán carácter supletorio de lo que al respecto de los mismos haya sido omitido o no concretado en los pliegos.

De acuerdo con este artículo, y considerando el presupuesto de las obras del presente proyecto, SI es necesaria la clasificación del contratista. En caso de no ser necesaria, se reflejará también para que el contratista pueda acreditar su solvencia técnica a través de la misma. Se contempla el Real Decreto 1098/2001, de octubre por el que se aprueba el Reglamento General de la Ley de Contratos de las Administraciones Públicas.

La clasificación se propone de acuerdo con el citado reglamento, Libro I, Título II, Capítulo II, Sección I, Artículo 25. "Grupos y subgrupos en la clasificación de los contratistas de obras", Artículo 26. "Categorías de clasificación en los contratos de obras" y Artículo 36. "Exigencia de clasificación por la Administración". Asimismo, se tiene en cuenta lo especificado en los Artículos 27 a 35.

A partir de los grupos y subgrupos de aplicación para la clasificación de empresas en los contratos de obras definidos en el Artículo 25, se determinan los que corresponden a las actividades del proyecto. Se calcula para dichas actividades el presupuesto conforme al desglose que ofrece el "Documento 4 del Proyecto-Mediciones y Presupuesto". Este dato permite el cálculo de la anualidad media estimada de cada actividad, de acuerdo con los plazos reflejados en el anejo de Plan de obra.

A partir de la anualidad media se obtiene la asignación de la categoría de clasificación conforme al Artículo 26. Finalmente se determina la propuesta de clasificación del contratista atendiendo a las exigencias de clasificación definidas en el Artículo 36.

En la Ley 9/2017, de 8 de noviembre, de Contratos del Sector Público, Libro primero, Título II, Capítulo II, Sección 1ª, Subdirección 4ª Clasificación de las empresas y en su artículo 79 "Criterios aplicables y condiciones para la clasificación", se describe lo siguiente: "La expresión de la cuantía se efectuará por referencia al valor estimado del contrato, cuando la duración de este sea igual o inferior a un año, y por referencia al valor medio anual del mismo, cuando se trate de contratos de duración superior".

Igualmente es de aplicación para este proyecto la aplicación del artículo 36 del Real Decreto 1098/2001 de 12 de octubre, y el Real Decreto 773/2015, de 28 de agosto, en su Artículo Único puntos Dos, Tres, Cuatro y Cinco, que modifican los artículos 26, 27, 29 y 35, del Real Decreto 1098/2001. Por tanto, de acuerdo con los artículos de las citadas legislaciones, será exigible la siguiente clasificación:

En este apartado se determina la Clasificación del Contratista que ha de exigirse en la licitación de las obras definidas en el presente Proyecto, en cumplimiento de lo previsto en:

Reglamento General de la Ley de Contratos de la Administraciones Públicas aprobó por el Real Decreto 1098/2001, de 12 de octubre.
Real Decreto Legislativo 3/2011, de 14 de noviembre, por el que se aprueba el texto refundido de la Ley de Contratos del Sector Público.
Real Decreto 773/2015, de 28 de agosto, por el que se modifican preceptos del Reglamento General de la Ley de Contratos de las Administraciones Públicas, aprobado por el Real Decreto 1098/2001.

En el Artículo 25 del Reglamento General de la Ley de Contratos de las Administraciones Públicas, Real Decreto 1098/2001, de 12 de octubre (B.O.E. 26 de octubre de 2001) se establecen los grupos y subgrupos a considerar para la clasificación de los contratistas siendo los siguientes:

GRUPOS	SUBGRUPOS	%	PLAZO (meses)	PEM (€)	G.G. (€) 13,00%	B.I. (€) 6,00%	VEC (€)	VALOR REFERENCIA (€)	CATEGORÍA
Grupo J)	Instalaciones Mecánicas								
Subgrupo 1.	Elevadoras o transportadoras				0,00 €	0,00 €	0,00 €	0,00 €	
Subgrupo 2.	De ventilación, calefacción y climatización	83%		1.518.925,21 €	197.460,28 €	91.135,51 €	1.807.521,00 €	**1.807.521,00 €**	4
Subgrupo 3.	Frigoríficas Subgrupo				0,00 €	0,00 €	0,00 €	0,00 €	
Subgrupo 4.	De fontanería y sanitarias				0,00 €	0,00 €	0,00 €	0,00 €	
Subgrupo 5.	Instalaciones mecánicas sin cualificación específica				0,00 €	0,00 €	0,00 €	0,00 €	
		Total PEM		1.837.964,13 €					

Grupo	Subgrupo	Categoría
J	2	4

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

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Fecha: Noviembre de 2024

4.3. FORMA DE ADJUDICACIÓN DE LOS CONTRATOS DE OBRAS

El procedimiento y forma de adjudicación que se proponen para el contrato es el **Procedimiento Abierto**, justificándose esta elección al ser el procedimiento ordinario de adjudicación de estos contratos de acuerdo con el artículo 131 apartado 2 de la Ley 9/2017, de 8 de noviembre, de Contratos del Sector Público, por la que se transponen al ordenamiento jurídico español las Directivas del Parlamento Europeo y del Consejo 2014/23/UE y 2014/24/UE, de 26 de febrero de 2014.

La adjudicación se realizará, ordinariamente utilizando una pluralidad de criterios de adjudicación basados en el principio de mejor relación calidad-precio, y utilizando el procedimiento abierto o el procedimiento restringido, salvo los contratos de concesión de servicios especiales del Anexo IV, que se adjudicarán mediante este último procedimiento.

En los supuestos del artículo 168 podrá seguirse el procedimiento negociado sin publicidad; en los casos previstos en el artículo 167 podrá recurrirse al diálogo competitivo o a la licitación con negociación, y en los indicados en el artículo 177 podrá emplearse el procedimiento de asociación para la innovación.

4.4. PLAZO DE EJECUCIÓN DE LAS OBRAS

El plazo de ejecución previsto para las obras es de **SEIS (6) meses**. Se adjunta en el anejo II de esta memoria el programa de trabajos a ejecutar.

4.5. PLAZO DE GARANTÍA

El plazo de garantía se establece en un año contado a partir de la fecha de firma del acta de recepción de las obras.

4.6. PRESUPUESTO PARA CONOCIMIENTO DE LA ADMINISTRACIÓN

4.6.1. Justificación de precios

Para el cálculo y obtención de los precios de las distintas partidas, se han utilizado precios de mercado para los distintos materiales, mano de obra y maquinaria. La confección de los precios descompuestos está basada en rendimientos de mano de obra y maquinaria de las distintas bases de datos existentes en el mercado.

Los precios no recogidos por las Tarifas directamente se han obtenido como combinación de descompuestos y/o utilizando los mismos precios elementales (mano de obra, materiales, maquinaria, etc.) que se recogen en éstas.

Cuando aun así no ha sido posible, se han tomado precios reales contrastados comercialmente.

Los precios obtenidos como se expone se detallan en el apartado de descompuestos del documento "MEDICIONES Y PRESUPUESTO" de este Proyecto.

4.6.2. Composición de los precios

La estructura de los precios se ajusta a lo especificado en el Real Decreto 1098/2001, de 12 de octubre, que establece:

Artículo 130.

1. El cálculo de los precios de las distintas unidades de obra se basará en la determinación de los costes directos e indirectos precisos para su ejecución, sin incorporar, en ningún caso, el importe del Impuesto sobre el Valor Añadido que pueda gravar las entregas de bienes o prestaciones de servicios realizados.
2. Se consideran costes directos:
    a. La mano de obra que interviene directamente en la ejecución de la unidad de obra.
    b. Los materiales, a los precios resultantes a pie de obra, que quedan integrados en la unidad de que se trate o que sean necesarios para su ejecución.
    c. Los gastos de personal, combustible, energía, etc., que tengan lugar por el accionamiento o funcionamiento de la maquinaria e instalaciones utilizadas en la ejecución de la unidad de obra.
    d. Los gastos de amortización y conservación de la maquinaria e instalaciones anteriormente citadas.
3. Se considerarán costes indirectos:

Los gastos de instalación de oficinas a pie de obra, comunicaciones, edificación de almacenes, talleres, pabellones temporales para obreros, laboratorio, etc., los del personal técnico y administrativo adscrito exclusivamente a la obra y los imprevistos. Todos estos gastos, excepto aquéllos que se reflejen en el presupuesto valorados en unidades de obra o en partidas alzadas, se cifrarán en un porcentaje de los costes directos, igual para todas las unidades de obra, que adoptará, en cada caso, el autor del proyecto a la vista de la naturaleza de la obra proyectada, de la importancia de su presupuesto y de su previsible plazo de ejecución.

El precio de una unidad de obra que hemos obtenido es una suma de los siguientes costes:

- Costes directos: calculados como suma de los productos "precio básico x cantidad" de la mano de obra, maquinaria y materiales que intervienen en la ejecución de la unidad de obra.
- Medios auxiliares: Costes directos complementarios, calculados en forma porcentual como porcentaje de otros componentes, debido a que representan los costes directos que intervienen en la ejecución de la unidad de obra y que son de difícil cuantificación. Son diferentes para cada unidad de obra.
- Costes indirectos: aplicados como un porcentaje de la suma de los costes directos y medios auxiliares, igual para cada unidad de obra debido a que representan los costes de los factores necesarios para la ejecución de la obra que no se corresponden a ninguna unidad de obra en concreto.

Si en la descripción del proceso de ejecución de la unidad de obra no figurase alguna operación necesaria para su correcta ejecución, se entiende que está incluida en el precio de la unidad de obra, por lo que no supondrá cargo adicional o aumento de precio de la unidad de obra contratada. Para mayor aclaración, se exponen algunas operaciones o trabajos, que se entiende que siempre forman parte del proceso de ejecución de las unidades de obra:

- El transporte y movimiento vertical y horizontal de los materiales en obra, incluso carga y descarga de los camiones.

- Eliminación de restos, limpieza final y retirada de residuos a vertedero de obra.
- Transporte de escombros sobrantes a vertedero autorizado.
- Montaje, comprobación y puesta a punto.
- Las correspondientes legalizaciones y permisos en instalaciones.
- Maquinaria, andamiajes y medios auxiliares necesarios.

Trabajos que se considerarán siempre incluidos y para no ser reiterativos no se especifican en cada una de las unidades de obra.

4.6.3. Gastos Generales y Beneficio industrial

Los Gastos Generales considerados en el presupuesto general son del 13%.

Se ha aplicado un beneficio industrial del 6%.

4.6.4. Presupuesto de ejecución material

El Presupuesto de Ejecución Material de las obras asciende a la cantidad de UN MILLÓN OCHOCIENTOS TREINTA Y SEIS MIL SETECIENTOS SESENTA Y SIETE EUROS CON QUINCE CÉNTIMOS DE EURO (1.836.767,15 €). Dicho presupuesto se detalla en el documento de Mediciones y presupuesto que acompaña a esta memoria y el resto del proyecto.

4.6.5. Presupuesto base de licitación

El Presupuesto Base de Licitación de las obras asciende a la cantidad de DOS MILLONES SEISCIENTOS CUARENTA Y CUATRO MIL SETECIENTOS SESENTA Y UN EUROS CON DOS CÉNTIMOS DE EURO (2.644.761,02 €) IVA incluido. Dicho presupuesto se detalla en el documento de Mediciones y presupuesto que acompaña a esta memoria y el resto del proyecto.

4.6.6. Resumen de Presupuesto

MEJORA DE LA EFICIENCIA ENERGETICA EN EL PABELLON DE CRISTAL DE LA CASA DE CAMPO

CAPÍTULO	RESUMEN		IMPORTE	%
01	DEMOLICIONES Y DESMONTAJES		22.119,28	1,20
02	INSTALACIÓN ELECTRICIDAD		145.957,08	7,95
02.01	*CUADROS ELÉCTRICOS*	56.068,24		
02.02	*LÍNEAS ELÉCTRICAS*	64.595,73		
02.03	*BANDEJAS-CANALIZACIONES*	23.816,55		
02.04	*VARIOS*	1.476,56		
03	BMS		111.736,50	6,08
03.01	*Subestaciones de Control*	43.096,90		
03.02	*Puesto central*	7.133,63		
03.03	*Ingenieria sistema de control*	14.183,34		
03.04	*Instalacion sistema de control*	47.322,63		
04	RED DE EVACUACIÓN DE CONDENSADOS		7.974,03	0,43
04.01	*DESAGÜE APARATOS*	184,08		
04.02	*TUBERÍAS*	7.058,16		
04.03	*ARQUETAS*	503,53		
04.04	*VARIOS*	228,26		
05	CLIMATIZACIÓN		1.518.925,21	82,70
05.01	*CONDUCTOS*	304.021,16		
05.02	*REJILLAS*	10.702,80		
05.03	*TOBERAS*	167.756,40		
05.04	*COMPUERTAS REGULACIÓN*	5.811,84		
05.05	*TUBERÍAS POLIPROPILENO PP-R*	114.431,40		
05.06	*AISLAMIENTO DE COQUILLA DE ESPUMA ELASTOMÉRICA*	109.213,76		
05.07	*VALVULERÍA CLIMATIZACIÓN POR AGUA*	37.776,30		
05.08	*UTAS*	735.529,92		
05.09	*BOMBAS*	31.922,80		
05.10	*BANCADAS PARA BOMBAS UTAS DE P.BAJA Y EXTRACTORES*	866,12		
05.11	*VARIOS*	892,71		
06	TELECOMUNICACIONES		1.200,00	0,07
06.01	*CABLEADO*	1.200,00		
07	GESTIÓN DE RESIDUOS		12.284,26	0,67
08	SEGURIDAD Y SALUD		16.570,79	0,90
08.01	*INSTALACIONES DE BIENESTAR*	9.668,53		
08.02	*PROTECCIONES COLECTIVAS*	3.148,97		
08.03	*EQUIPOS DE PROTECCION INDIVIDUAL*	2.345,46		
08.04	*SEÑALIZACION*	1.407,83		
	PRESUPUESTO DE EJECUCIÓN MATERIAL			1.836.767,15
	13,00 % Gastos generales	238.779,73		
	6,00 % Beneficio industrial	110.206,03		
	Suma			348.985,76
	PRESUPUESTO BASE DE LICITACIÓN SIN IVA			2.185.752,91
	21% IVA			459.008,11
	PRESUPUESTO BASE DE LICITACIÓN			2.644.761,02

Asciende el presupuesto a la expresada cantidad de DOS MILLONES SEISCIENTOS CUARENTA Y CUATRO MIL SETECIENTOS SESENTA Y UN con DOS CÉNTIMOS

4.6.7. Presupuesto para conocimiento de la administración

El presupuesto para conocimiento de la administración se adjunta en el Anejo VII de Estudio Económico de Repercusión de la Obra.

4.6.8. Revisión de precios

No procede revisión de precios al ser el plazo de ejecución de la obra inferior a 12 meses.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:



D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: noviembre de 2024

2. LISTADO DE PLANOS

PABELLÓN DE CRISTAL		PLANIMETRÍA PROYECTO PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA			
DIRECCIÓN:Avenida Principal, 16. Moncloa-Aravaca. Madrid					
PLANO		**TÍTULO DE PLANO**	**ESCALA**	**FECHA**	**Nº PLANO**
GENERALES					
SITUACIÓN Y EMPLAZAMIENTO					
01_PBA_CRISTAL_ST_Emplazamiento	ST_01	Emplazamiento. Estado actual	1/1500 (A1)	nov-24	ST_01
01_PBA_CRISTAL_ST_Situacion	ST_02	Situación. Estado Actual	1/500 (A1)	nov-24	ST_02
ARQUITECTURA. ESTADO ACTUAL (PASIVAS)					
DISTRIBUCIÓN. PLANTAS					
01_PBA_CRISTAL_EA_Plantas	EA_AR 01	ARQUITECTURA-ESTADO ACTUAL. PLANTA BAJA	1/200 (A1)	nov-24	EA_AR 01
01_PBA_CRISTAL_EA_Plantas	EA_AR 02	ARQUITECTURA-ESTADO ACTUAL. ENTREPLANTA	1/200 (A1)	nov-24	EA_AR 02
01_PBA_CRISTAL_EA_Plantas	EA_AR 03	ARQUITECTURA-ESTADO ACTUAL. PLANTA ALTA	1/200 (A1)	nov-24	EA_AR 03
DISTRIBUCIÓN. ALZADOS					
01_PBA_CRISTAL_EA_Alzados	EA_AR 04	ARQUITECTURA-ESTADO ACTUAL. ALZADOS NORTE Y ESTE	1/200 (A1)	nov-24	EA_AR 04
01_PBA_CRISTAL_EA_Alzados	EA_AR 05	ARQUITECTURA-ESTADO ACTUAL. ALZADOS SUR Y OESTE	1/200 (A1)	nov-24	EA_AR 05
DISTRIBUCIÓN. SECCIONES					
01_PBA_CRISTAL_EA_Secciones	EA_AR 06	ARQUITECTURA-ESTADO ACTUAL. SECCIONES	1/200 (A1)	nov-24	EA_AR 06
01_PBA_CRISTAL_EA_Secciones	EA_AR 07	ARQUITECTURA-ESTADO ACTUAL. SECCIONES	1/200 (A1)	nov-24	EA_AR 07
INSTALACIONES.					
INSTALACIONES					
PC_CLI_COND_PLANTAALTA	ER_IN_01	CLIMATIZACIÓN-CONDUCTOS. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_01
PC_CLI_TUB_BAJA	ER_IN_02	CLIMATIZACIÓN-TUBERÍAS AF. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_02
PC_CLI_TUB_BAJA	ER_IN_03	CLIMATIZACIÓN-TUBERÍAS AC. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_03
PC_CLI_TUB_PLANTAALTA	ER_IN_04	CLIMATIZACIÓN-TUBERÍAS AF. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_04
PC_CLI_TUB_PLANTAALTA	ER_IN_05	CLIMATIZACIÓN-TUBERÍAS AC. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_05
PC_CLI_ESQ	ER_IN_06	CLIMATIZACIÓN-ESQUEMA DE PRINCIPIO	S/E (A1)	nov-24	ER_IN_06
PC_CLI_SAN_BAJA	ER_IN_07	CLIMATIZACIÓN-EVAC. CONDENSADOS. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_07
PC_CLI_SAN_ALTA	ER_IN_08	CLIMATIZACIÓN-EVAC. CONDENSADOS. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_08
PC_BT_BANDEJAS_BAJA	ER_IN_09	ELECTRICIDAD-BANDEJAS ELÉCTRICAS. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_09
PC_BT_BANDEJAS_ALTA	ER_IN_10	ELECTRICIDAD-BANDEJAS ELÉCTRICAS. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_10
PC_BT_UNIFILAR	ER_IN_11	ELECTRICIDAD. UNIFILAR	S/E (A1)	nov-24	ER_IN_11
SEGURIDAD Y SALUD					
SEGURIDAD Y SALUD					
01_PBA_CRISTAL_SS_Seguridad y Salud	EA_SS 01	SEGURIDAD Y SALUD. IMPLANTACIÓN	1/500 (A1)	nov-24	EA_SS 01
01_PBA_CRISTAL_SS_Seguridad y Salud	EA_SS 02	SEGURIDAD Y SALUD. CENTROS ASISTENCIALES	S/E (A1)	nov-24	EA_SS 02

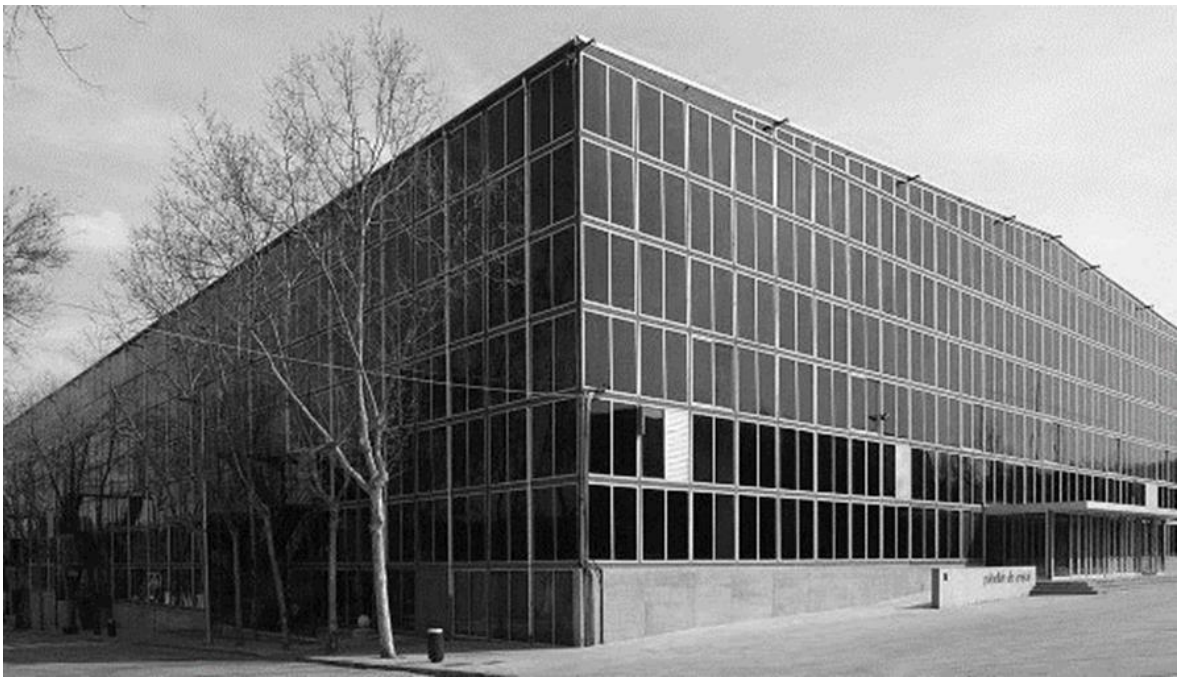
Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

D. José Moriana Pericet
Arquitecto Colegiado nº 375 COACo
Fecha: noviembre de 2024

PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA

PABELLÓN DE CRISTAL DE LA CASA DE CAMPO



PROMOTOR

Madrid Destino

EQUIPO REDACTOR

CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRAS S.A.

ARQUITECTO: D. JOSÉ MORIANA PERICET

II. ANEJOS A LA MEMORIA

cemosa Ingeniería y Control

Madrid Destino

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1. ANEJO I. LISTADO DE NORMATIVA

1.1. A.I.1 NORMAS DE CARÁCTER GENERAL

Ordenación de la edificación

LEY 38/1999, de 5 de noviembre, de la Jefatura del Estado

B.O.E.: 6-NOV-1999

MODIFICADA POR:

Artículo 82 de la Ley 24/2001, de 27 de diciembre, de Medidas Fiscales, Administrativas y del Orden Social

LEY 24/2001, de 27 de diciembre, de Jefatura del Estado

B.O.E.: 31-DIC-2001

Artículo 105 de la Ley 53/2002, de 30 de diciembre, de Medidas Fiscales, Administrativas y del Orden Social

LEY 53/2002, de 30 de diciembre, de Jefatura del Estado

B.O.E.: 31-DIC-2002

Artículo 15 de la Ley 25/2009, de 22 de diciembre, de modificación de diversas leyes para su adaptación a la Ley sobre el libre acceso a las actividades de servicios y su ejercicio

LEY 25/2009, de 22 de diciembre, de Jefatura del Estado

B.O.E.: 23-DIC-2009

Disposición final tercera de la Ley 8/2013, de 26 de junio, de rehabilitación, regeneración y renovación urbanas

LEY 8/2013, de 26 de junio, de Jefatura del Estado

B.O.E.: 27-JUN-2013

Disposición final tercera de la Ley 9/2014, de 9 de mayo, de Telecomunicaciones

LEY 9/2014, de 9 de mayo, de Jefatura del Estado

B.O.E.: 10-MAY-2014

Corrección erratas: B.O.E. 17-MAY-2014

Disposición final tercera de la Ley 20/2015, de 14 de julio, de ordenación, supervisión y solvencia de entidades aseguradoras y reaseguradoras

LEY 20/2015, de 14 de julio, de Jefatura del Estado

B.O.E.: 15-JUL-2015

Disposición adicional cuarta de la Ley 10/2022, de 14 de junio, de medidas urgentes para impulsar la actividad de rehabilitación edificatoria en el contexto del Plan de recuperación, Transformación y Resiliencia

LEY 10/2022, de 14 de junio, de Jefatura del Estado

B.O.E.: 15-JUN-2022

Código Técnico de la Edificación

REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Corrección de errores y erratas: B.O.E. 25-ENE-2008

DEROGADO EL APARTADO 5 DEL ARTÍCULO 2 POR:

Disposición derogatoria única de la Ley 8/2013, de 26 de junio, de rehabilitación, regeneración y renovación urbanas

LEY 8/2013, de 26 de junio, de Jefatura del Estado

B.O.E.: 27-JUN-2013

MODIFICADO POR:

Modificación del Real Decreto 314/2006, de 17 de marzo, por el que se aprueba el Código Técnico de la Edificación

REAL DECRETO 1371/2007, de 19 de octubre, del Ministerio de Vivienda

B.O.E.: 23-OCT-2007

Corrección de errores: B.O.E. 20-DIC-2007

MODIFICADO POR:

Modificación del Real Decreto 1371/2007, de 19-OCT

REAL DECRETO 1675/2008, de 17 de octubre, del Ministerio de Vivienda

B.O.E.: 18-OCT-2008

Modificación de determinados documentos básicos del Código Técnico de la Edificación, aprobados por el Real Decreto 314/2006, de 17 de marzo, y el Real Decreto 1371/2007, de 19 de octubre

ORDEN 984/2009, de 15 de abril, del Ministerio de Vivienda

B.O.E.: 23-ABR-2009

Corrección de errores y erratas: B.O.E. 23-SEP-2009

Modificación del Real Decreto 314/2006, de 17 de marzo, en materia de accesibilidad y no discriminación de las personas con discapacidad

REAL DECRETO 173/2010, de 19 de febrero, del Ministerio de Vivienda

B.O.E.: 11-MAR-2010

Modificación del Código Técnico de la Edificación (CTE) aprobado por Real Decreto 314/2006, de 17 de marzo

Disposición final segunda, del Real Decreto 410/2010, de 31 de marzo, del Ministerio de Vivienda

B.O.E.: 22-ABR-2010

Sentencia por la que se declara la nulidad del artículo 2.7 del Real Decreto 314/2006, de 17 de marzo, por el que se aprueba el Código Técnico de la Edificación, así como la definición del párrafo

segundo de uso administrativo y la definición completa de uso pública concurrencia, contenidas en el documento SI del mencionado Código

Sentencia de 4 de mayo de 2010, de la Sala Tercera del Tribunal Supremo,

B.O.E.: 30-JUL-2010

Disposición final undécima de la Ley 8/2013, de 26 de junio, de rehabilitación, regeneración y renovación urbanas

LEY 8/2013, de 26 de junio, de Jefatura del Estado

B.O.E.: 27-JUN-2013

Actualización del Documento Básico DB-HE "Ahorro de Energía"

ORDEN FOM/1635/2013, de 10 de septiembre, del Ministerio de Fomento

B.O.E.: 12-SEP-2013

Corrección de errores: B.O.E. 8-NOV-2013

Modificación del Documento Básico DB-HE "Ahorro de energía" y del Documento Básico DB-HS "Salubridad", del Código Técnico de la Edificación, aprobado por Real Decreto 314/2006, de 17 de marzo

ORDEN 588/2017, de 15 de junio, del Ministerio de Fomento

B.O.E.: 23-JUN-2017

Modificación del Código Técnico de la Edificación Aprobado por Real Decreto 314/2006, de 17 de marzo

REAL DECRETO 732/2019, de 20 de diciembre, del Ministerio de Fomento

B.O.E.: 27-DIC-2019

Modificación del Código Técnico de la Edificación Aprobado por Real Decreto 314/2006, de 17 de marzo

REAL DECRETO 450/2022, de 14 de junio, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática

B.O.E.: 15-JUN-2022

Procedimiento básico para la certificación energética de los edificios

REAL DECRETO 390/2021, de 1 de junio, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática.

B.O.E.: 02-JUN-2021

1.2. A.I.2 ESTRUCTURAS

1.2.1. ACCIONES EN LA EDIFICACIÓN

DB SE-AE. Seguridad estructural - Acciones en la Edificación.

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Norma de Construcción Sismorresistente: parte general y edificación (NCSR-02)

REAL DECRETO 997/2002, de 27 de septiembre, del Ministerio de Fomento

B.O.E.: 11-OCT-2002

1.2.2. ACERO

DB SE-A. Seguridad Estructural - Acero

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Código Estructural

REAL DECRETO 470/2021, de 29 de junio, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática.

B.O.E.: 10-AGO-2021

1.2.3. FÁBRICA

DB SE-F. Seguridad Estructural Fábrica

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

1.2.4. HORMIGÓN

Código Estructural

REAL DECRETO 470/2021, de 29 de junio, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática.

B.O.E.: 10-AGO-2021

1.2.5. MADERA

DB SE-M. Seguridad estructural - Estructuras de Madera

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

1.2.6. CIMENTACIÓN

DB SE-C. Seguridad estructural - Cimientos

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

1.3. A.I.3 INSTALACIONES

1.3.1. AGUA

Criterios sanitarios de la calidad del agua de consumo humano

REAL DECRETO 140/2003, de 7 de febrero, del Ministerio de la Presidencia

B.O.E.: 21-FEB-2003

Corrección erratas: 4-MAR-2003

ACTUALIZADO EL ANEXO II POR:

Orden SCO/3719/2005, de 21 de noviembre, del Ministerio de Sanidad y Consumo, sobre sustancias para el tratamiento del agua destinada a la producción de agua de consumo humano

B.O.E.: 01-DIC-2005

DEROGADA POR:

Orden SAS/1915/2009, de 8 de julio, del Ministerio de Sanidad y Política Social, sobre sustancias para el tratamiento del agua destinada a la producción de agua de consumo humano

B.O.E.: 17-JUL-2009

DEROGADA POR:

Orden SSI/304/2013, de 19 de febrero, del Ministerio de Sanidad, Servicios Sociales e Igualdad, sobre sustancias para el tratamiento del agua destinada a la producción de agua de consumo humano

B.O.E.: 27-FEB-2013

DEROGADA POR:

Real Decreto 902/2018, de 20 de julio del Ministerio de la Presidencia, Relaciones con las Cortes e Igualdad, por el que se modifica el Real Decreto 140/2003, de 7 de febrero por el que se establecen los criterios sanitarios de la calidad del agua de consumo humano

B.O.E.: 01-AGO-2018

MODIFICADO POR:

Real Decreto 1120/2012, de 20 de julio, del Ministerio de la Presidencia

B.O.E.: 29-AGO-2012

Real Decreto 742/2013, de 27 de septiembre, del Ministerio de Sanidad, por el que se establecen los criterios técnico-sanitarios de las piscinas

B.O.E.: 11-OCT-2013

Real Decreto 314/2016, de 29 de julio del Ministerio de la Presidencia, por el que se modifica el Real Decreto 140/2003, de 7 de febrero por el que se establecen los criterios sanitarios de la calidad del agua de consumo humano

B.O.E.: 30-JUL-2016

Real Decreto 902/2018, de 20 de julio del Ministerio de la Presidencia, Relaciones con las Cortes e Igualdad, por el que se modifica el Real Decreto 140/2003, de 7 de febrero por el que se establecen los criterios sanitarios de la calidad del agua de consumo humano

B.O.E.: 01-AGO-2018

DESARROLLADO EN EL ÁMBITO DEL MINISTERIO DE DEFENSA POR:

Orden DEF/2150/2013, de 11 de noviembre, del Ministerio de Defensa

B.O.E.: 19-NOV-2013

DB HS. Salubridad (Capítulos HS-4, HS-5)

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado "0.1 Normas de carácter general"

1.3.2. ASCENSORES

Requisitos esenciales de seguridad para la comercialización de ascensores y componentes de seguridad para ascensores

REAL DECRETO 203/2016 de 20 de mayo de 2016, del Ministerio de Industria ,Energía y Turismo

B.O.E.: 25-MAY-2016

Reglamento de aparatos de elevación y manutención de los mismos

(sólo están vigentes los artículos 11 a 15, 19 y 23, el resto ha sido derogado por el Real Decreto 1314/1997, excepto el art.10, que ha sido derogado por el Real Decreto 88/2013, de 8 de febrero)

REAL DECRETO 2291/1985, de 8 de noviembre, del Ministerio de Industria y Energía

B.O.E.: 11-DIC-1985

MODIFICADO POR:

Art 2º de la modificación de diversas normas reglamentarias en materia de seguridad industrial, para adecuarlas a la Ley 17/2009, de 23 de noviembre y a la Ley 25/2009, de 22 de diciembre

REAL DECRETO 560/2010, de 7 de mayo, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 22-MAY-2010

Corrección de errores: B.O.E. 19-JUN-2010

Prescripciones para el incremento de la seguridad del parque de ascensores existentes

REAL DECRETO 57/2005, de 21 de enero, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 04-FEB-2005

DEROGADO LOS ARTÍCULOS 2 Y 3 POR:

Instrucción Técnica Complementaria AEM 1 "Ascensores" del Reglamento de aparatos de elevación y manutención, aprobado por Real Decreto 229/1985, de 8 de noviembre

REAL DECRETO 88/2013, de 8 de febrero, del Ministerio de Industria, Energía y Turismo

B.O.E.: 22-FEB-2013

Prescripciones técnicas no previstas en la ITC-MIE-AEM 1, del Reglamento de aparatos de elevación y manutención de los mismos

RESOLUCIÓN de 27 de abril de 1992, de la Dirección General de Política Tecnológica del Ministerio de Industria, Comercio y Turismo

B.O.E.: 15-MAY-1992

Instrucción Técnica Complementaria AEM 1 "Ascensores" del Reglamento de aparatos de elevación y manutención, aprobado por Real Decreto 229/1985, de 8 de noviembre

REAL DECRETO 88/2013, de 8 de febrero, del Ministerio de Industria, Energía y Turismo

B.O.E.: 22-FEB-2013

Corrección errores: 9-MAY-2013

MODIFICADO POR:

Disp. Final Primera del Real Decreto 203/2016, de 20 de mayo, por el que se establecen los requisitos esenciales de seguridad para la comercialización de ascensores y componentes de seguridad para ascensores

B.O.E.: 25-MAY-2016

Art. 9º de la modificación de diversas normas reglamentarias en materia de seguridad industrial.

REAL DECRETO 298/2021, de 27 de abril del Ministerio de Industria, Comercio y Turismo

B.O.E.: 28-ABR-2021

1.3.3. AUDIOVISUALES Y ANTENAS

Infraestructuras comunes en los edificios para el acceso a los servicios de telecomunicaciones.

REAL DECRETO LEY 1/1998, de 27 de febrero, de la Jefatura del Estado

B.O.E.: 28-FEB-1998

MODIFICADO POR:

Modificación del artículo 2, apartado a), del Real Decreto-Ley 1/1998

Disposición Adicional Sexta, de la Ley 38/1999, de 5 de noviembre, de Jefatura del Estado, de Ordenación de la Edificación

B.O.E.: 06-NOV-1999

Modificación de los artículos 1.2 y 3.1, del Real Decreto-Ley 1/1998

Artículo Quinto de la Ley 10/2005, de 14 de junio, de Jefatura del Estado, de Medidas Urgentes para el impulso de la Televisión Digital Terrestre, de la liberalización de la televisión por cable y de fomento del pluralismo

B.O.E.: 15-JUN-2005

Disposición final quinta de la Ley 9/2014, de 9 de mayo, de Telecomunicaciones

LEY 9/2014, de 9 de mayo, de Jefatura del Estado

B.O.E.: 10-MAY-2014

Reglamento regulador de las infraestructuras comunes de telecomunicaciones para el acceso a los servicios de telecomunicación en el interior de las edificaciones.

REAL DECRETO 346/2011, de 11 de marzo, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 1-ABR-2011

Corrección errores: 18-OCT-2011

DESARROLLADO POR:

Desarrollo del Reglamento regulador de las infraestructuras comunes de telecomunicaciones para el acceso a los servicios de telecomunicación en el interior de las edificaciones, aprobado por el Real Decreto 346/2011, de 11 de marzo.

ORDEN 1644/2011, de 10 de junio de 2011, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 16-JUN-2011

MODIFICADA POR:

Art 3 de la regulación de las características de reacción al fuego de los cables de telecomunicaciones en el interior de las edificaciones y de modificación de determinados anexos del Real Decreto 346/2011, de 11 de marzo, y de la Orden ITC/1644/2011, de 10 de junio

ORDEN 983/2019, de 26 de septiembre, del Ministerio de Economía y Empresa

B.O.E.: 03-OCT-2019

MODIFICADO POR:

Sentencia por la que se anula el inciso "debe ser verificado por una entidad que disponga de la independencia necesaria respecto al proceso de construcción de la edificación y de los medios y la capacitación técnica para ello" in fine del párrafo quinto

Sentencia de 9 de octubre de 2012, de la Sala Tercera del Tribunal Supremo,

B.O.E.: 1-NOV-2012

Sentencia por la que se anula el inciso "en el artículo 3 del Real Decreto-ley 1/1998, de 27 de febrero, sobre infraestructuras comunes en los edificios para el acceso a los servicios de telecomunicación", incluido en los apartados 2.a) del artículo 8; párrafo quinto del apartado 1 del artículo 9; apartado 1 del artículo 10 y párrafo tercero del apartado 2 del artículo 10.

Sentencia de 17 de octubre de 2012, de la Sala Tercera del Tribunal Supremo,

B.O.E.: 7-NOV-2012

Sentencia por la que se anula el inciso "en el artículo 3 del Real Decreto-ley 1/1998, de 27 de febrero, sobre infraestructuras comunes en los edificios para el acceso a los servicios de

telecomunicación", incluido en los apartados 2.a) del artículo 8; párrafo quinto del apartado 1 del artículo 9; apartado 1 del artículo 10 y párrafo tercero del apartado 2 del artículo 10; así como el inciso "a realizar por un Ingeniero de Telecomunicación o un Ingeniero Técnico de Telecomunicación" de la sección 3 del Anexo IV.

Sentencia de 17 de octubre de 2012, de la Sala Tercera del Tribunal Supremo,

B.O.E.: 7-NOV-2012

Disposición final primera del Plan Técnico Nacional de la Televisión Digital Terrestre

REAL DECRETO 805/2014, de 19 de septiembre, del Ministerio de Industria, Energía y Turismo

B.O.E.: 24-SEP-2014

DEROGADO POR

Plan Técnico Nacional de la Televisión Digital Terrestre

REAL DECRETO 391/2019, de 21 de junio, del Ministerio de Economía y Empresa

B.O.E.: 25-JUN-2019

Disposición final cuarta del Plan Técnico Nacional de la Televisión Digital Terrestre

REAL DECRETO 391/2019, de 21 de junio, del Ministerio de Economía y Empresa

B.O.E.: 25-JUN-2019

Art 2 de la regulación de las características de reacción al fuego de los cables de telecomunicaciones en el interior de las edificaciones y de modificación de determinados anexos del Real Decreto 346/2011, de 11 de marzo, y de la Orden ITC/1644/2011, de 10 de junio

ORDEN 983/2019, de 26 de septiembre, del Ministerio de Economía y Empresa

B.O.E.: 03-OCT-2019

1.3.4. CALEFACCIÓN, CLIMATIZACIÓN Y AGUA CALIENTE SANITARIA

Reglamento de Instalaciones Térmicas en los Edificios (RITE)

REAL DECRETO 1027/2007, de 20 de julio, del Ministerio de la Presidencia

B.O.E.: 29-AGO-2007

Corrección errores: 28-FEB-2008

MODIFICADO POR:

Art. segundo del Real Decreto 249/2010, de 5 de marzo, del Ministerio de la Presidencia

B.O.E.: 18-MAR-2010

Corrección errores: 23-ABR-2010

Real Decreto 1826/2009, de 27 de noviembre, del Ministerio de la Presidencia

B.O.E.: 11-DIC-2009

Corrección errores: 12-FEB-2010

Corrección errores: 25-MAY-2010

Real Decreto 238/2013, de 5 de abril, del Ministerio de la Presidencia

B.O.E.: 13-ABR-2013

Corrección errores: 5-SEP-2013

Disp. Final tercera del Real Decreto 56/2016, de 12 de febrero, por el que se transpone la Directiva 2012/27/UE del Parlamento Europeo y del Consejo, de 25 de octubre de 2012, relativa a la eficiencia energética, en lo referente a auditorías energéticas, acreditación de proveedores de servicios y auditores energéticos y promoción de la eficiencia del suministro de energía

B.O.E.: 13-FEB-2016

Real Decreto 178/2021, de 23 de marzo, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática

B.O.E.: 24-MAR-2021

MODIFICADO POR:

Disp. Final segunda de la aprobación del procedimiento básico para la certificación de la eficiencia energética de los edificios.

REAL DECRETO 390/2021, de 1 de junio, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática.

B.O.E.: 2-JUN-2021

Reglamento técnico de distribución y utilización de combustibles gaseosos y sus instrucciones técnicas complementarias ICG 01 a 11

REAL DECRETO 919/2006, de 28 de julio, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 4-SEPT-2006

MODIFICADO POR:

Art 13º de la modificación de diversas normas reglamentarias en materia de seguridad industrial, para adecuarlas a la Ley 17/2009, de 23 de noviembre y a la Ley 25/2009, de 22 de diciembre

REAL DECRETO 560/2010, de 7 de mayo, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 22-MAY-2010

Corrección de errores: B.O.E. 19-JUN-2010

Regulación del mercado organizado de gas y el acceso a tercero a las instalaciones del sistema de gas natural

REAL DECRETO 984/2015, de 30 de octubre, del Ministerio de Industria, Energía y Turismo

B.O.E.: 31-OCT-2015

Actualizado el listado de normas de la ITC-ICG 11 por:

RESOLUCIÓN de 14 de noviembre de 2018 de la Dirección General de Industria y de la Pequeña y de la Mediana Empresa

B.O.E.: 23-NOV-2018

MODIFICADA la ITC-ICG 09 POR:

Art. 7º de la modificación de diversas normas reglamentarias en materia de seguridad industrial.

REAL DECRETO 298/2021, de 27 de abril del Ministerio de Industria, Comercio y Turismo
B.O.E.: 28-ABR-2021

Instrucción técnica complementaria MI-IP 03 "Instalaciones petrolíferas para uso propio"
REAL DECRETO 1427/1997, de 15 de septiembre, del Ministerio de Industria y Energía
B.O.E.: 23-OCT-1997
Corrección errores: 24-ENE-1998
MODIFICADA POR:

Modificación del Reglamento de instalaciones petrolíferas, aprobado por R. D. 2085/1994, de 20-OCT, y las Instrucciones Técnicas complementarias MI-IP-03, aprobadas por el R.D. 1427/1997, de 15-SET, y MI-IP-04, aprobada por el R.D. 2201/1995, de 28-DIC.

REAL DECRETO 1523/1999, de 1 de octubre, del Ministerio de Industria y Energía
B.O.E.: 22-OCT-1999
Corrección errores: 3-MAR-2000

Art 6º de la modificación de diversas normas reglamentarias en materia de seguridad industrial , para adecuarlas a la Ley 17/2009, de 23 de noviembre y a la Ley 25/2009, de 22 de diciembre

REAL DECRETO 560/2010, de 7 de mayo, del Ministerio de Industria, Turismo y Comercio
B.O.E.: 22-MAY-2010

Art 4º de la modificación y derogación de diferentes disposiciones en materia de calidad y seguridad industrial

REAL DECRETO 542/2020, de 26 de mayo, del Ministerio de la Presidencia, Relación con las Cortes y Memoria Democrática
B.O.E.: 20-JUN-2020

Criterios higiénico-sanitarios para la prevención y control de la legionelosis

REAL DECRETO 865/2003, de 4 de julio, del Ministerio de Sanidad y Consumo
B.O.E.: 18-JUL-2003
MODIFICADO EL ART. 13 POR:

Disposición final tercera de la normativa reguladora de la capacitación para realizar tratamientos con biocidas.

REAL DECRETO 830/2010, de 25 de junio, del Ministerio de Sanidad y Política Social
B.O.E.: 14-JUL-2010

DB HE. Ahorro de Energía (Capítulo HE-4: Contribución solar mínima de agua caliente sanitaria) Código Técnico de la Edificación. REAL DECRETO. 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado "0.1 Normas de carácter general"

Reglamento de seguridad para instalaciones frigoríficas y sus instrucciones técnicas complementarias

REAL DECRETO 552/2019, de 27 de septiembre, del Ministerio de Industria, Comercio y Turismo

B.O.E.: 24-OCT-2019

Corrección de erratas: B.O.E. 25-OCT-2019

MODIFICADO POR:

Art. 12º de la modificación de diversas nomas reglamentarias en materia de seguridad industrial.

REAL DECRETO 298/2021, de 27 de abril del Ministerio de Industria, Comercio y Turismo

B.O.E.: 28-ABR-2021

1.3.5. ELECTRICIDAD

Reglamento Electrotécnico para Baja Tensión e instrucciones Técnicas Complementarias (ITC) BT 01 a BT 51

REAL DECRETO 842/2002, de 2 de agosto, del Ministerio de Ciencia y Tecnología

B.O.E.: suplemento al nº 224, 18-SEP-2002

Anulado el inciso 4.2.C.2 de la ITC-BT-03 por:

SENTENCIA de 17 de febrero de 2004 de la Sala Tercera del Tribunal Supremo

B.O.E.: 5-ABR-2004

Derogado el apartado 4.3.3 y el tercer párrafo del capítulo 7 de la ITC-BT-40 por:

REAL DECRETO 244/2019, de 5 de abril del Ministerio para la Transición Ecológica

B.O.E.: 6-ABR-2019

MODIFICADO POR:

Art 7º de la modificación de diversas normas reglamentarias en materia de seguridad industrial, para adecuarlas a la Ley 17/2009, de 23 de noviembre y a la Ley 25/2009, de 22 de diciembre

REAL DECRETO 560/2010, de 7 de mayo, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 22-MAY-2010

Corrección de errores: B.O.E. 19-JUN-2010

Corrección de errores: B.O.E. 26-AGO-2010

Nueva Instrucción Técnica Complementaria (ITC) BT 52 «Instalaciones con fines especiales. Infraestructura para la recarga de vehículos eléctricos», del Reglamento electrotécnico para baja

tensión, aprobado por Real Decreto 842/2002, de 2 de agosto, y se modifican otras instrucciones técnicas complementarias del mismo.

REAL DECRETO 1053/2014, de 12 de diciembre, del Ministerio de Industria, Energía y Turismo

B.O.E.: 31-DIC-2014

MODIFICADO POR:

Art 11º de la modificación y derogación de diferentes disposiciones en materia de calidad y seguridad industrial

REAL DECRETO 542/2020, de 26 de mayo, del Ministerio de la Presidencia, Relación con las Cortes y Memoria Democrática

B.O.E.: 20-JUN-2020

Disp. Final primera del Real Decreto 450/2022, de 14 de junio, por el que se modifica el Código Técnico de la Edificación, aprobado por el Real Decreto 314/2006.

REAL DECRETO 450/2022, de 14 de junio, del Ministerio de la Presidencia, Relación con las Cortes y Memoria Democrática

B.O.E.: 15-JUN-2022

Art 5º de la modificación y derogación de diferentes disposiciones en materia de calidad y seguridad industrial.

REAL DECRETO 542/2020, de 26 de mayo, del Ministerio de la Presidencia, Relación con las Cortes y Memoria Democrática

B.O.E.: 20-JUN-2020

MODIFICADA LA ITC-BT-40 POR:

Disposición final segunda de la Regulación de las condiciones administrativas, técnicas y económicas del autoconsumo de energía eléctrica.

REAL DECRETO 244/2019, de 5 de abril del Ministerio para la Transición Ecológica

B.O.E.: 6-ABR-2019

ACTUALIZADO POR:

Actualización del listado de normas de la Instrucción Técnica Complementaria ITC-BT-02 del Reglamento electrotécnico para baja tensión, aprobado por el Real Decreto 842/2002, de 2 de agosto.

Resolución de 9 de enero de 2020, de la Dirección General de Industria y de la Pequeña y Mediana Empresa

B.O.E.: 16-ENE-2020

MODIFICADO EL REGLAMENTO Y LA ITC-BT-03 POR:

Art. 1º de la modificación de diversas normas reglamentarias en materia de seguridad industrial.

REAL DECRETO 298/2021, de 27 de abril del Ministerio de Industria, Comercio y Turismo

B.O.E.: 28-ABR-2021

Autorización para el empleo de sistemas de instalaciones con conductores aislados bajo canales protectores de material plástico

RESOLUCIÓN de 18 de enero 1988, de la Dirección General de Innovación Industrial

B.O.E.: 19-FEB-1988

Corrección de errores: 29-ABR-1988

Reglamento de eficiencia energética en instalaciones de alumbrado exterior y sus Instrucciones Técnicas Complementarias EA-01 a EA-07

REAL DECRETO 1890/2008, de 14 de noviembre, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 19-NOV-2008

DB HE. Ahorro de Energía (Capítulo HE-5:. Generación mínima de energía eléctrica procedente de fuentes renovables)

Código Técnico de la Edificación. REAL DECRETO. 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

DB HE. Ahorro de Energía (Capítulo HE-6:. Dotaciones mínimas para la infraestructura de recarga de vehículos eléctricos)

Código Técnico de la Edificación. REAL DECRETO. 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado “0.1 Normas de carácter general”

1.3.6. INSTALACIONES DE PROTECCIÓN CONTRA INCENDIOS

Reglamento de instalaciones de protección contra incendios

REAL DECRETO 513/2017, de 22 de mayo, del Ministerio de Economía, Industria y Competitividad

B.O.E.: 12-JUN-2017

Corrección de errores: 23-SEP-2017

MODIFICADO POR:

Art. 11º de la modificación de diversas normas reglamentarias en materia de seguridad industrial.

REAL DECRETO 298/2021, de 27 de abril del Ministerio de Industria, Comercio y Turismo

B.O.E.: 28-ABR-2021

1.4. A.I.4 CUBIERTAS

DB HS-1. Salubridad

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado "0.1 Normas de carácter general"

1.5. A.I.5 PROTECCIÓN

1.5.1. AISLAMIENTO ACÚSTICO

DB HR. Protección frente al ruido

REAL DECRETO 1371/2007, de 19 de octubre, del Ministerio de Vivienda

B.O.E.: 23-OCT-2007

Corrección de errores: B.O.E. 20-DIC-2007

1.5.2. AISLAMIENTO TÉRMICO

DB-HE-Ahorro de Energía

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

1.5.3. PROTECCIÓN CONTRA INCENDIOS

DB-SI-Seguridad en caso de Incendios

Código Técnico de la Edificación. REAL DECRETO 314/2006, de 17 de marzo, del Ministerio de Vivienda

B.O.E.: 28-MAR-2006

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado "0.1 Normas de carácter general"

Reglamento de Seguridad contra Incendios en los establecimientos industriales.

REAL DECRETO 2267/2004, de 3 Diciembre, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 17-DIC-2004

Corrección errores: 05-MAR-2005

MODIFICADO POR:

Art 10º de la modificación de diversas normas reglamentarias en materia de seguridad industrial, para adecuarlas a la Ley 17/2009, de 23 de noviembre y a la Ley 25/2009, de 22 de diciembre

REAL DECRETO 560/2010, de 7 de mayo, del Ministerio de Industria, Turismo y Comercio

B.O.E.: 22-MAY-2010

Clasificación de los productos de construcción y de los elementos constructivos en función de sus propiedades de reacción y de resistencia frente al fuego

REAL DECRETO 842/2013, de 31 de octubre, del Ministerio de la Presidencia

B.O.E.: 23-NOV-2013

Regulación de las características de reacción al fuego de los cables de telecomunicaciones en el interior de las edificaciones, modificación de determinados anexos del Reglamento regulador de las infraestructuras comunes de telecomunicaciones para el acceso a los servicios de telecomunicación en el interior de las edificaciones, aprobado por Real Decreto 346/2011, de 11 de marzo, y modificación de la Orden ITC/1644/2011, de 10 de junio por la que se desarrolla dicho reglamento.

ORDEN 983/2019, de 26 de septiembre, del Ministerio de Economía y Empresa

B.O.E.: 03-OCT-2019

1.5.4. SEGURIDAD Y SALUD EN LAS OBRAS DE CONSTRUCCIÓN

Disposiciones mínimas de seguridad y de salud en las obras de construcción

REAL DECRETO 1627/1997, de 24 de octubre, del Ministerio de la Presidencia

B.O.E.: 25-OCT-1997

MODIFICADO POR:

Modificación del Real Decreto 1215/1997, de 18 de julio, por el que se establecen las disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo, en materia de trabajos temporales en altura.

REAL DECRETO 2177/2004, de 12 de noviembre, del Ministerio de la Presidencia

B.O.E.: 13-NOV-2004

Modificación del Real Decreto 1627/1997, de 24 de octubre, por el que se establecen las disposiciones mínimas de seguridad y salud en las obras de construcción.

REAL DECRETO 604/2006, de 19 de mayo, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 29-MAY-2006

Disposición final tercera del Real Decreto 1109/2007, de 24 de agosto, por el que se desarrolla la Ley 32/2006, de 18 de Octubre, reguladora de la Subcontratación en el Sector de la Construcción

REAL DECRETO 1109/2007, de 24 de agosto, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 25-AGO-2007

Modificación del Real Decreto 1627/1997, de 24 de octubre.

REAL DECRETO 337/2010, de 19 de marzo, del Ministerio de Trabajo e Inmigración

B.O.E.: 23-MAR-2010

AFECTADO POR:

Artículo 7 de la Ley 25/2009, de 22 de diciembre, de modificación de diversas leyes para su adaptación a la Ley sobre el libre acceso a las actividades de servicios y su ejercicio

LEY 25/2009, de 22 de diciembre, de Jefatura del Estado

B.O.E.: 23-DIC-2009

DEROGADO EL ART.18 POR:

REAL DECRETO 337/2010, de 19 de marzo, del Ministerio de Trabajo e Inmigración

B.O.E.: 23-MAR-2010

Prevención de Riesgos Laborales

LEY 31/1995, de 8 de noviembre, de la Jefatura del Estado

B.O.E.: 10-NOV-1995

DESARROLLADA POR:

Desarrollo del artículo 24 de la Ley 31/1995 de Prevención de Riesgos Laborales, en materia de coordinación de actividades empresariales

REAL DECRETO 171/2004, de 30 de enero, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 31-ENE-2004

Corrección errores: 10-MAR-2004

MODIFICADA POR:

Medidas Fiscales, Administrativas y del Orden Social (Ley de Acompañamiento de los presupuestos de 1999)

LEY 50/1998, de 30 de diciembre, de la Jefatura del Estado

B.O.E.: 31-DIC-1998

Art. 10 de la Ley 39/1999, de Promoción de la conciliación de la vida familiar y laboral de las personas trabajadoras

LEY 39/1999, de 5 de noviembre, de la Jefatura del Estado

B.O.E.: 05-NOV-1999

Reforma del marco normativo de la Prevención de Riesgos Laborales

LEY 54/2003, de 12 de diciembre, de la Jefatura del Estado

B.O.E.: 13-DIC-2003

Disposición adicional cuadragésimo séptima de la Ley 30/2005, de Presupuestos Generales del Estado para el año 2006

LEY 30/2005, de 29 de diciembre, de la Jefatura del Estado

B.O.E.: 30-DIC-2005

Disposición adicional segunda de la Ley 31/2006, sobre implicación de los trabajadores en las sociedades anónimas y cooperativas europeas

LEY 31/2006, de 18 de octubre, de la Jefatura del Estado

B.O.E.: 19-OCT-2006

Disposición adicional duodécima de la Ley 3/2007, para la igualdad de mujeres y hombres

LEY ORGÁNICA 3/2007, de 22 de marzo, de la Jefatura del Estado

B.O.E.: 23-MAR-2007

Artículo 8 y Disposición adicional tercera de la Ley 25/2009, de 22 de diciembre, de modificación de diversas leyes para su adaptación a la Ley sobre el libre acceso a las actividades de servicios y su ejercicio

LEY 25/2009, de 22 de diciembre, de Jefatura del Estado

B.O.E.: 23-DIC-2009

Disposición final sexta de la Ley 32/2010, por la que se establece un sistema específico de protección por cese de actividad de los trabajadores autónomos

LEY 32/2010, de 5 de agosto, de la Jefatura del Estado

B.O.E.: 06-AGO-2010

Artículo 39 de la Ley 14/2013, de apoyo a los emprendedores y su internacionalización

LEY 14/2013, de 27 de septiembre, de la Jefatura del Estado

B.O.E.: 28-SEP-2013

Disposición final primera de la Ley 35/2014, por la que se modifica el texto refundido de la Ley General de la Seguridad Social en relación con el régimen jurídico de las Mutuas de Accidentes de Trabajo y Enfermedades Profesionales de la Seguridad Social

LEY 35/2014, de 26 de diciembre, de la Jefatura del Estado

B.O.E.: 29-DIC-2014

DEROGADOS ALGUNOS ARTÍCULO POR:

Disposición derogatoria única del Texto refundido de la Ley sobre infracciones y sanciones en el Orden Social

REAL DECRETO LEGISLATIVO 5/2000, de 4 de agosto, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 08-AGO-2000

Reglamento de los Servicios de Prevención

REAL DECRETO 39/1997, de 17 de enero, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 31-ENE-1997

MODIFICADO POR:

Modificación del Reglamento de los Servicios de Prevención

REAL DECRETO 780/1998, de 30 de abril, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 1-MAY-1998

Regulación del régimen de funcionamiento de las mutuas de accidentes de trabajo y enfermedades profesionales de la Seguridad Social como servicio de prevención ajeno

REAL DECRETO 688/2005, de 10 de junio, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 11-JUN-2005

Modificación del Reglamento de los Servicios de Prevención

REAL DECRETO 604/2006, de 19 de mayo, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 29-MAY-2006

Modificación del Reglamento de los Servicios de Prevención

REAL DECRETO 298/2009, de 6 de marzo, del Ministerio de la Presidencia

B.O.E.: 07-MAR-2009

Modificación del Reglamento de los Servicios de Prevención

REAL DECRETO 337/2010, de 19 de marzo, del Ministerio de Trabajo e Inmigración

B.O.E.: 23-MAR-2010

Modificación del Reglamento de los Servicios de Prevención

REAL DECRETO 598/2015, de 3 de julio, del Ministerio de la Presidencia

B.O.E.: 04-JUL-2015

Modificación del Reglamento de los Servicios de Prevención

REAL DECRETO 899/2015, de 9 de octubre, del Ministerio de Empleo y Seguridad Social

B.O.E.: 1-MAY-1998

DEROGADA LA DISPOSICIÓN TRANSITORIA TERCERA POR:

REAL DECRETO 337/2010, de 19 de marzo, del Ministerio de Trabajo e Inmigración

B.O.E.: 23-MAR-2010

DESARROLLADO POR:

Desarrollo del Real Decreto 39/1997, de 17 de enero, en lo referido a la acreditación de entidades especializadas como servicios de prevención, memoria de actividades preventivas y autorización para realizar la actividad de auditoría del sistema de prevención de las empresas

ORDEN 2504/2010, de 20 de septiembre, del Ministerio de Trabajo e Inmigración

B.O.E.: 28-SEP-2010

Corrección errores: 22-OCT-2010

Corrección errores: 18-NOV-2010

MODIFICADA POR:

Modificación de la Orden 2504/2010, de 20 sept

ORDEN 2259/2015, de 22 de octubre

B.O.E.: 30-OCT-2015

Señalización de seguridad en el trabajo

REAL DECRETO 485/1997, de 14 de abril, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 23-ABR-1997

MODIFICADO POR:

Modificación del Real Decreto 485/1997

REAL DECRETO 598/2015, de 3 de julio, del Ministerio de la Presidencia

B.O.E.: 04-JUL-2015

Seguridad y Salud en los lugares de trabajo

REAL DECRETO 486/1997, de 14 de abril, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 23-ABR-1997

MODIFICADO POR:

Modificación del Real Decreto 1215/1997, de 18 de julio, por el que se establecen las disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo, en materia de trabajos temporales en altura.

REAL DECRETO 2177/2004, de 12 de noviembre, del Ministerio de la Presidencia

B.O.E.: 13-NOV-2004

Manipulación de cargas

REAL DECRETO 487/1997, de 14 de abril, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 23-ABR-1997

Utilización de equipos de protección individual

REAL DECRETO 773/1997, de 30 de mayo, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 12-JUN-1997

Corrección errores: 18-JUL-1997

MODIFICADO POR:

Modificación del Real Decreto 773/1997, de 30 de mayo

REAL DECRETO 1076/2021, de 7 de diciembre, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática

B.O.E.: 08-DIC-2021

Utilización de equipos de trabajo

REAL DECRETO 1215/1997, de 18 de julio, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 7-AGO-1997

MODIFICADO POR:

Modificación del Real Decreto 1215/1997, de 18 de julio, por el que se establecen las disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo, en materia de trabajos temporales en altura.

REAL DECRETO 2177/2004, de 12 de noviembre, del Ministerio de la Presidencia

B.O.E.: 13-NOV-2004

Disposiciones mínimas de seguridad y salud aplicables a los trabajos con riesgo de exposición al amianto

REAL DECRETO 396/2006, de 31 de marzo, del Ministerio de la Presidencia

B.O.E.: 11-ABR-2006

Protección de la salud y la seguridad de los trabajadores contra los riesgos relacionados con la exposición a campos electromagnéticos

REAL DECRETO 299/2016, de 22 de julio, del Ministerio de la Presidencia

B.O.E.: 29-JUL-2016

Regulación de la subcontratación

LEY 32/2006, de 18 de Octubre, de Jefatura del Estado

B.O.E.: 19-OCT-2006

DESARROLLADA POR:

Desarrollo de la Ley 32/2006, de 18 de Octubre, reguladora de la Subcontratación en el Sector de la Construcción

REAL DECRETO 1109/2007, de 24 de agosto, del Ministerio de Trabajo y Asuntos Sociales

B.O.E.: 25-AGO-2007

Corrección de errores: 12-SEP-2007

MODIFICADO POR:

Modificación del Real Decreto 1109/2007, de 24 de agosto

REAL DECRETO 327/2009, de 13 de marzo, del Ministerio de Trabajo e Inmigración

B.O.E.: 14-MAR-2009

Modificación del Real Decreto 1109/2007, de 24 de agosto

REAL DECRETO 337/2010, de 19 de marzo, del Ministerio de Trabajo e Inmigración

B.O.E.: 23-MAR-2010

MODIFICADA POR:

Artículo 16 de la Ley 25/2009, de 22 de diciembre, de modificación de diversas leyes para su adaptación a la Ley sobre el libre acceso a las actividades de servicios y su ejercicio

LEY 25/2009, de 22 de diciembre, de Jefatura del Estado

B.O.E.: 23-DIC-2009

1.5.5. SEGURIDAD DE UTILIZACIÓN

DB-SUA-Seguridad de utilización y accesibilidad

REAL DECRETO 173/2010, de 19 de febrero, del Ministerio de Vivienda

B.O.E.: 11-MAR-2010

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado "0.1 Normas de carácter general"

1.6. A.I.6 BARRERAS ARQUITECTÓNICAS

Real Decreto por el que se aprueban las condiciones básicas de accesibilidad y no discriminación de las personas con discapacidad para el acceso y utilización de los espacios públicos urbanizados y edificaciones.

REAL DECRETO 505/2007, de 20 de abril, del Ministerio de la Presidencia

B.O.E.: 11-MAY-2007

MODIFICADO POR:

La Disposición final primera de la modificación del Real Decreto 314/2006, de 17 de marzo, en materia de accesibilidad y no discriminación de las personas con discapacidad

REAL DECRETO 173/2010, de 19 de febrero, del Ministerio de Vivienda

B.O.E.: 11-MAR-2010

DESARROLLADO POR:

Desarrollo del documento técnico de condiciones básicas de accesibilidad y no discriminación para el acceso y utilización de los espacios públicos urbanizados

Orden 851/2021, de 23 de julio, del Ministerio de Transportes, Movilidad y Agenda Urbana

B.O.E.: 06-AGO-2021

En proyectos aprobados definitivamente hasta el 2 de noviembre de 2022, se puede optar por aplicar la Orden TMA/851/2021 o la Orden VIV/561/2010, de 1 de febrero. (Véase Disp. transitoria única)

DB-SUA-Seguridad de utilización y accesibilidad (Capítulo SUA-9)

REAL DECRETO 173/2010, de 19 de febrero, del Ministerio de Vivienda

B.O.E.: 11-MAR-2010

Para consultar todas las modificaciones del RD 314/2006, remitirse al apartado "0.1 Normas de carácter general"

Texto Refundido de la Ley General de derechos de las personas con discapacidad y de su inclusión social

REAL DECRETO LEGISLATIVO 1/2013, de 29 de noviembre, del Ministerio de Sanidad, Servicios Sociales e Igualdad

B.O.E.: 3-DIC-2013

MODIFICADO POR:

Disposición final segunda de la Ley 12/2015, de 24 de junio

LEY 12/2015, de 24 de junio, de Jefatura del Estado

B.O.E.: 25-JUN-2015

Disposición final decimocuarta de la Ley 9/2017, de 8 de noviembre, de Contratos del Sector Público

LEY 9/2017, de 8 de noviembre, de Jefatura del Estado

B.O.E.: 9-NOV-2017

Modificación del Texto Refundido de la Ley General de derechos de las personas con discapacidad y de su inclusión social, para establecer y regular la accesibilidad cognitiva y sus condiciones de exigencia y aplicación

LEY 6/2022, de 31 de marzo, de Jefatura del Estado

B.O.E.: 01-ABR-2022

1.7. A.I.7 VARIOS

1.7.1. INSTRUCCIONES Y PLIEGOS DE RECEPCIÓN

Instrucción para la recepción de cementos "RC-16"

REAL DECRETO 256/2016, de 10 de junio, del Ministerio de la Presidencia

B.O.E.: 25-JUN-2016

Corrección errores: B.O.E.: 27-OCT-2017

Ampliación de los anexos I, II y III de la Orden de 29 de noviembre de 2001,
por la que se publican las referencias a las normas UNE que son transposición de normas armonizadas, así como el período de coexistencia y la entrada en vigor del marcado CE relativo a varias familias de productos de construcción

Resolución de 6 de abril de 2017, de la Dirección General de Industria y de la Pequeña y Mediana Empresa

B.O.E.: 28-ABR-2017

1.7.2. MEDIO AMBIENTE

Reglamento de actividades molestas, insalubres, nocivas y peligrosas

DECRETO 2414/1961, de 30 de noviembre, de Presidencia de Gobierno

B.O.E.: 7-DIC-1961

Corrección errores: 7-MAR-1962

MODIFICADO POR:

Modificación de determinados artículos del Reglamento de Actividades molestas, insalubres, nocivas y peligrosas.

REAL DECRETO 3494/1964, de 5 de noviembre, de Presidencia del Gobierno

B.O.E.: 06-NOV-1964

DEROGADOS el segundo párrafo del artículo 18 y el Anexo 2 por:

Protección de la salud y seguridad de los trabajadores contra los riesgos relacionados con los agentes químicos durante el trabajo

REAL DECRETO 374/2001, de 6 de abril, del Ministerio de la Presidencia

B.O.E.: 1-MAY-2001

DEROGADO por:

Calidad del aire y protección de la atmósfera

LEY 34/2007, de 15 de noviembre, de Jefatura del Estado

B.O.E.: 16-NOV-2007

No obstante, el reglamento de actividades molestas, insalubres, nocivas y peligrosas mantendrá su vigencia en aquellas comunidades y ciudades autónomas que no tengan normativa aprobada en la materia, en tanto no se dicte dicha normativa.

MODIFICADA LA DISPOSICIÓN DEROGATORIA ÚNICA POR:

Modificación de la Ley 26/2007, de 23 de octubre, de responsabilidad medioambiental.

LEY 11/2014, de 3 de julio, de Jefatura del Estado

B.O.E.: 04-JUL-2014

Instrucciones complementarias para la aplicación del Reglamento de actividades molestas, insalubres, nocivas y peligrosas

ORDEN de 15 de marzo de 1963, del Ministerio de la Gobernación

B.O.E.: 2-ABR-1963

MODIFICADA POR:

Modificación del artículo sexto de la Instrucción de 15 de marzo de 1963, complementaria del Reglamento de Actividades Molestas, Insalubres, Nocivas y Peligrosas de 30 de noviembre de 1961.

ORDEN de 25 de octubre de 1965 del Ministerio de la Gobernación

B.O.E.: 10-NOV-1965

1.7.3. RUIDO

LEY 37/2003, de 17 de noviembre, de Jefatura del Estado

B.O.E.: 18-NOV-2003

DESARROLLADA POR:

Desarrollo de la Ley 37/2003, de 17 de noviembre, del ruido, en lo referente a la evaluación y gestión del ruido ambiental.

REAL DECRETO 1513/2005, de 16 de diciembre, del Ministerio de la Presidencia

B.O.E.: 17-DIC-2005

MODIFICADO POR:

Modificación del Real Decreto 1513/2005, de 16 de diciembre, por el que se desarrolla la Ley 37/2003, de 17 de noviembre, del ruido.

Disposición final primera del REAL DECRETO 1367/2007, de 19 de octubre,
del Ministerio de la Presidencia
B.O.E.: 23-OCT-2007

Modificación del Anexo III del Real Decreto 1513/2005, de 16 de diciembre, por el que se desarrolla la Ley 37/2003, de 17 de noviembre, del ruido.

Orden PCM/542/2021, de 31 de mayo, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática
B.O.E.: 3-JUN-2021

Modificación del Anexo II del Real Decreto 1513/2005, de 16 de diciembre, por el que se desarrolla la Ley 37/2003, de 17 de noviembre, del ruido, en lo referente a la evaluación y gestión del ruido ambiental

Orden PCM/80/2022, de 7 de febrero, del Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática
B.O.E.: 10-FEB-2022

Desarrollo de la Ley 37/2003, de 17 de noviembre, del ruido, en lo referente a zonificación acústica, objetivos de calidad y emisiones acústicas.

REAL DECRETO 1367/2007, de 19 de octubre, del Ministerio de la Presidencia
B.O.E.: 23-OCT-2007
MODIFICADO POR:

Modificación del Real Decreto 1367/2007, de 19 de octubre, por el que se desarrolla la Ley 37/2003, de 17 de noviembre, del ruido, en lo referente a zonificación acústica, objetivos de calidad y emisiones acústicas .

REAL DECRETO 1038/2012, de 6 de julio, del Ministerio de la Presidencia
B.O.E.: 26-JUL-2012
MODIFICADA POR:

Medidas de apoyo a los deudores hipotecarios, de control del gasto público y cancelación de deudas con empresas autónomas contraídas por las entidades locales, de fomento de la actividad empresarial e impulso de la rehabilitación y de simplificación administrativa. (Art.31)

REAL DECRETO-LEY 8/2011, de 1 de julio, de Jefatura del Estado
B.O.E.: 7-JUL-2011
Corrección errores: B.O.E.: 13-JUL-2011

Regulación de la producción y gestión de los residuos de construcción y demolición

REAL DECRETO 105/2008, de 1 de febrero, del Ministerio de la Presidencia
B.O.E.: 13-FEB-2008

Evaluación ambiental

LEY 21/2013, de 9 de diciembre, de Jefatura del Estado

B.O.E.: 11-DIC-2013

MODIFICADA POR:

Modificación de la Ley 21/2013, de 9 de diciembre de evaluación ambiental

LEY 9/2018, de 5 de diciembre, de Jefatura del Estado

B.O.E.: 06-DIC-2018

Art.8 del Real Decreto-Ley 23/2020, de 23 de junio, por el que se aprueban medidas en materia de energía y en otros ámbitos para la reactivación económica.

REAL DECRETO-LEY 23/2020, de 23 de junio, de Jefatura del Estado

B.O.E.: 24-JUN-2020

Disposición final decimosexta del Real Decreto-Ley 6/2022, de 29 de marzo, por el que se adoptan medidas urgentes en el marco del Plan Nacional de respuesta a las consecuencias económicas y sociales de la guerra de Ucrania.

Real Decreto-Ley 6/2022, de 29 de marzo, de Jefatura del Estado,

B.O.E.: 30-MAR-2022

Protección frente a la exposición al radón

Código Técnico de la Edificación. DB-HS6

REAL DECRETO 732/2019, de 20 de diciembre, del Ministerio de Fomento

B.O.E.: 27-DIC-2019

1.7.4. OTROS

Ley del Servicio Postal Universal, de los derechos de los usuarios y del mercado postal

LEY 43/2010, de 30 de diciembre, de Jefatura del Estado

B.O.E.: 31-DIC-2010

MODIFICADA POR:

Presupuestos Generales del Estado para el año 2013

LEY 17/2012, de 27 de diciembre, de Jefatura del Estado

B.O.E.: 28-DIC-2012

1.8. A.I.8 COMUNIDAD DE MADRID

1.8.1. NORMAS DE CARÁCTER GENERAL

Medidas para la calidad de la edificación

LEY 2/1999, de 17 de marzo, de la Presidencia de la Comunidad de Madrid

B.O.C.M.: 29-MAR-1999

Regulación del Libro del Edificio

DECRETO 349/1999, de 30 de diciembre, de la Consejería de Obras Públicas, Urbanismo y Transportes de la Comunidad de Madrid
B.O.C.M.: 14-ENE-2000

1.8.2. INSTALACIONES

Condiciones de las instalaciones de gas en locales destinados a usos domésticos, colectivos o comerciales y en particular, requisitos adicionales sobre la instalación de aparatos de calefacción, agua caliente sanitaria, o mixto, y conductos de evacuación de productos de la combustión.

ORDEN 2910/1995, de 11 de diciembre, de la Consejería de Economía y Empleo de la Comunidad de Madrid

B.O.C.M..: 21-DIC-1995

El contenido de la presente Orden ha quedado desplazado por la regulación de la normativa estatal (RITE) , salvo los apartados Segundo y sexto que continúan en vigor.

AMPLIADA POR:

Ampliación del plazo de la disposición final 2ª de la orden de 11 de diciembre de 1995 sobre condiciones de las instalaciones en locales destinados a usos domésticos, colectivos o comerciales y, en particular, requisitos adicionales sobre la instalación de aparatos de calefacción, agua caliente sanitaria o mixto, y conductos de evacuación de productos de la combustión

ORDEN 454/1996, de 23 de enero, de la Consejería de Economía y Empleo de la C. de Madrid.

B.O.C.M..: 29-ENE-1996

1.8.3. BARRERAS ARQUITECTÓNICAS

Promoción de la accesibilidad y supresión de barreras arquitectónicas.
LEY 8/1993, de 22 de junio, de la Presidencia de la Comunidad de Madrid
B.O.E.: 25-AGO-1993
Corrección errores: 21-SEP-1993
MODIFICADA POR:

Modificación de la Composición del Consejo para la promoción de la accesibilidad y la supresión de barreras, previsto en el artículo 46.2 de la Ley 8/1993, de 22 de junio
LEY 10/1996, de 29 de noviembre, de la Presidencia de la Comunidad de Madrid
B.O.C.M.: 28-MAR-1997

Modificación de determinadas especificaciones técnicas de la Ley 8/1993, de 22 de junio, de promoción de la accesibilidad y supresión de barreras arquitectónicas
DECRETO 138/1998, de 23 de julio, de la Consejería de Presidencia de la Comunidad de Madrid
B.O.C.M.: 30-JUL-1998

Medidas fiscales y administrativas

LEY 24/1999, de 27 de diciembre, de la Presidencia de la Comunidad de Madrid

B.O.E.: 25-FEB-2000

Medidas fiscales y administrativas

LEY 14/2001, de 26 de diciembre, de la Presidencia de la Comunidad de Madrid

B.O.E.: 5-MAR-2002

Reglamento Técnico de Desarrollo en Materia de Promoción de la Accesibilidad y Supresión de Barreras Arquitectónicas

Decreto 13/2007, de 15 de marzo, del Consejo de Gobierno

B.O.C.M.: 24-ABR-2007

DEROGADAS LAS NORMAS TÉCNICAS CONTENIDAS EN LA NORMA 1, APARTADO 1.2.2.1 POR:

Establecimiento de los parámetros exigibles a los ascensores en las edificaciones para que reúnan la condición de accesibles en el ámbito de la Comunidad de Madrid

ORDEN de 7 de febrero de 2014, de la Consejería de Transportes, Infraestructuras y Vivienda de la Comunidad de Madrid

B.O.C.M.: 13-FEB-2014

MODIFICADA LA NORMA TÉCNICA 2 POR:

Modificación de la Norma Técnica 2, aprobada por el Decreto 13/2007, de 15 de marzo, que regula el Reglamento Técnico de Desarrollo en materia de Promoción de la Accesibilidad y Supresión de Barreras Arquitectónicas

ORDEN de 20 de enero de 2020, de la Consejería de Vivienda y Administración Local de la Comunidad de Madrid

B.O.C.M.: 31-ENE-2020

Reglamento de desarrollo del régimen sancionador en materia de promoción de la accesibilidad y supresión de barreras arquitectónicas.

DECRETO 71/1999, de 20 de mayo, de la Consejería de Presidencia de la Comunidad de Madrid

B.O.C.M.: 28-MAY-1999

1.8.4. MEDIO AMBIENTE

Evaluación ambiental

LEY 2/2002, de 19 de junio, de la Presidencia de la Comunidad de Madrid

B.O.E.: 24-JUL-2002

B.O.C.M. 1-JUL-2002

DEROGADA A excepción del Título IV “Evaluación ambiental de actividades”, los artículos 49, 50 y 72, la disposición adicional séptima y el Anexo Quinto, POR:

Medidas fiscales y administrativas

LEY 4/2014, de 22 de diciembre de 2014
B.O.C.M.: 29-DIC-2014
MODIFICADA POR:
Art. 21 de la Ley 2/2004, de 31 de mayo, de Medidas Fiscales y administrativas
B.O.C.M.: 1-JUN-2004
Art. 20 de la Ley 3/2008, de 29 de diciembre, de Medidas Fiscales y administrativas
B.O.C.M.: 30-DIC-2008
Art. 16 de la Ley 9/2015, de 28 de diciembre, de Medidas Fiscales y administrativas
B.O.C.M.: 31-DIC-2015
Art. 9 de la Ley 11/2022, de 21 de diciembre, de Medidas urgentes para el impulso de la actividad económica y la modernización de la administración de la Comunidad de Madrid
B.O.C.M.: 22-DIC-2022

Regulación de la gestión de los residuos de construcción y demolición en la Comunidad de Madrid
ORDEN 2726/2009, de 16 de julio, de la Consejería de Medio Ambiente de la Comunidad de Madrid
B.O.C.M.: 7-AGO-2009

1.8.5. ANDAMIOS

Requisitos mínimos exigibles para el montaje, uso, mantenimiento y conservación de los andamios tubulares utilizados en las obras de construcción
ORDEN 2988/1988, de 30 de junio, de la Consejería de Economía y Empleo de la Comunidad de Madrid
B.O.C.M.: 14-JUL-1998

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

MORIANA PERICET JOSE - 48866714V

Firmado digitalmente por MORIANA PERICET JOSE - 48866714V
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D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: noviembre de 2024

2. ANEJO II. PROGRAMA DE OBRA

A continuación se detalla la planificación valorada de la obra a acometer en este proyecto. Como se ha descrito en el proyecto**.**

Financiado por la Unión Europea NextGenerationEU

MINISTERIO DE INDUSTRIA Y TURISMO

Plan de Recuperación, Transformación y Resiliencia

Comunidad de Madrid · MADRID

PROYECTO BÁSICO Y EJECUCION

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL OABELLÓN DE CRISTAL DE LA CASA DE CAMPO

MADRID DESTINO

Madrid Destino

cemosa Ingeniería y Control

		MES	1	2	3	4	5	6
01.- DEMOLICIONES Y DESMONTAJES	22.119,28 €		22.119,28 €					
02.- INSTALACION ELECTRICIDAD								
02.01.- CUADROS ELECTRICOS	56.068,24 €					18.689,41 €	18.689,41 €	18.689,41 €
02.02.- LINEAS ELECTRICAS	64.595,73 €					21.531,91 €	21.531,91 €	21.531,91 €
02.03.- BANDEJAS-CANALIZACIONES	23.816,55 €					7.938,85 €	7.938,85 €	7.938,85 €
02.04.- VARIOS	1.476,56 €							1.476,56 €
03.- BMS								
03.01.- SUBESTACIONES DE CONTROL	43.096,90 €					14.365,63 €	14.365,63 €	14.365,63 €
03.02.- PUESTO CENTRAL	7.133,63 €							7.133,63 €
03.03.- INGENIERIA SISTEMA DE CONTROL	14.183,34 €					4.727,78 €	4.727,78 €	4.727,78 €
03.04.- INSTALACION SISTEMA DE CONTROL	47.322,63 €				11.830,66 €	11.830,66 €	11.830,66 €	11.830,66 €
04.- RED DE EVACUCION DE CONDENSADOS								
04.01.- DESAGUE APARATOS	184,08 €					184,08 €		
04.02.- TUBERIAS	7.058,16 €					3.529,08 €	3.529,08 €	
04.03.- ARQUETAS	503,53 €					503,53 €		
04.04.- VARIOS	228,26 €					228,26 €		
05.- CLIMATIZACION								
05.01.- CONDUCTOS	304.021,16 €			101.340,39 €	101.340,39 €	101.340,39 €		
05.02.- REJILLAS	10.702,80 €					3.567,60 €	3.567,60 €	3.567,60 €
05.03.- TOBERAS	167.756,40 €					55.918,80 €	55.918,80 €	55.918,80 €
05.04.- CIOMPUERTAS REGULACION	5.811,84 €				1.937,28 €	1.937,28 €	1.937,28 €	
05.05.- TUBERIAS POLIPROPILENO PP-R	114.431,40 €			22.886,28 €	22.886,28 €	22.886,28 €	22.886,28 €	22.886,28 €
05.06.- AISLAMIENTO DE COQUILLA DE ESPUMA ELASTOMERICA	109.213,76 €			21.842,75 €	21.842,75 €	21.842,75 €	21.842,75 €	21.842,75 €
05.07.- VALVULERIA CLIMATIZACION POR AGUA	37.776,30 €			7.555,26 €	7.555,26 €	7.555,26 €	7.555,26 €	7.555,26 €
05.08.- UTAS	735.529,92 €			147.105,98 €	147.105,98 €	147.105,98 €	147.105,98 €	147.105,98 €
05.09.- BOMBAS	31.922,80 €			6.384,56 €	6.384,56 €	6.384,56 €	6.384,56 €	6.384,56 €
05.10.- BANCADAS PARA BOMBAS UTAS DE P. BAJA Y EXTRACTORES	866,12 €			173,22 €	173,22 €	173,22 €	173,22 €	173,22 €
05.11.- VARIOS	892,71 €						446,36 €	446,36 €
06.- TELECOMUNICACIONES								
06.01.- CABLEADO	1.200,00 €					1.200,00 €		
07.- GESTION DE RESIDUOS	12.284,26 €		2.047,38 €	2.047,38 €	2.047,38 €	2.047,38 €	2.047,38 €	2.047,38 €
08.- SEGURIDAD Y SALUD	16.570,79 €		2.761,80 €	2.761,80 €	2.761,80 €	2.761,80 €	2.761,80 €	2.761,80 €
TOTAL P.E.M.	1.836.767,15 €		26.928,46 €	312.097,62 €	325.865,56 €	458.250,50 €	355.240,59 €	358.384,42 €
G.G. (13%) + B.I. (6%)	348.985,76 €		5.116,41 €	59.298,55 €	61.914,46 €	87.067,59 €	67.495,71 €	68.093,04 €
ESTIMADO CERTIFICADO SIN IVA	2.185.752,91 €		32.044,86 €	371.396,17 €	387.780,02 €	545.318,09 €	422.736,31 €	426.477,46 €
IVA (21%)	459.008,11 €		6.729,42 €	77.993,20 €	81.433,80 €	114.516,80 €	88.774,62 €	89.560,27 €
ESTIMADO CERTIFICADO I/IVA	2.644.761,02 €		38.774,28 €	449.389,37 €	469.213,82 €	659.834,89 €	511.510,93 €	516.037,73 €

TOTAL PEM	26.928,46 €	312.097,62 €	325.865,56 €	458.250,50 €	355.240,59 €	358.384,42 €
ACUMULADO PEM	26.928,46 €	339.026,08 €	664.891,64 €	1.123.142,13 €	1.478.382,73 €	1.836.767,15 €
ACUMULADO CONTRATA SIN IVA	32.044,86 €	403.441,03 €	791.221,05 €	1.336.539,14 €	1.759.275,44 €	2.185.752,91 €
ACUMULADO CONTRATA CON IVA	38.774,28 €	488.163,65 €	957.377,47 €	1.617.212,36 €	2.128.723,29 €	2.644.761,02 €

Fdo:El Arquitecto Redactor del proyecto

cemosa Ingeniería y Control

D. José Moriana Pericet. Arquitecto Colegiado nº 375

Fdo: La Empresa Contratista

3. ANEJO III. ACTA DE REPLANTEO PREVIO

D. José Moriana Pericet, arquitecto colegiado número 375 del Colegio Oficial de Arquitectos de Córdoba con domicilio a efectos de notificaciones en C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid, autor del PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO, a llevar a cabo en la Avenida Principal, 16. Distrito Moncloa-Aravaca, 28011 Madrid, por encargo de MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A., con domicilio social en el Centro Cultural Conde Duque, C/ Conde Duque, 9-11, 28015, Madrid.

CERTIFICA QUE:

El referido proyecto contempla la totalidad del programa de necesidades de la Propiedad, las definiciones técnicas precisas para la obra pretendida por la misma, incluyendo todos los elementos a contratar necesarios para la puesta en uso.

Asimismo, se ha comprobado la realidad geométrica de la obra y las adecuadas condiciones de los terrenos precisos para su normal ejecución, así como cuantos supuestos figuren en el proyecto elaborado y sean básicos para el contrato a celebrar, no existiendo incidencia alguna que implique imposibilidad de construcción. **Por lo expuesto, es viable le inicio de la ejecución de las obras.**

Lo que se certifica a los efectos prevenidos en el art. 236 de la Ley 9/2017 de 8 de noviembre, de Contratos del Sector Público, por la que se transponen al ordenamiento jurídico español las Directivas del Parlamento Europeo y del Consejo 2014/23/UE y 2014/24/UE, de 26 de febrero de 2014.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL
El Arquitecto:



D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo
Fecha: noviembre de 2024

4. ANEJO IV. ESTUDIO DE GESTIÓN DE RESIDUOS

4.1. CONTENIDO DEL DOCUMENTO

En cumplimiento del "Real Decreto 105/2008. Regulación de la producción y gestión de los residuos de construcción y demolición", el presente estudio desarrolla los puntos siguientes:

Agentes intervinientes en la Gestión de RCD.

Normativa y legislación aplicable.

Identificación de los residuos de construcción y demolición generados en la obra, codificados según la "Decisión 2014/955/UE. Lista europea de residuos".

Estimación de la cantidad generada en volumen y peso.

Medidas para la prevención de los residuos en la obra.

Operaciones de reutilización, valorización o eliminación a que se destinarán los residuos.

Medidas para la separación de los residuos en obra.

Prescripciones en relación con el almacenamiento, manejo, separación y otras operaciones de gestión de los residuos.

Valoración del coste previsto de la gestión de RCD.

4.2. AGENTES INTERVINIENTES

4.2.1. Identificación

El presente estudio corresponde al proyecto , situado en .

Los agentes principales que intervienen en la ejecución de la obra son:

Promotor	MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A
Proyectista	D. José Moriana Pericet. Arquitecto
Director de Obra	A designar por el promotor
Director de Ejecución	A designar por el promotor

Se ha estimado en el presupuesto del proyecto, un coste de ejecución material (Presupuesto de ejecución material) de 1.836.767,15 €.

Productor de residuos (promotor)

Se identifica con el titular del bien inmueble en quien reside la decisión última de construir o demoler. Se pueden presentar tres casos:

1. La persona física o jurídica titular de la licencia urbanística en una obra de construcción o demolición; en aquellas obras que no precisen de licencia urbanística, tendrá la consideración de productor del residuo la persona física o jurídica titular del bien inmueble objeto de una obra de construcción o demolición.

2. La persona física o jurídica que efectúe operaciones de tratamiento, de mezcla o de otro tipo, que ocasionen un cambio de naturaleza o de composición de los residuos.

3. El importador o adquirente en cualquier Estado miembro de la Unión Europea de residuos de construcción y demolición.

En el presente estudio, se identifica como el productor de los residuos:

MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A

Poseedor de residuos (constructor)

En la presente fase del proyecto no se ha determinado el agente que actuará como Poseedor de los Residuos, siendo responsabilidad del Productor de los residuos (promotor) su designación antes del comienzo de las obras.

Gestor de residuos

Es la persona física o jurídica, o entidad pública o privada, que realice cualquiera de las operaciones que componen la recogida, el almacenamiento, el transporte, la valorización y la eliminación de los residuos, incluida la vigilancia de estas operaciones y la de los vertederos, así como su restauración o gestión ambiental de los residuos, con independencia de ostentar la condición de productor de los mismos. Éste será designado por el Productor de los residuos (promotor) con anterioridad al comienzo de las obras.

4.2.2. Obligaciones

Productor de residuos (promotor)

El productor inicial de residuos está obligado a asegurar el tratamiento adecuado de sus residuos, de conformidad con los principios establecidos en los artículos 7 y 8. de la Ley 7/2022. Para ello, dispondrá de las siguientes opciones:

a) Realizar el tratamiento de los residuos por sí mismo, siempre que disponga de la correspondiente autorización para llevar a cabo la operación de tratamiento.

b) Encargar el tratamiento de sus residuos a un negociante registrado o a un gestor de residuos autorizado que realice operaciones de tratamiento.

c) Entregar los residuos a una entidad pública o privada de recogida de residuos, incluidas las entidades de economía social, para su tratamiento, siempre que estén registradas conforme a lo establecido en esta ley.

Dichas obligaciones deberán acreditarse documentalmente.

Debe incluir en el proyecto de ejecución de la obra un estudio de gestión de residuos de construcción y demolición, que contendrá como mínimo:

1. Una estimación de la cantidad, expresada en toneladas y en metros cúbicos, de los residuos de construcción y demolición que se generarán en la obra, codificados con arreglo a la "Decisión 2014/955/UE. Lista europea de residuos".

2. Las medidas para la planificación y optimización de la gestión de los residuos generados en la obra objeto del proyecto.

3. Las operaciones de reutilización, valorización o eliminación a que se destinarán los residuos que se generarán en la obra.

4. Las medidas para la separación de los residuos en obra por parte del poseedor de los residuos.

5. Los planos de las instalaciones previstas para el almacenamiento, manejo, separación y, en su caso, otras operaciones de gestión de los residuos de construcción y demolición dentro de la obra. Posteriormente, dichos planos podrán ser objeto de adaptación a las características particulares de la obra y sus sistemas de ejecución, previo acuerdo de la dirección facultativa de la obra.

6. Las prescripciones del pliego de prescripciones técnicas particulares del proyecto, en relación con el almacenamiento, manejo, separación y, en su caso, otras operaciones de gestión de los residuos de construcción y demolición dentro de la obra.

7. Una valoración del coste previsto de la gestión de los residuos de construcción y demolición, que formará parte del presupuesto del proyecto en capítulo independiente.

Está obligado a disponer de la documentación que acredite que los residuos de construcción y demolición realmente producidos en sus obras han sido gestionados, en su caso, en obra o entregados a una instalación de valorización o de eliminación para su tratamiento por gestor de residuos autorizado, en los términos recogidos en el "Real Decreto 105/2008. Regulación de la producción y gestión de los residuos de construcción y demolición" y, en particular, en el presente estudio o en sus modificaciones. La documentación correspondiente a cada año natural deberá mantenerse durante los cinco años siguientes.

Asimismo, está obligado a suscribir un seguro u otra garantía financiera que cubra las responsabilidades a que puedan dar lugar sus actividades atendiendo a sus características, peligrosidad y potencial de riesgo, debiendo cumplir con lo previsto en el artículo 23.5.c. de la Ley 7/2022. Quedan exentos de esta obligación los productores de residuos peligrosos que generen menos de 10 toneladas al año.

En obras de demolición, rehabilitación, reparación o reforma, deberá preparar un inventario de los residuos peligrosos que se generarán, que deberá incluirse en el estudio de gestión de RCD, así como prever su retirada selectiva, con el fin de evitar la mezcla entre ellos o con otros residuos no peligrosos, y asegurar su envío a gestores autorizados de residuos peligrosos.

En las obras de demolición, deberán retirarse los residuos, prohibiendo su mezcla con otros residuos, y manejarse de manera segura las sustancias peligrosas, en particular, el amianto.

La demolición se llevará a cabo preferiblemente de forma selectiva, garantizando la retirada de, al menos, las siguientes fracciones: madera, fracciones de minerales (hormigón, ladrillos, azulejos, cerámica y piedra), metales, vidrio, plástico y yeso. Aquellos elementos susceptibles de ser reutilizados tales como tejas, sanitarios o elementos estructurales, se clasificarán de forma preferente en el lugar de generación de los residuos y sin perjuicio del resto de residuos que ya tienen establecida una recogida separada obligatoria.

En su caso, se dispondrá de libros digitales de materiales empleados en las nuevas obras de construcción, de conformidad con lo que se establezca a nivel de la Unión Europea en el ámbito de la economía circular. Asimismo, se establecerán requisitos de ecodiseño para los proyectos de construcción y edificación.

En los casos de obras sometidas a licencia urbanística, el poseedor de residuos, queda obligado a constituir una fianza o garantía financiera equivalente que asegure el cumplimiento de los requisitos establecidos en dicha licencia en relación con los residuos de construcción y demolición de la obra, en los términos previstos en la legislación de las comunidades autónomas correspondientes.

La responsabilidad del productor inicial o poseedor del residuo no concluirá hasta que quede debidamente documentado el tratamiento completo, a través de los correspondientes documentos de traslado de residuos, y cuando sea necesario, mediante un certificado o declaración responsable de la instalación de tratamiento final, los cuales podrán ser solicitados por el productor inicial o poseedor

Poseedor de residuos (constructor)

La persona física o jurídica que ejecute la obra - el constructor -, además de las prescripciones previstas en la normativa aplicable, está obligado a presentar al promotor de la misma un plan que refleje cómo llevará a cabo las obligaciones que le incumban en relación a los residuos de construcción y demolición que se vayan a producir en la obra.

El plan presentado y aceptado por el promotor, una vez aprobado por la dirección facultativa, pasará a formar parte de los documentos contractuales de la obra.

El poseedor de residuos de construcción y demolición, cuando no proceda a gestionarlos por sí mismo, y sin perjuicio de los requerimientos del proyecto aprobado, estará obligado a entregarlos a un gestor de residuos o a participar en un acuerdo voluntario o convenio de colaboración para su gestión. Los residuos de construcción y demolición se destinarán preferentemente, y por este orden, a operaciones de reutilización, reciclado o a otras formas de valorización.

La entrega de los residuos de construcción y demolición a un gestor por parte del poseedor habrá de constar en documento fehaciente, en el que figure, al menos, la identificación del poseedor y del productor, la obra de procedencia y, en su caso, el número de licencia de la obra, la cantidad expresada en toneladas o en metros cúbicos, o en ambas unidades cuando sea posible, el tipo de residuos entregados, codificados con

arreglo a la "Decisión 2014/955/UE. Lista europea de residuos", y la identificación del gestor de las operaciones de destino.

Cuando el gestor al que el poseedor entregue los residuos de construcción y demolición efectúe únicamente operaciones de recogida, almacenamiento, transferencia o transporte, en el documento de entrega deberá figurar también el gestor de valorización o de eliminación ulterior al que se destinarán los residuos.

En todo caso, la responsabilidad administrativa en relación con la cesión de los residuos de construcción y demolición por parte de los poseedores a los gestores se regirá por lo establecido en la legislación vigente en materia de residuos.

Mientras se encuentren en su poder, el poseedor de los residuos estará obligado a mantenerlos en condiciones adecuadas de higiene y seguridad, así como a evitar la mezcla de fracciones ya seleccionadas que impida o dificulte su posterior valorización o eliminación.

La separación en fracciones se llevará a cabo preferentemente por el poseedor de los residuos dentro de la obra en que se produzcan.

Cuando por falta de espacio físico en la obra no resulte técnicamente viable efectuar dicha separación en origen, el poseedor podrá encomendar la separación de fracciones a un gestor de residuos en una instalación de tratamiento de residuos de construcción y demolición externa a la obra. En este último caso, el poseedor deberá obtener del gestor de la instalación documentación acreditativa de que éste ha cumplido, en su nombre, la obligación recogida en el presente apartado.

El órgano competente en materia medioambiental de la comunidad autónoma donde se ubique la obra, de forma excepcional, y siempre que la separación de los residuos no haya sido especificada y presupuestada en el proyecto de obra, podrá eximir al poseedor de los residuos de construcción y demolición de la obligación de separación de alguna o de todas las anteriores fracciones.

El poseedor de los residuos de construcción y demolición estará obligado a sufragar los correspondientes costes de gestión y a entregar al productor los certificados y la documentación acreditativa de la gestión de los residuos, así como a mantener la documentación correspondiente a cada año natural durante los cinco años siguientes.

Gestor de residuos

Además de las recogidas en la legislación específica sobre residuos, el gestor de residuos de construcción y demolición cumplirá con las siguientes obligaciones:

1. En el supuesto de actividades de gestión sometidas a autorización por la legislación de residuos, llevar un registro en el que, como mínimo, figure la cantidad de residuos gestionados, expresada en toneladas y en metros cúbicos, el tipo de residuos, codificados con arreglo a la "Decisión 2014/955/UE. Lista europea de residuos", la identificación del productor, del poseedor y de la obra de donde proceden, o del gestor, cuando procedan de otra operación anterior de gestión, el método de gestión aplicado, así como las cantidades, en toneladas y en metros cúbicos, y destinos de los productos y residuos resultantes de la actividad.

2. Poner a disposición de las administraciones públicas competentes, a petición de las mismas, la información contenida en el registro mencionado en el punto anterior. La información referida a cada año natural deberá mantenerse durante los cinco años siguientes.

3. Extender al poseedor o al gestor que le entregue residuos de construcción y demolición, los certificados acreditativos de la gestión de los residuos recibidos, especificando el productor y, en su caso, el número de licencia de la obra de procedencia. Cuando se trate de un gestor que lleve a cabo una operación exclusivamente de recogida, almacenamiento, transferencia o transporte, deberá además transmitir al poseedor o al gestor que le entregó los residuos, los certificados de la operación de valorización o de eliminación subsiguiente a que fueron destinados los residuos.

4. En el supuesto de que carezca de autorización para gestionar residuos peligrosos, deberá disponer de un procedimiento de admisión de residuos en la instalación que asegure que, previamente al proceso de tratamiento, se detectarán y se separarán, almacenarán adecuadamente y derivarán a gestores autorizados de residuos peligrosos aquellos que tengan este carácter y puedan llegar a la instalación mezclados con residuos no peligrosos de construcción y demolición. Esta obligación se entenderá sin perjuicio de las responsabilidades en que pueda incurrir el productor, el poseedor o, en su caso, el gestor precedente que haya enviado dichos residuos a la instalación.

4.3. NORMATIVA Y LEGISLACIÓN APLICABLE

Para la elaboración del presente estudio se ha considerado la normativa siguiente:

- Artículo 45 de la Constitución Española.

4.3.1. GESTIÓN DE RESIDUOS

Real Decreto sobre la prevención y reducción de la contaminación del medio ambiente producida por el amianto

Real Decreto 108/1991, de 1 de febrero, del Ministerio de Relaciones con las Cortes y de la Secretaría del Gobierno.

B.O.E.: 6 de febrero de 1991

Regulación de la producción y gestión de los residuos de construcción y demolición

Real Decreto 105/2008, de 1 de febrero, del Ministerio de la Presidencia.

B.O.E.: 13 de febrero de 2008

Plan estatal marco de gestión de residuos (PEMAR) 2016-2022

Resolución de 16 de noviembre de 2015, de la Dirección General de Calidad y Evaluación Ambiental y Medio Natural, por la que se publica el Acuerdo del Consejo de ministros de 6 de noviembre de 2015.

B.O.E.: 12 de diciembre de 2015

Normas generales de valorización de materiales naturales excavados para su utilización en operaciones de relleno y obras distintas a aquellas en las que se generaron

Orden APM/1007/2017, de 10 de octubre, del Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente.

B.O.E.: 21 de octubre de 2017

Real Decreto por el que se regula la eliminación de residuos mediante depósito en vertedero

Real Decreto 646/2020, de 7 de julio, del Ministerio para la Transición Ecológica y el Reto Demográfico.

B.O.E.: 8 de julio de 2020

Ley de residuos y suelos contaminados para una economía circular

Ley 7/2022, de 8 de abril, de la Jefatura del Estado.

B.O.E.: 9 de abril de 2022

Real Decreto de envases y residuos de envases

Real Decreto 1055/2022, de 27 de diciembre, del Ministerio para la Transición Ecológica y el Reto Demográfico.

B.O.E.: 28 de diciembre de 2022

Ley de residuos de la Comunidad de Madrid

Ley 1/2024, de 17 de abril, de Economía Circular de la Comunidad de Madrid.

B.O.E.: 22 de julio de 2024

4.4. IDENTIFICACIÓN DE LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN GENERADOS EN LA OBRA.

Todos los posibles residuos de construcción y demolición generados en la obra se han codificado atendiendo a la legislación vigente en materia de gestión de residuos, "Decisión 2014/955/UE. Lista europea de residuos", dando lugar a los siguientes grupos:

RCD de Nivel I: Tierras y materiales pétreos, no contaminados, procedentes de obras de excavación

Como excepción, no tienen la condición legal de residuos:

Las tierras y piedras no contaminadas por sustancias peligrosas, reutilizadas en la misma obra, en una obra distinta o en una actividad de restauración, acondicionamiento o relleno, siempre y cuando pueda acreditarse de forma fehaciente su destino a reutilización.

RCD de Nivel II: Residuos generados principalmente en las actividades propias del sector de la construcción, de la demolición, de la reparación domiciliaria y de la implantación de servicios.

Se ha establecido una clasificación de RCD generados, según los tipos de materiales de los que están compuestos:

Material según "Decisión 2014/955/UE. Lista europea de residuos"
RCD de Nivel I
1 Tierras y pétreos de la excavación
RCD de Nivel II
RCD de naturaleza no pétrea
1 Asfalto
2 Madera
3 Metales (incluidas sus aleaciones)
4 Papel y cartón
5 Plástico
6 Vidrio
7 Yeso
8 Basuras
RCD de naturaleza pétrea
1 Arena, grava y otros áridos
2 Hormigón
3 Ladrillos, tejas y materiales cerámicos
4 Piedra
RCD potencialmente peligrosos
1 Otros

4.5. ESTIMACIÓN DE LA CANTIDAD DE LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN QUE SE GENERARÁN EN LA OBRA

Se ha estimado la cantidad de residuos generados en la obra, a partir de las mediciones del proyecto, en función del peso de materiales integrantes en los rendimientos de los correspondientes precios descompuestos de cada unidad de obra, determinando el peso de los restos de los materiales sobrantes (mermas, roturas, despuntes, etc.) y el del embalaje de los productos suministrados.

El volumen de excavación de las tierras y de los materiales pétreos no utilizados en la obra, se ha calculado en función de las dimensiones del proyecto, afectado por un coeficiente de esponjamiento según la clase de terreno.

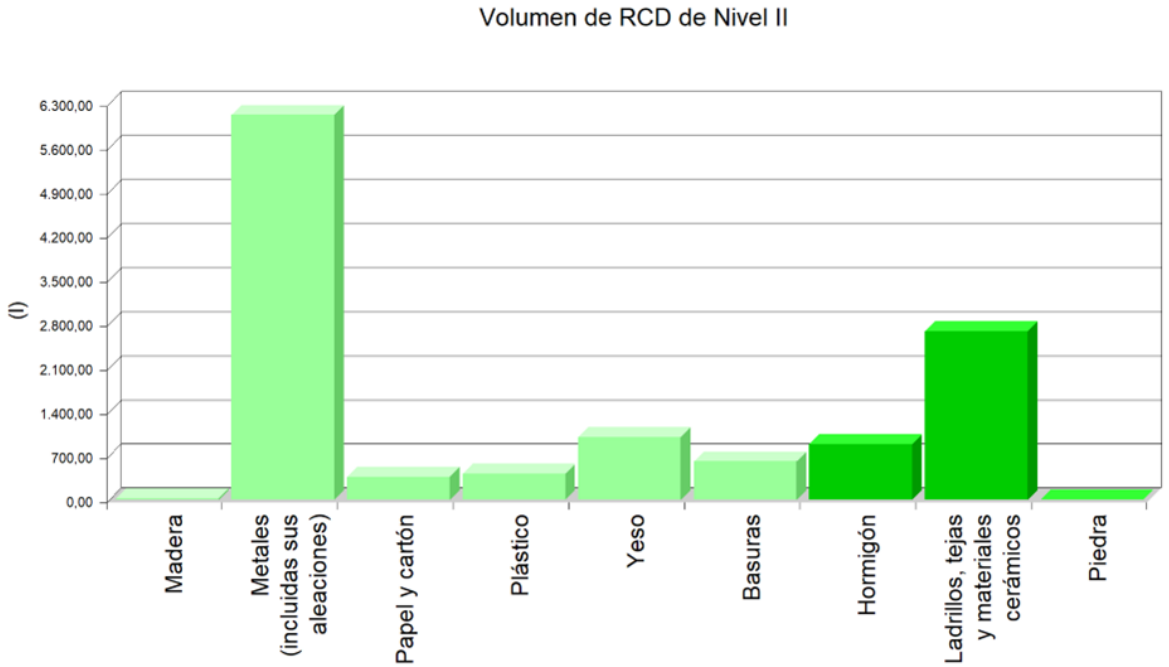
A partir del peso del residuo, se ha estimado su volumen mediante una densidad aparente definida por el cociente entre el peso del residuo y el volumen que ocupa una vez depositado en el contenedor.

Los resultados se resumen en la siguiente tabla:

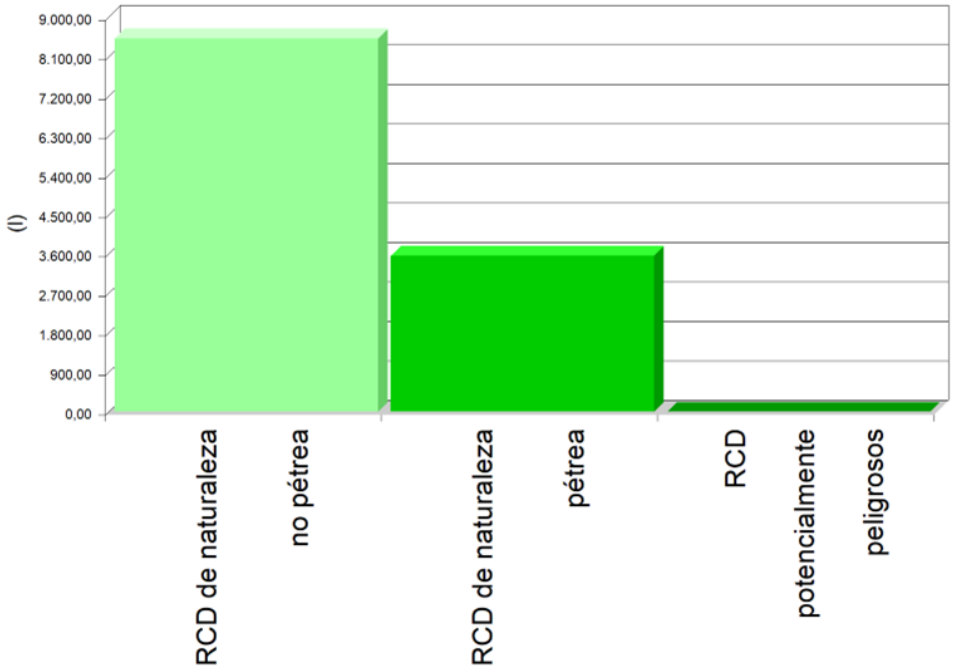
Material según "Decisión 2014/955/UE. Lista europea de residuos"	Código LER	Densidad aparente (t/m³)	Peso (t)	Volumen (m³)
RCD de Nivel II				
RCD de naturaleza no pétrea				
1 Madera				
Madera.	17 02 01	1,10	0,023	0,021
2 Metales (incluidas sus aleaciones)				
Cobre, bronce, latón.	17 04 01	1,50	0,000	0,000
Aluminio.	17 04 02	1,50	0,020	0,013
Hierro y acero.	17 04 05	2,10	2,802	1,334
Metales mezclados.	17 04 07	1,50	7,120	4,747
Cables distintos de los especificados en el código 17 04 10.	17 04 11	1,50	0,032	0,021
3 Papel y cartón				
Envases de papel y cartón.	15 01 01	0,75	0,274	0,365
4 Plástico				
Plástico.	17 02 03	0,60	0,251	0,418
5 Yeso				
Materiales de construcción a partir de yeso distintos de los especificados en el código 17 08 01.	17 08 02	1,00	0,994	0,994
6 Basuras				
Materiales de aislamiento distintos de los especificados en los códigos 17 06 01 y 17 06 03.	17 06 04	0,60	0,050	0,083
Residuos mezclados de construcción y demolición distintos de los especificados en los códigos 17 09 01, 17 09 02 y 17 09 03.	17 09 04	1,50	0,789	0,526
RCD de naturaleza pétrea				
1 Hormigón				
Hormigón (hormigones, morteros y prefabricados).	17 01 01	1,50	1,327	0,885
2 Ladrillos, tejas y materiales cerámicos				
Ladrillos.	17 01 02	1,25	3,030	2,424
Tejas y materiales cerámicos.	17 01 03	1,25	0,312	0,250
3 Piedra				
Residuos del corte y serrado de piedra distintos de los mencionados en el código 01 04 07.	01 04 13	1,50	0,007	0,005

En la siguiente tabla, se exponen los valores del peso y el volumen de RCD, agrupados por niveles y apartados

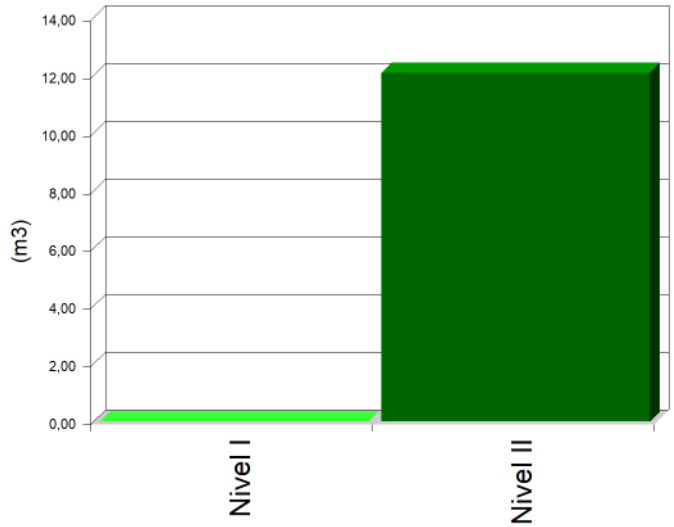
Material según "Decisión 2014/955/UE. Lista europea de residuos"	Peso (t)	Volumen (m^3)
RCD de Nivel II		
RCD de naturaleza no pétrea		
1 Asfalto	0,000	0,000
2 Madera	0,023	0,021
3 Metales (incluidas sus aleaciones)	9,974	6,116
4 Papel y cartón	0,274	0,365
5 Plástico	0,251	0,418
6 Vidrio	0,000	0,000
7 Yeso	0,994	0,994
8 Basuras	0,839	0,609
RCD de naturaleza pétrea		
1 Arena, grava y otros áridos	0,000	0,000
2 Hormigón	1,327	0,885
3 Ladrillos, tejas y materiales cerámicos	3,342	2,674
4 Piedra	0,007	0,005



Volumen de RCD de Nivel II



Volumen de RCD de Nivel I y Nivel II



4.6. MEDIDAS PARA LA PLANIFICACIÓN Y OPTIMIZACIÓN DE LA GESTIÓN DE LOS RESIDUOS RESULTANTES DE LA CONSTRUCCIÓN Y DEMOLICIÓN DE LA OBRA OBJETO DEL PROYECTO

En la fase de proyecto se han tenido en cuenta las distintas alternativas compositivas, constructivas y de diseño, optando por aquellas que generan el menor volumen de residuos en la fase de construcción y de explotación, facilitando, además, el desmantelamiento de la obra al final de su vida útil con el menor impacto ambiental.

Con el fin de generar menos residuos en la fase de ejecución, el constructor asumirá la responsabilidad de organizar y planificar la obra, en cuanto al tipo de suministro, acopio de materiales y proceso de ejecución.

Como criterio general, se adoptarán las siguientes medidas para la planificación y optimización de la gestión de los residuos generados durante la ejecución de la obra:

La excavación se ajustará a las dimensiones específicas del proyecto, atendiendo a las cotas de los planos de cimentación, hasta la profundidad indicada en el mismo que coincidirá con el Estudio Geotécnico correspondiente con el visto bueno de la Dirección Facultativa. En el caso de que existan lodos de drenaje, se acotará la extensión de las bolsas de los mismos.

Se evitará en lo posible la producción de residuos de naturaleza pétrea (bolos, grava, arena, etc.), pactando con el proveedor la devolución del material que no se utilice en la obra.

El hormigón suministrado será preferentemente de central. En caso de que existan sobrantes se utilizarán en las partes de la obra que se prevea para estos casos, como hormigones de limpieza, base de solados, rellenos, etc.

Las piezas que contengan mezclas bituminosas, se suministrarán justas en dimensión y extensión, con el fin de evitar los sobrantes innecesarios. Antes de su colocación se planificará la ejecución para proceder a la apertura de las piezas mínimas, de modo que queden dentro de los envases los sobrantes no ejecutados.

Todos los elementos de madera se replantearán junto con el oficial de carpintería, con el fin de optimizar la solución, minimizar su consumo y generar el menor volumen de residuos.

El suministro de los elementos metálicos y sus aleaciones, se realizará con las cantidades mínimas y estrictamente necesarias para la ejecución de la fase de la obra correspondiente, evitándose cualquier trabajo dentro de la obra, a excepción del montaje de los correspondientes kits prefabricados.

Se solicitará de forma expresa a los proveedores que el suministro en obra se realice con la menor cantidad de embalaje posible, renunciando a los aspectos publicitarios, decorativos y superfluos.

En el caso de que se adopten otras medidas alternativas o complementarias para la planificación y optimización de la gestión de los residuos de la obra, se le comunicará de forma fehaciente al director de obra y al director de la ejecución de la obra para su conocimiento y aprobación. Estas medidas no supondrán menoscabo alguno de la calidad de la obra, ni interferirán en el proceso de ejecución de la misma.

4.7. OPERACIONES DE REUTILIZACIÓN, VALORIZACIÓN O ELIMINACIÓN A QUE SE DESTINARÁN LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN QUE SE GENEREN EN LA OBRA

El desarrollo de las actividades de valorización de residuos de construcción y demolición requerirá autorización previa del órgano competente en materia medioambiental de la Comunidad Autónoma correspondiente, en los términos establecidos por la legislación vigente en materia de residuos.

La autorización podrá ser otorgada para una o varias de las operaciones que se vayan a realizar, y sin perjuicio de las autorizaciones o licencias exigidas por cualquier otra normativa aplicable a la actividad. Se otorgará por un plazo de tiempo determinado, y podrá ser renovada por periodos sucesivos.

La autorización sólo se concederá previa inspección de las instalaciones en las que vaya a desarrollarse la actividad y comprobación de la cualificación de los técnicos responsables de su dirección y de que está prevista la adecuada formación profesional del personal encargado de su explotación.

Los áridos reciclados obtenidos como producto de una operación de valorización de residuos de construcción y demolición deberán cumplir los requisitos técnicos y legales para el uso a que se destinen.

Cuando se prevea la operación de reutilización en otra construcción de los sobrantes de las tierras procedentes de la excavación, de los residuos minerales o pétreos, de los materiales cerámicos o de los materiales no pétreos y metálicos, el proceso se realizará preferentemente en el depósito municipal.

Cuando se destinen residuos no peligrosos de construcción y demolición, a la preparación para la reutilización, el reciclado y otra valorización de materiales, incluidas las operaciones de relleno, deberá alcanzar como mínimo el 70% en peso de los producidos, excluyendo los materiales en estado natural de tierras sobrantes y restos de piedra definidos en la categoría 17 05 04 de la lista de residuos.

En relación al destino previsto para los residuos no reutilizables ni valorables "in situ", se expresan las características, su cantidad, el tipo de tratamiento y su destino, en la tabla siguiente:

Material según "Decisión 2014/955/UE. Lista europea de residuos"	Código LER	Tratamiento	Destino	Peso (t)	Volumen (m^3)
RCD de Nivel II					
RCD de naturaleza no pétrea					
1 Madera					
Madera.	17 02 01	Reciclado	Gestor autorizado RNPs	0,023	0,021
2 Metales (incluidas sus aleaciones)					
Cobre, bronce, latón.	17 04 01	Reciclado	Gestor autorizado RNPs	0,000	0,000
Aluminio.	17 04 02	Reciclado	Gestor autorizado RNPs	0,020	0,013
Hierro y acero.	17 04 05	Reciclado	Gestor autorizado RNPs	2,802	1,334
Metales mezclados.	17 04 07	Reciclado	Gestor autorizado RNPs	7,120	4,747
Cables distintos de los especificados en el código 17 04 10.	17 04 11	Reciclado	Gestor autorizado RNPs	0,032	0,021
3 Papel y cartón					
Envases de papel y cartón.	15 01 01	Reciclado	Gestor autorizado RNPs	0,274	0,365

Material según "Decisión 2014/955/UE. Lista europea de residuos"	Código LER	Tratamiento	Destino	Peso (t)	Volumen (m^3)
4 Plástico					
Plástico.	17 02 03	Reciclado	Gestor autorizado RNPs	0,251	0,418
5 Yeso					
Materiales de construcción a partir de yeso distintos de los especificados en el código 17 08 01.	17 08 02	Reciclado	Gestor autorizado RNPs	0,994	0,994
6 Basuras					
Materiales de aislamiento distintos de los especificados en los códigos 17 06 01 y 17 06 03.	17 06 04	Reciclado	Gestor autorizado RNPs	0,050	0,083
Residuos mezclados de construcción y demolición distintos de los especificados en los códigos 17 09 01, 17 09 02 y 17 09 03.	17 09 04	Depósito / Tratamiento	Gestor autorizado RNPs	0,789	0,526
RCD de naturaleza pétrea					
1 Hormigón					
Hormigón (hormigones, morteros y prefabricados).	17 01 01	Reciclado / Vertedero	Planta reciclaje RCD	1,327	0,885
2 Ladrillos, tejas y materiales cerámicos					
Ladrillos.	17 01 02	Reciclado	Planta reciclaje RCD	3,030	2,424
Tejas y materiales cerámicos.	17 01 03	Reciclado	Planta reciclaje RCD	0,312	0,250
3 Piedra					
Residuos del corte y serrado de piedra distintos de los mencionados en el código 01 04 07.	01 04 13	Sin tratamiento específico	Restauración / Vertedero	0,007	0,005

Notas:
RCD: Residuos de construcción y demolición
RSU: Residuos sólidos urbanos
RNPs: Residuos no peligrosos
RPs: Residuos peligrosos

4.8. MEDIDAS PARA LA SEPARACIÓN DE LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN EN OBRA

Los residuos de construcción y demolición se separarán en las siguientes fracciones cuando, de forma individualizada para cada una de dichas fracciones, la cantidad prevista de generación de residuos para el total de la obra supere las cantidades expresadas en la siguiente tabla:

TIPO DE RESIDUO		TOTAL RESIDUO OBRA (t)	UMBRAL SEGÚN NORMA (t)	Separación obligatoria en obra y entrega a Gestor Autorizado
Fracciones minerales	Hormigón LER 17 01 01	1,33	> 80	NO OBLIGATORIA
	Ladrillos, tejas y materiales cerámicos LER 17 01 02, LER 17 01 03	3,34	> 40	NO OBLIGATORIA
	Piedra LER 17 05 04	7,000e-003	---	OBLIGATORIA
Metales (incluidas sus aleaciones) LER 17 04		9,97	---	OBLIGATORIA
Madera LER 17 02 01		0,02	---	OBLIGATORIA
Plástico LER 17 02 03		0,25	---	OBLIGATORIA
Vidrio LER 17 02 02		0,00	---	OBLIGATORIA

Yeso LER 17 08 02	0,99	---	OBLIGATORIA
Papel y cartón LER 15 01 01	0,27	> 0,50	NO OBLIGATORIA

Cuando el peso estimado de la fracción de hormigón o de la fracción de ladrillos/tejas/cerámicos/azulejos supere los umbrales de la tabla anterior, dichas fracciones deberán separarse de las fracciones minerales.

En aquellos casos en que sea obligatoria la clasificación en obra de las fracciones de los residuos de construcción y demolición, se acreditará documentalmente esta obligación mediante la entrega a los gestores autorizados con el fin de solicitar la devolución de la garantía correspondiente.

4.9. PRESCRIPCIONES EN RELACIÓN CON EL ALMACENAMIENTO, MANEJO, SEPARACIÓN Y OTRAS OPERACIONES DE GESTIÓN DE LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN

El depósito temporal de los escombros se realizará en contenedores metálicos con la ubicación y condiciones establecidas en las ordenanzas municipales, o bien en sacos industriales con un volumen inferior a un metro cúbico, quedando debidamente señalizados y segregados del resto de residuos.

Aquellos residuos valorizables, como maderas, plásticos, chatarra, etc., se depositarán en contenedores debidamente señalizados y segregados del resto de residuos, con el fin de facilitar su gestión.

Los contenedores deberán estar pintados con colores vivos, que sean visibles durante la noche, y deben contar con una banda de material reflectante de, al menos, 15 centímetros a lo largo de todo su perímetro, figurando de forma clara y legible la siguiente información:

- Razón social.
- Código de Identificación Fiscal (C.I.F.).
- Número de teléfono del titular del contenedor/envase.
- Número de inscripción en el Registro de Transportistas de Residuos del titular del contenedor.

Dicha información deberá quedar también reflejada a través de adhesivos o placas, en los envases industriales u otros elementos de contención.

El responsable de la obra a la que presta servicio el contenedor adoptará las medidas pertinentes para evitar que se depositen residuos ajenos a la misma. Los contenedores permanecerán cerrados o cubiertos fuera del horario de trabajo, con el fin de evitar el depósito de restos ajenos a la obra y el derramamiento de los residuos.

En el equipo de obra se deberán establecer los medios humanos, técnicos y procedimientos de separación que se dedicarán a cada tipo de RCD.

Se deberán cumplir las prescripciones establecidas en las ordenanzas municipales, los requisitos y condiciones de la licencia de obra, especialmente si obligan a la separación en origen de determinadas

materias objeto de reciclaje o deposición, debiendo el constructor o el jefe de obra realizar una evaluación económica de las condiciones en las que es viable esta operación, considerando las posibilidades reales de llevarla a cabo, es decir, que la obra o construcción lo permita y que se disponga de plantas de reciclaje o gestores adecuados.

El constructor deberá efectuar un estricto control documental, de modo que los transportistas y gestores de RCD presenten los vales de cada retirada y entrega en destino final. En el caso de que los residuos se reutilicen en otras obras o proyectos de restauración, se deberá aportar evidencia documental del destino final.

Los restos derivados del lavado de las canaletas de las cubas de suministro de hormigón prefabricado serán considerados como residuos y gestionados como le corresponde (LER 17 01 01).

Se evitará la contaminación mediante productos tóxicos o peligrosos de los materiales plásticos, restos de madera, acopios o contenedores de escombros, con el fin de proceder a su adecuada segregación.

Las tierras superficiales que puedan destinarse a jardinería o a la recuperación de suelos degradados, serán cuidadosamente retiradas y almacenadas durante el menor tiempo posible, dispuestas en caballones de altura no superior a 2 metros, evitando la humedad excesiva, su manipulación y su contaminación.

Los residuos que contengan amianto cumplirán los preceptos dictados por la legislación vigente sobre esta materia, así como la legislación laboral de aplicación.

4.10. VALORACIÓN DEL COSTE PREVISTO DE LA GESTIÓN DE LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN.

El coste previsto de la gestión de los residuos se ha determinado a partir de la estimación descrita en el apartado 4.5, "ESTIMACIÓN DE LA CANTIDAD DE LOS RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN QUE SE GENERARÁN EN LA OBRA", aplicando los precios correspondientes para cada unidad de obra, según se detalla en el capítulo de Gestión de Residuos del presupuesto del proyecto.

Subcapítulo	TOTAL (€)
TOTAL	12.284,26

4.11. DETERMINACIÓN DEL IMPORTE DE LA FIANZA

Con el fin de garantizar la correcta gestión de los residuos de construcción y demolición generados en las obras, las Entidades Locales exigen el depósito de una fianza u otra garantía financiera equivalente, que responda de la correcta gestión de los residuos de construcción y demolición que se produzcan en la obra, en los términos previstos en la legislación autonómica y municipal.

En el presente estudio se ha considerado, a efectos de la determinación del importe de la fianza, los importe mínimo y máximo fijados por la Entidad Local correspondiente.

- Costes de gestión de RCD de Nivel I: 11.00 €/t
- Costes de gestión de RCD de Nivel II: 45.35 €/t

- Importe mínimo de la fianza: 150.00 € - como mínimo un 0.2 % del PEM.
- Importe máximo de la fianza: 60000.00 €

En el cuadro siguiente, se determina el importe de la fianza o garantía financiera equivalente prevista en la gestión de RCD.

Presupuesto de Ejecución Material de la Obra (PEM):	**1.836.767,15 €**

A: ESTIMACIÓN DEL COSTE DE TRATAMIENTO DE RCD A EFECTOS DE LA DETERMINACIÓN DE LA FIANZA					
Tipología	Peso (t)	Volumen (m³)	Coste de gestión (€/t)	Importe (€)	% s/PEM
A.1. RCD de Nivel I					
Tierras y pétreos de la excavación	0,000	0,000	11,00		
Total Nivel I				0,000	0,00
A.2. RCD de Nivel II					
RCD de naturaleza pétrea	4,676	3,564	45,35		
RCD de naturaleza no pétrea	12,355	8,522	45,35		
RCD potencialmente peligrosos	0,000	0,000	45,35		
Total Nivel II	17,031	12,086		3.286,35	0,18
Total				3.286,35	0,18
Notas: *(1) Entre 150,00€ y 60.000,00€.* *(2) Como mínimo un 0.2 % del PEM.*					

B: RESTO DE COSTES DE GESTIÓN		
Concepto	Importe (€)	% s/PEM
Costes administrativos, alquileres, portes, etc.	2.464,76	0,13

TOTAL:	**5.751,12€**	**0,33**

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: noviembre de 2024

5. ANEJO V. PLAN DE CONTROL DE CALIDAD

La empresa adjudicataria estará obligada a realizar aquellos ensayos, pruebas y análisis de materiales y unidades de obra que sean obligatorios por normativa y aquellos que la Dirección Facultativa le exija hasta un importe del 1 por 100 del presupuesto de la obra de acuerdo con lo establecido en la cláusula 38 del Pliego de Cláusulas Generales para la Contratación de Obras del Estado. El coste de estas pruebas y ensayos se considera repercutido en los precios de todas y cada una de las unidades que componen la obra.

5.1. INTRODUCCIÓN

El Código Técnico de la Edificación (CTE) establece las exigencias básicas de calidad que deben cumplir los edificios, incluidas sus instalaciones, para satisfacer los requisitos básicos de seguridad y habitabilidad. El CTE determina, además, que dichas exigencias básicas deben cumplirse en el proyecto, la construcción, el mantenimiento y la conservación de los edificios y sus instalaciones.

La comprobación del cumplimiento de estas exigencias básicas se determina mediante una serie de controles: el control de recepción en obra de los productos, el control de ejecución de la obra y el control de la obra terminada.

Se redacta el presente Plan de control de calidad como anejo del proyecto, con objeto de dar cumplimiento a lo establecido en el Anejo I de la parte I del CTE, en el apartado correspondiente a los Anejos de la Memoria, habiendo sido elaborado atendiendo a las prescripciones de la normativa de aplicación vigente, a las características del proyecto y a lo estipulado en el Pliego de Condiciones del presente proyecto.

Este anejo del proyecto no es un elemento sustancial del mismo, puesto que todo su contenido queda suficientemente referenciado en el correspondiente Pliego de Condiciones Técnicas Particulares del proyecto.

Simplemente es un documento complementario, cuya misión es servir de ayuda al Director de Ejecución de la Obra para redactar el correspondiente ESTUDIO DE PROGRAMACIÓN DEL CONTROL DE CALIDAD DE LA OBRA, elaborado en función del Plan de Obra del constructor; donde se cuantifica, mediante la integración de los requisitos del Pliego con las mediciones del proyecto, el número y tipo de ensayos y pruebas a realizar por parte del laboratorio acreditado, permitiéndole obtener su valoración económica. El control de calidad de las obras incluye:

- El control de recepción en obra de los productos.
- El control de ejecución de la obra.
- El control de la obra terminada.

Para ello:

1) El director de la Ejecución de la Obra recopilará la documentación del control realizado, verificando que es conforme a lo establecido en el proyecto, sus anejos y sus modificaciones.

2) El Constructor recabará de los suministradores de productos y facilitará al Director de Obra y al Director de la Ejecución de la Obra la documentación de los productos anteriormente señalada, así como sus instrucciones de uso y mantenimiento, y las garantías correspondientes cuando proceda.

3) La documentación de calidad preparada por el Constructor sobre cada una de las unidades de obra podrá servir, si así lo autorizara el Director de la Ejecución de la Obra, como parte del control de calidad de la obra.

Una vez finalizada la obra, la documentación del seguimiento del control será depositada por el Director de la Ejecución de la Obra, en el Colegio Profesional correspondiente o, en su caso, en la Administración Pública competente, que asegure su tutela y se comprometa a emitir certificaciones de su contenido a quienes acrediten un interés legítimo.

5.2. CONDICIONES GENERALES PARA EL CONTROL DE CALIDAD

Se recogen en este apartado las exigencias básicas de calidad que deben cumplir los edificios, incluidas sus instalaciones, para satisfacer los requisitos básicos de seguridad y habitabilidad, en desarrollo de lo previsto en la disposición adicional segunda de la Ley 38/1999, de 5 de noviembre, de Ordenación de la Edificación.

El CTE establece dichas exigencias básicas para cada uno de los requisitos básicos de “seguridad estructural”, “seguridad en caso de incendio”, “seguridad de utilización”, “higiene, salud y protección del medio ambiente”, “protección contra el ruido” y “ahorro de energía y aislamiento térmico”, establecidos en el artículo 3 de la LOE, y proporciona procedimientos que permiten acreditar su cumplimiento con suficientes garantías técnicas.

5.2.1. CONFORMIDAD CON EL CTE DE LOS PRODUCTOS, EQUIPOS Y MATERIALES

Los productos de construcción que se incorporen con carácter permanente a los edificios, en función de su uso previsto, llevarán el marcado CE, de conformidad con la Directiva 89/106/CEE de productos de construcción, transpuesta por el Real Decreto 1630/1992 de 29 de diciembre, modificado por el Real Decreto 1329/1995 de 28 de julio, y disposiciones de desarrollo, u otras Directivas europeas que les sean de aplicación.

Estos productos podrán ostentar marcas, sellos, certificaciones de conformidad u otros distintivos de calidad voluntarios que faciliten el cumplimiento de las exigencias del proyecto.

Se considerarán conformes también los productos, equipos y sistemas innovadores que demuestren el cumplimiento de las exigencias básicas del CTE referentes a los elementos constructivos en los que intervienen, mediante una evaluación técnica favorable de su idoneidad para el uso previsto, concedida por las entidades autorizadas para ello por las Administraciones Públicas competentes.

5.2.2. CONDICIONES DEL PROYECTO

Contendrá las características técnicas mínimas que deben reunir los productos, equipos y sistemas que se incorporen a las obras, así como sus condiciones de suministro, recepción y conservación, almacenamiento y manipulación, las garantías de calidad y el control de recepción que deba realizarse incluyendo el muestreo

del producto, los ensayos a realizar, los criterios de aceptación y rechazo, y las acciones a adoptar y los criterios de uso, conservación y mantenimiento. Estas especificaciones se pueden hacer por referencia a pliegos generales que sean de aplicación, documentos reconocidos u otros que sean válidas a juicio del proyectista.

Características técnicas de cada unidad de obra indicando su proceso de ejecución, normas de aplicación, condiciones previas que han de cumplirse antes de su realización, tolerancias admisibles, condiciones de terminación, conservación y mantenimiento, control de ejecución, ensayos y pruebas, garantías de calidad, criterios de aceptación y rechazo, criterios de medición y valoración de unidades, etc.

Finalmente describirá las verificaciones y las pruebas de servicio que, en su caso, deban realizarse para comprobar las prestaciones finales del edificio.

5.2.3. CONDICIONES EN LA EJECUCIÓN DE OBRAS

Durante la construcción de las obras el Director de Obra y el Director de la Ejecución de la Obra realizarán, según sus respectivas competencias, los controles siguientes:

a) control de recepción en obra de los productos, equipos y sistemas que se suministren a las obras.

b) control de ejecución de la obra

c) control de la obra terminada

Control de recepción en obra de productos, equipos y sistemas

El control de recepción tiene por objeto comprobar que las características técnicas de los productos, equipos y sistemas suministrados satisfacen lo exigido en el proyecto. Este control comprenderá:

a) el control de la documentación de los suministros.

b) el control mediante distintivos de calidad o evaluaciones técnicas de idoneidad.

c) el control mediante ensayos.

Control de ejecución de la obra

Durante la construcción, el director de la ejecución de la obra controlará la ejecución de cada unidad de obra verificando su replanteo, los materiales que se utilicen, la correcta ejecución y disposición de los elementos constructivos y de las instalaciones, así como las verificaciones y demás controles a realizar para comprobar su conformidad con lo indicado en el proyecto, la legislación aplicable, las normas de buena práctica constructiva y las instrucciones de la dirección facultativa.

Control de la obra terminada

En la obra terminada, bien sobre el edificio en su conjunto, o bien sobre sus diferentes partes y sus instalaciones, parcial o totalmente terminadas, deben realizarse, además de las que puedan establecerse con carácter voluntario, las comprobaciones y pruebas de servicio previstas en el proyecto u ordenadas por la dirección facultativa y las exigidas por la legislación aplicable.

5.2.4. DOCUMENTACIÓN DEL CONTROL DE LA OBRA

El control de calidad de las obras realizado incluirá el control de recepción de productos, los controles de la ejecución y de la obra terminada. Para ello:

a) El Director de la Ejecución de la Obra recopilará la documentación del control realizado, verificando que es conforme con lo establecido en el proyecto, sus anejos y modificaciones;

b) El Constructor recabará de los suministradores de productos y facilitará al Director de Obra y al Director de la Ejecución de la Obra la documentación de los productos anteriormente señalada así como sus instrucciones de uso y mantenimiento, y las garantías correspondientes cuando proceda; y

c) La documentación de calidad preparada por el Constructor sobre cada una de las unidades de obra podrá servir, si así lo autorizara el Director de la Ejecución de la Obra, como parte del control de calidad de la obra.

Una vez finalizada la obra, la documentación del seguimiento del control será depositada por el Director de la Ejecución de la Obra en el Colegio Profesional correspondiente o, en su caso, en la Administración Pública competente, que asegure su tutela y se comprometa a emitir certificaciones de su contenido a quienes acrediten un interés legítimo.

5.2.5. CERTIFICADO FINAL DE OBRA

En el Certificado Final de obra, el Director de la Ejecución de la Obra certificará haber dirigido la ejecución material de las obras y controlado cuantitativa y cualitativamente la construcción y la calidad de lo edificado de acuerdo con el proyecto, la documentación técnica que lo desarrolla y las normas de la buena construcción.

El Director de la Obra certificará que la edificación ha sido realizada bajo su dirección, de conformidad con el proyecto objeto de licencia y la documentación técnica que lo complementa, hallándose dispuesta para su adecuada utilización con arreglo a las instrucciones de uso y mantenimiento.

Al certificado final de obra se le unirán como anejos los siguientes documentos:

a) Descripción de las modificaciones que, con la conformidad del promotor, se hubiesen introducido durante la obra, haciendo constar su compatibilidad con las condiciones de la licencia; y

b) Relación de los controles realizados durante la ejecución de la obra y sus resultados.

5.2.6. CONDICIONES DE RECEPCIÓN DE PRODUCTOS

CONDICIONES GENERALES

Según se indica en el Código Técnico de la Edificación, en la Parte I, artículo 7.2, el control de recepción en obra de productos, equipos y sistemas, se realizará según lo siguiente:

Control de recepción en obra de productos, equipos y sistemas.

El control de recepción tiene por objeto comprobar que las características técnicas de los productos, equipos y sistemas suministrados satisfacen lo exigido en el proyecto. Este control comprenderá:

a) el control de la documentación de los suministros, realizado de acuerdo con el artículo.

b) el control mediante distintivos de calidad o evaluaciones técnicas de idoneidad

c) el control mediante ensayos, conforme al artículo.

Control de la documentación de los suministros.

Los suministradores entregarán al constructor, quien los facilitará a la dirección facultativa, los documentos de identificación del producto exigidos por la normativa de obligado cumplimiento y, en su caso, por el proyecto o por la dirección facultativa. Esta documentación comprenderá, al menos, los siguientes documentos:

a) los documentos de origen, hoja de suministro y etiquetado;

b) el certificado de garantía del fabricante, firmado por persona física; y

c) los documentos de conformidad o autorizaciones administrativas exigidas reglamentariamente, incluida la documentación correspondiente al marcado CE de los productos de construcción, cuando sea pertinente, de acuerdo con las disposiciones que sean transposición de las Directivas Europeas que afecten a los productos suministrados.

Control de recepción mediante distintivos de calidad y evaluaciones de idoneidad técnica.

1. El suministrador proporcionará la documentación precisa sobre:

a) los distintivos de calidad que ostenten los productos, equipos o sistemas suministrados, que aseguren las características técnicas de los mismos exigidas en el proyecto y documentará, en su caso, el reconocimiento oficial del distintivo de acuerdo con lo establecido en el artículo 5.2.3; y

b) las evaluaciones técnicas de idoneidad para el uso previsto de productos, equipos y sistemas innovadores, de acuerdo con lo establecido en el artículo 5.2.5, y la constancia del mantenimiento de sus características técnicas.

2. El director de la ejecución de la obra verificará que esta documentación es suficiente para la aceptación de los productos, equipos y sistemas amparados por ella.

Control de recepción mediante ensayos.

1. Para verificar el cumplimiento de las exigencias básicas del CTE puede ser necesario, en determinados casos, realizar ensayos y pruebas sobre algunos productos, según lo establecido en la reglamentación vigente, o bien según lo especificado en el proyecto u ordenados por la dirección facultativa.

2. La realización de este control se efectuará de acuerdo con los criterios establecidos en el proyecto o indicados por la dirección facultativa sobre el muestreo del producto, los ensayos a realizar, los criterios de aceptación y rechazo y las acciones a adoptar.

Este Pliego de Condiciones, conforme a lo indicado en el CTE, desarrolla el procedimiento a seguir en la recepción de los productos en función de que estén afectados o no por la Directiva 89/106/CE de Productos de la Construcción (DPC), de 21 de diciembre de 1988, del Consejo de las Comunidades Europeas.

El Real Decreto 1630/1992, de 29 de diciembre, por el que se dictan disposiciones para la libre circulación de productos de construcción, en aplicación de la Directiva 89/106/CEE, regula las condiciones que estos productos deben cumplir para poder importarse, comercializarse y utilizarse dentro del territorio español de acuerdo con la mencionada Directiva. Así, dichos productos deben llevar el marcado CE, el cual indica que satisfacen las disposiciones del RD 1630/1992.

PRODUCTOS AFECTADOS POR LA DIRECTIVA DE PRODUCTOS DE LA CONSTRUCCIÓN

Los productos de construcción relacionados en la DPC que disponen de norma UNE EN (para productos

tradicionales) o Guía DÍTE (Documento de idoneidad técnica europeo, para productos no tradicionales), y cuya comercialización se encuentra dentro de la fecha de aplicación del marcado CE, serán recibidos en obra según el siguiente procedimiento:

▪ Control de la documentación de los suministros: se verificará la existencia de los documentos establecidos en los apartados a) y b) del artículo 7.2.1, incluida la documentación correspondiente al marcado CE:

o Deberá ostentar el marcado. El símbolo del marcado CE figurará en al menos uno de estos lugares:

▪ sobre el producto, o

▪ en una etiqueta adherida al producto, o

▪ en el embalaje del producto, o

▪ en una etiqueta adherida al embalaje del producto, o

▪ en la documentación de acompañamiento (por ejemplo, en el albarán o factura).

o Se deberá verificar el cumplimiento de las características técnicas mínimas exigidas por la reglamentación y por el proyecto, lo que se hará mediante la comprobación de éstas en el etiquetado del marcado CE.

o Se comprobará la documentación que debe acompañar al marcado CE, la Declaración CE de

conformidad firmada por el fabricante cualquiera que sea el tipo de sistema de evaluación de la conformidad.

o Podrá solicitarse al fabricante la siguiente documentación complementaria:

▪ Ensayo inicial de tipo, emitido por un organismo notificado en productos cuyo sistema de evaluación de la conformidad sea 3.

▪ Certificado de control de producción en fábrica, emitido por un organismo notificado en productos cuyo sistema de evaluación de la conformidad sea 2 o 2+.

- Certificado CE de conformidad, emitido por un organismo notificado en productos cuyo sistema de evaluación de la conformidad sea 1 o 1+.

o La información necesaria para la comprobación del marcado CE se amplía para determinados productos relevantes y de uso frecuente en edificación en la subsección 2.1 de la presente Parte del Pliego.

En el caso de que alguna especificación de un producto no esté contemplada en las características técnicas del marcado, deberá realizarse complementariamente el control de recepción mediante distintivos de calidad o mediante ensayos, según sea adecuado a la característica en cuestión.

PRODUCTOS NO AFECTADOS POR LA DIRECTIVA DE PRODUCTOS DE LA CONSTRUCCIÓN

Si el producto no está afectado por la DPC, el procedimiento a seguir para su recepción en obra (excepto en el caso de productos provenientes de países de la UE que posean un certificado de equivalencia emitido por la Administración General del Estado) consiste en la verificación del cumplimiento de las características técnicas mínimas exigidas por la reglamentación y el proyecto mediante los controles previstos en el CTE, a saber:

Control de la documentación de los suministros: realizado conforme al artículo 7.2.1, y los documentos de conformidad o autorizaciones administrativas exigidas reglamentariamente, entre los que cabe citar:

Certificado de conformidad a requisitos reglamentarios (antiguo certificado de homologación) emitido por un Laboratorio de Ensayo acreditado por ENAC (de acuerdo con las especificaciones del RD 2200/1995) para los productos afectados por disposiciones reglamentarias vigentes del Ministerio de Industria.

Autorización de Uso de los forjados unidireccionales de hormigón armado o pretensado, y viguetas o elementos resistentes armados o pretensados de hormigón, o de cerámica y hormigón que se utilizan para la fabricación de elementos resistentes para pisos y cubiertas para la edificación concedida por la Dirección General de Arquitectura y Política de Vivienda del Ministerio de Vivienda.

En determinados casos particulares, certificado del fabricante, como en el caso de material eléctrico de iluminación que acredite la potencia total del equipo (CTE DB HE) o que acredite la succión en fábricas con categoría de ejecución A, si este valor no viene especificado en la declaración de conformidad del marcado CE (CTE DB SE F).

Control de recepción mediante distintivos de calidad y evaluaciones de idoneidad técnica:

Sello o Marca de conformidad a norma emitido por una entidad de certificación acreditada por ENAC (Entidad Nacional de Acreditación) de acuerdo con las especificaciones del RD 2200/1995.

Evaluación técnica de idoneidad del producto en el que se reflejen las propiedades del mismo. Las entidades españolas autorizadas actualmente son: el Instituto de Ciencias de la Construcción "Eduardo Torroja" (IETcc), que emite el Documento de Idoneidad Técnica (DIT), y el Institut de Tecnología de la Construcció de Catalunya (ITeC), que emite el Documento de Adecuación al Uso (DAU).

Control de recepción mediante ensayos:

Certificado de ensayo de una muestra del producto realizado por un Laboratorio de Ensayo acreditado por una Comunidad Autónoma o por ENAC.

Relación de productos con marcado CE, se especifican los productos de edificación a los que se les exige el marcado CE, según la última resolución publicada en el momento de la redacción del presente documento (Resolución de 17 de abril de 2007 de la Dirección General de Desarrollo Industrial, por la que se amplían los anexos I, II y III de la Orden de 29 de Noviembre de 2001, por la que se publican las referencias a las Normas UNE que son transposición de normas armonizadas, así como el periodo de coexistencia y la entrada en vigor del marcado CE relativo a varias familias de productos de la construcción). En la medida en que vayan apareciendo nuevas resoluciones, este listado deberá actualizarse.

RELACIÓN DE DOCUMENTOS EN LA RECEPCIÓN DE PRODUCTOS. RESUMEN

<table>
<tr><td>Documentación de identificación y garantía</td><td colspan="4">Documentos de origen, hoja de suministro y etiquetado</td></tr>
<tr><td></td><td colspan="4">Certificado de garantía del fabricante, firmada por persona física</td></tr>
<tr><td rowspan="9">Documentación de cumplimiento de características técnicas mínimas</td><td rowspan="5">Productos con marcado CE (1)</td><td rowspan="2">Documentación necesaria</td><td colspan="2">Etiquetado del marcado CE</td></tr>
<tr><td colspan="2">Declaración CE de conformidad firmada por el fabricante</td></tr>
<tr><td rowspan="3">Documentación complementaria</td><td colspan="2">Ensayo inicial de tipo emitido por un Organismo Notificado para un S.E.C. 3</td></tr>
<tr><td colspan="2">Certificado de control de producción en fábrica emitido por un Organismo Notificado para un S.E.C. 2 o 2+</td></tr>
<tr><td colspan="2">Certificado CE de conformidad emitido por un Organismo Notificado para un S.E.C. 1 o 1+</td></tr>
<tr><td colspan="3">-Marcas de conformidad a norma (norma nueva de producto)</td></tr>
<tr><td rowspan="4">Productos sin marcado CE (2)</td><td rowspan="2">Productos tradicionales</td><td colspan="2">Marcas de conformidad a norma (norma antigua)</td></tr>
<tr><td colspan="2">Certificado de conformidad a requisitos reglamentarios (antiguo certificado de homologación)</td></tr>
<tr><td rowspan="2">Productos innovadores</td><td rowspan="2">Evaluación técnica de la idoneidad mediante:</td><td>Documento de Idoneidad técnica DIT</td></tr>
<tr><td>Documento de adecuación al uso DAU</td></tr>
<tr><td>Otros documentos</td><td colspan="4">Certificados de ensayos realizados por un laboratorio</td></tr>
</table>

(1) La documentación de productos con marcado CE no contempla fecha de caducidad.

(2) La documentación de productos sin relación con marcado CE tienen fecha de concesión y un periodo de validez.

5.3. ENSAYOS, ANÁLISIS Y PRUEBAS A REALIZAR

- **ESTANQUEIDAD CIRCUITO HIDRAULICO CLIMATIZACIÓN**

Prueba hidráulica para comprobar la estanqueidad de la red hidraulica de la instalación de climatización, mediante la carga a una presión equivalente a 1,5 veces la presión máxima de trabajo mantenida durante un periodo mínimo de 24 horas, comprobando descensos en la presión de la prueba s/CTE DB-HE-2, RITE y UNE-EN 14336:2005

- **PRUEBA SERVICIO SISTEMA CLIMATIZACIÓN/VENTILACIÓN**

Prueba de funcionamiento del sistema de climatización comprobando el cumplimiento de los requisitos exigidos por el CTE y el RITE.

- **PRUEBA SERVICIO CUADRO ELÉCTRICO**

Prueba de funcionamiento de automatismos de cuadros generales de mando y protección e instalaciones eléctricas s/REBT ITC-BT-05 y UNE-HD 60364-6:2017.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: Noviembre de 2024

6. ANEJO VI. MANUAL DE USO Y MANTENIMIENTO

6.1. INTRODUCCIÓN

El presente documento pretende facilitar el correcto uso y el adecuado mantenimiento del edificio, con el objeto de mantener a lo largo del tiempo las características funcionales y estéticas inherentes al edificio proyectado, recogiendo las instrucciones de uso y mantenimiento del edificio terminado, de conformidad con lo previsto en el "Real Decreto 314/2006. Código Técnico de la Edificación (CTE)".

Del buen uso dispensado y del cumplimiento de los requisitos de mantenimiento a realizar, dependerá en gran medida el inevitable ritmo de envejecimiento de nuestro edificio.

Este documento forma parte del Libro del Edificio, que debe estar a disposición de los propietarios. Además, debe completarse durante el transcurso de la vida del edificio, añadiéndose las posibles incidencias que vayan surgiendo, así como las inspecciones y reparaciones que se realicen.

6.2. INSTALACIONES

La propiedad conservará en su poder la documentación técnica relativa al uso para el que han sido proyectadas, debiendo utilizarse únicamente para tal fin.

Es aconsejable no manipular personalmente las instalaciones y dirigirse en todo momento (avería, revisión y mantenimiento) a la empresa instaladora específica.

No se realizarán modificaciones de la instalación sin la intervención de un instalador especializado y las mismas se realizarán, en cualquier caso, dentro de las especificaciones de la reglamentación vigente y con la supervisión de un técnico competente.

Se dispondrá de los planos definitivos del montaje de todas las instalaciones, así como de diagramas esquemáticos de los circuitos existentes, con indicación de las zonas a las que prestan servicio, número y características de los mismos.

El mantenimiento y reparación de aparatos, equipos, sistemas y sus componentes empleados en las instalaciones, deben ser realizados por empresas o instaladores-mantenedores competentes y autorizados. Se debe disponer de un Contrato de Mantenimiento con las respectivas empresas instaladoras autorizadas antes de habitar el edificio.

Existirá un Libro de Mantenimiento, en el que la empresa instaladora encargada del mantenimiento dejará constancia de cada visita, anotando el estado general de la instalación, los defectos observados, las reparaciones efectuadas y las lecturas del potencial de protección.

El titular se responsabilizará de que esté vigente en todo momento el contrato de mantenimiento y de la custodia del Libro de Mantenimiento y del certificado de la última inspección oficial.

El usuario dispondrá del plano actualizado y definitivo de las instalaciones, aportado por el arquitecto, instalador o promotor o bien deberá proceder al levantamiento correspondiente de aquéllas, de forma que en los citados planos queden reflejados los distintos componentes de la instalación.

Igualmente, recibirá los diagramas esquemáticos de los circuitos existentes con indicación de las zonas a las que prestan servicio, número y características de todos los elementos, codificación e identificación de cada una de las líneas, códigos de especificación y localización de las cajas de registro y terminales e indicación de todas las características principales de la instalación.

En la documentación se incluirá razón social y domicilio de la empresa suministradora y/o instaladora.

6.2.1. INSTALACIONES. CALEFACCIÓN, REFRIGERACIÓN, CLIMATIZACIÓN Y A.C.S. SISTEMAS DE CONDUCCIÓN DE AGUA

USO

PRECAUCIONES

La instalación se mantendrá llena de agua, incluso en los periodos de no funcionamiento, para evitar oxidaciones por entrada de aire.

La bomba aceleradora se pondrá en marcha previamente al encendido de la caldera y se parará después de apagada ésta.

PRESCRIPCIONES

Deberá vigilarse el nivel de llenado del circuito de calefacción, rellenándolo cuando fuera necesario.

Si se observara que los rellenados de la instalación se tienen que realizar con alguna frecuencia, deberá avisarse a la empresa o instalador autorizado que subsane la fuga.

Deberá comprobarse diariamente, mediante inspección visual, la temperatura del circuito secundario de los captadores térmicos.

El usuario deberá avisar a un profesional cualificado ante la detección de cualquier anomalía.

Siempre que se revisen las instalaciones, un profesional cualificado deberá reparar los defectos encontrados y adoptar las medidas oportunas.

PROHIBICIONES

No se utilizarán las tuberías del tendido de calefacción u otros conductos metálicos bajo ningún concepto como toma de tierra.

No se manipulará ningún elemento de la instalación tales como llaves o válvulas.

No se modificarán las condiciones exteriores de seguridad previstas en la instalación original, salvo con un proyecto específico, desarrollado por un técnico competente.

MANTENIMIENTO

POR EL USUARIO

Cada año:

Inspección visual de las tuberías, el aislamiento y del sistema de llenado del circuito primario para comprobar la ausencia de humedades y fugas.

Inspección visual de las tuberías y el aislamiento del circuito secundario de los captadores térmicos para comprobar la ausencia de humedades y fugas.

POR EL PROFESIONAL CUALIFICADO

Cada mes:

Para instalaciones de potencia térmica nominal > 70 kW:

Revisión del vaso de expansión.

Comprobación de niveles de agua en circuitos.

Comprobación de tarado de elementos de seguridad.

Revisión de bombas.

Revisión del sistema de producción de agua caliente sanitaria.

Cada 3 meses:

Vaciado del aire del botellín del purgador manual.

Purgado de la acumulación de lodos de la parte inferior del depósito acumulador solar.

Cada 6 meses:

Revisión y limpieza de filtros de agua, una al inicio de la temporada y otra a la mitad del periodo de uso, para instalaciones de potencia térmica nominal > 70 kW.

Cada año:

Para instalaciones de potencia térmica nominal <= 70 kW:

Revisión del vaso de expansión.

Comprobación de niveles de agua en circuitos.

Revisión del sistema de producción de agua caliente sanitaria.

Revisión del estado del aislamiento térmico.

Para instalaciones de potencia térmica nominal > 70 kW:

Comprobación de estanqueidad de circuitos de tuberías.

Revisión de baterías de intercambio térmico.

Revisión del estado del aislamiento térmico.

6.2.2. INSTALACIONES. CALEFACCIÓN, REFRIGERACIÓN, CLIMATIZACIÓN Y A.C.S. SISTEMAS DE CONDUCCIÓN DE AIRE

USO

PRECAUCIONES

Se tendrá especial cuidado en la manipulación de las rejillas y difusores de aire.

PRESCRIPCIONES

La propiedad deberá recibir a la entrega de la vivienda, los planos definitivos del recorrido de los conductos que forman parte de la instalación de climatización e indicación de las principales características de la misma. La documentación incluirá razón social y domicilio de la empresa instaladora.

Ante cualquier modificación en la instalación o en sus condiciones de uso (ampliación de la instalación o cambio de destino del edificio) un técnico competente especialista en la materia deberá realizar un estudio previo.

El mantenimiento de la instalación deberá ser realizado por un instalador autorizado de la empresa responsable.

El usuario deberá avisar a un profesional cualificado ante la detección de cualquier anomalía.

Siempre que se revisen las instalaciones, un profesional cualificado deberá reparar los defectos encontrados y adoptar las medidas oportunas.

Deberán reflejarse en los planos de la propiedad todas aquellas modificaciones que se produzcan como consecuencia de los trabajos de reparación de la instalación.

MANTENIMIENTO

POR EL USUARIO

Cada 6 meses:

Preferiblemente antes de la temporada de utilización:

Comprobación en los conductos del estado de su aislamiento, puntos de anclaje, conexiones y limpieza.

Limpieza de los difusores de aire.

POR EL PROFESIONAL CUALIFICADO

Cada mes:

Revisión de ventiladores, para instalaciones de potencia térmica nominal > 70 kW.

Cada 6 meses:

Revisión de unidades terminales de distribución de aire, una al inicio de la temporada y otra a la mitad del periodo de uso, para instalaciones de potencia térmica nominal > 70 kW.

Cada año:

Revisión de unidades terminales de distribución de aire, para instalaciones de potencia térmica nominal <= 70 kW.

6.2.3. INSTALACIONES. CALEFACCIÓN, REFRIGERACIÓN, CLIMATIZACIÓN Y A.C.S. UNIDADES DE TRATAMIENTO DE AIRE (CLIMATIZADORAS)

USO

PRECAUCIONES

El usuario tendrá la precaución debida ante taladros en paramentos para no afectar a las posibles conducciones.

Se consultarán las instrucciones de uso entregadas en la compra de los aparatos.

PRESCRIPCIONES

Deberá comprobarse durante la puesta en marcha de invierno o verano que no hay bolsas de aire en la batería.

Deberán comprobarse las posibles fugas del circuito hidráulico.

Debe hacerse un uso racional de la energía mediante una programación adecuada del sistema, de manera que no se deberían programar temperaturas inferiores a los 23°C en verano ni superiores a esa cifra en invierno.

En caso de tratamiento de la humedad, su programación debe estar comprendida entre el 40% y el 60% de la humedad relativa.

Los elementos y equipos de la instalación deberán ser manipulados solamente por el personal del servicio técnico de la empresa suministradora.

El usuario deberá avisar a un profesional cualificado ante la detección de cualquier anomalía.

Siempre que se revisen las instalaciones, un profesional cualificado deberá reparar los defectos encontrados y adoptar las medidas oportunas.

PROHIBICIONES

No se obstaculizará nunca el movimiento del aire en las compuertas del equipo.

No se compatibilizará el funcionamiento del sistema con la apertura de los huecos exteriores practicables.

MANTENIMIENTO

POR EL USUARIO

Cada año:

Antes de la temporada de utilización:

Limpieza y eliminación de corrosiones de las superficies exteriores.

Verificación de la inexistencia de fugas de aire por juntas de paneles, puertas y registros.

Inspección de los filtros de aire.

Eliminación de incrustaciones de sales y lodos.

Verificación del estado y estanqueidad de conexiones de agua.

POR EL PROFESIONAL CUALIFICADO

Cada año:

Inspección, verificación, limpieza, comprobación, sustitución, medición de caudales de aire, de consumos, realización de análisis del agua de estas unidades de tratamiento de aire en lo relativo a aspectos generales, secciones de refrigeración, compuertas, filtros, secciones de recuperación de energía, secciones de humidificación por inyección de vapor, secciones de humidificación por contacto, lavadores de aire, baterías de tratamiento de aire y ventiladores y sus motores.

6.2.4. INSTALACIONES. VENTILACIÓN. VENTILACIÓN MECÁNICA

USO

PRECAUCIONES

Se procurará no inhalar gases procedentes de los conductos de ventilación.

La salida a la cubierta para el mantenimiento de los ventiladores será realizada exclusivamente por personal especializado, con las debidas condiciones de seguridad.

PRESCRIPCIONES

Toda modificación en la instalación o en sus condiciones de uso que pueda alterar su normal funcionamiento será realizada previo estudio y bajo la dirección de un técnico competente.

En caso de ser observada la aparición de grietas o fisuras en los conductos, deberá consultarse a un técnico competente para que dictamine su importancia y, si procede, las medidas a implementar. Se repararán los desperfectos y se procederá a realizar una nueva prueba de servicio.

Las rejillas deberán limpiarse con productos que no dañen ni el material del que están hechas ni sus acabados.

Si los conductos son vistos y aparecen síntomas de óxidos o de picado de los esmaltes o galvanizados, deberá avisarse a un profesional cualificado.

En caso de apreciarse alguna anomalía por parte del usuario, deberá avisarse a un instalador autorizado para que proceda a reparar los defectos encontrados y adopte las medidas oportunas.

Deberán ventilarse periódicamente los espacios interiores de las viviendas y elementos comunes.

Deberán repararse aquellas piezas de los ventiladores que aparezcan rotas o con defectos.

Siempre que se revisen las instalaciones, o antes si fuese apreciada una anomalía, se repararán los defectos encontrados por un instalador autorizado y, en caso de que sea necesario, se sustituirán las piezas que lo precisen.

PROHIBICIONES

No se utilizarán los conductos de ventilación para otro uso que no sea, específica y absolutamente, el de conducción del aire y el humo extraídos del garaje.

No se eliminarán ni cegarán los conductos ni se conectarán a ellos rejillas de ventilación de locales.

Las rejillas no se ocultarán en ningún caso, sea de forma temporal o permanente.

No se sujetarán elementos de las rejillas para evitar que se muevan.

No se cegarán las salidas de los ventiladores ni se disminuirá su altura.

MANTENIMIENTO

POR EL USUARIO

Cada 6 meses:

Observación del estado de las rejillas y limpieza de las mismas.

POR EL PROFESIONAL CUALIFICADO

Cada año:

Realización de labores de limpieza y verificación del estado del ventilador, además de la sustitución o limpieza de filtros, si los posee.

Comprobación del funcionamiento adecuado del ventilador.

Inspección visual del estado del ventilador.

Comprobación de que no existen problemas de funcionamiento en los conductos de ventilación y de que los aparatos que evacúan en ellas no sufren anomalías en la evacuación de los productos procedentes de la combustión (falta o exceso de tiro).

Verificación de los elementos antivibratorios del ventilador, así como los conductos elásticos de unión con los conductos de ventilación.

Cada 5 años:

Limpieza de las rejillas.

Comprobación de las conexiones eléctricas y reparación de los defectos encontrados.

Limpieza del ventilador, eliminando aquellos elementos que se hayan podido fijar sobre él, con cuidado de que no caigan restos al interior de los conductos.

Comprobación de la estanqueidad de los conductos de ventilación.

Limpieza de los conductos de ventilación.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:



D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: Noviembre de 2024

7. ANEJO VII ESTUDIO ECONÓMICO DE REPERCUSIÓN DE LA OBRA

PRESUPUESTO PARA CONOCIMIENTO DE LA ADMINISTRACIÓN

PEM:	1.836.767,15 €
	UN MILLÓN OCHOCIENTOS TREINTA Y SEIS MIL SETECIENTOS SESENTA Y SIETE EUROS CON QUINCE CÉNTIMOS DE EURO.
PEC:	2.185.752,91 €
	DOS MILLONES CIENTO OCHENTA Y CINCO MIL SETECIENTOS CINCUENTA Y DOS EUROS CON NOVENTA Y UN CÉNTIMOS DE EURO.
PEC+IVA	2.644.761,02 €
	DOS MILLONES SEISCIENTOS CUARENTA Y CUATRO MIL SETECIENTOS SESENTA Y UN EUROS CON DOS CÉNTIMOS DE EURO.

SUPERFICIE DE ACTUACIÓN

La superficie construida sobre la que se lleva a cabo la actuación es: 9310,18 m^2

REPERCUSIONES DE COSTE POR m^2 (RATIOS)

Repercusión de coste / m^2 = 2.185.752,91 € / 9.310,18 m^2 = 234,77 €/m^2

PLAZO DE OBRA

6 meses

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: noviembre de 2024

8. ANEJO VIII. CÁLCULO DE LA INSTALACIÓN DE CLIMATIZACIÓN/VENTILACIÓN

8.1. HE2 CONDICIONES DE LAS INSTALACIONES TÉRMICAS

8.1.1. Antecedentes

El presente Proyecto comprende el diseño y cálculo de las instalaciones de climatización y ventilación en un edificio destinado a uso Pública concurrencia, situado en **Avenida Principal, 16, Moncloa-Aravaca, 28011 Madrid, Madrid.**

8.1.2. Objeto

El presente proyecto tiene por objeto fijar las características técnicas y de seguridad que debe reunir la instalación de climatización y ventilación que nos ocupa, para solicitar de los organismos competentes los permisos y autorizaciones necesarios para su ejecución y puesta en servicio.

8.1.3. Software de cálculo empleado

- **TeKton3D: Módulo TK-CDT HE2. Carga y demanda térmica**. Para el diseño y cálculo de instalaciones de climatización de acuerdo al CTE-HE2 (RITE).

- **TeKton3D: Módulo TK-DAC. Distribución de aire por conductos.** Para el diseño y cálculo de conductos de aire para climatización, extracción y sistemas de ventilación forzada (RITE).

- **TeKton3D: Módulo TK-ICA. Climatización por agua - Circuitos hidráulicos.** Para el diseño y cálculo de instalaciones de climatización por agua (RITE).

8.2. LEGISLACIÓN APLICABLE

La instalación cumplirá, tanto en lo referente a su diseño, dimensionado, equipos suministrados, así como a su montaje, toda la Normativa Legal vigente, y en particular la que se enumera a continuación:

- Reglamento de Instalaciones Térmicas en los Edificios (RITE) y sus Instrucciones Técnicas IT (Real Decreto 1027/2007, de 20 de julio y modificaciones del Real Decreto 238/2013 de 5 de abril).
- Real Decreto 178/2021 de 23 de marzo, por el que se modifica el R.D. 1027/2007, que aprueba el Reglamento de Instalaciones Térmicas en los Edificios (RITE).
- Código Técnico de la Edificación, aprobado por Real Decreto 314/2006 de 17 de marzo, publicado en el B.O.E. de fecha 28 de marzo de 2006 y modificaciones posteriores, y en especial sus Documentos Básicos:
    - Ahorro de Energía: HE 1. Limitación de la demanda energética.
    - Ahorro de Energía: HE 2. Rendimiento de las instalaciones térmicas (RITE).

- Ahorro de Energía: HE 4. Contribución solar mínima de agua caliente sanitaria.
- Salubridad: HS 3. Calidad del aire interior.
- Salubridad: HS 4. Suministro de agua.
- Protección frente al ruido: HR. Apartado 3.3 Ruido y vibraciones de las instalaciones
- Seguridad en caso de incendio: SI 1. Propagación interior.

- Reglamento Electrotécnico para Baja Tensión, aprobado por Real Decreto 842/2002 de 2 de agosto, y publicado en el B.O.E. nº 224 de fecha 18 de septiembre de 2002.
- Ordenanzas municipales y normas particulares de las Empresas Suministradoras.

8.3. DESCRIPCIÓN DEL EDIFICIO

8.3.1. Localización

El edificio se encuentra en Madrid (Madrid), Avenida Principal, 16, Moncloa–Aravaca, 28011 Madrid. La altitud sobre el nivel del mar es de 653,000 m, por lo que según el apartado 3.1.1. de la sección HE1 "Limitación de la Demanda Energética" del CTE se encuentra situado en la zona climática D3.

Coordenadas de posicionamiento:

Latitud: 40° 24' 52" N, Longitud: 3° 44' 16" O

8.3.2. Actividad y uso

El edificio tendrá uso Pública Concurrencia.

8.3.3. Superficie acondicionada

El edificio en la parte reformada se compone de salas de exposiciones y eventos. Todos estos espacios están organizados en dos plantas y una entreplanta. La superficie total acondicionada en lo que la parte reformada se refiere es de 9.205,68 m² (planta alta).

Se acondicionan todas las dependencias del edificio, a excepción de aquellas salas destinadas a aseos, archivos, salas de limpieza o similares. A continuación, se relacionan los espacios definidos en cada planta:

LISTADO DE ESPACIOS P1					
Espacio	Clasificación de la actividad	Tipo	Superficie (m²)	Altura (m)	Volumen (l)
P.ALTA	E.4.1: Alumbrado general	AC	9.205,68	9,816	90.363.795

Tipo: Espacio acondicionado (AC), no acondicionado (NA) y no habitable (NH).

8.3.4. Elementos constructivos

Los parámetros térmicos de cada uno de los elementos constructivos utilizados en los cálculos son los que se describen en las dos tablas siguientes:

LISTADO DE ELEMENTOS CONSTRUCTIVOS OPACOS		
Referencia y descripción	**Resistencia térmica (m²·K/W)**	**Masa (kg/m²)**
CUBIERTA8: Inclinada, Ligera + no ventilada + láminas metálicas aluminio MW 50	4,607	18,00
C13.1a CHAPA ALUMINIO MW 50: Inclinada, Ligera + no ventilada + láminas metálicas aluminio MW 50	1,235	12,80
FORJ-LOAL-03: Losa alveolar 30 cm + loseta horm. + guarnecido y enlucido yeso 1,5 cm c/aislante	1,300	483,50
Muro Hormigón: HORM1 30 cm	0,120	780,00

LISTADO DE ELEMENTOS CONSTRUCTIVOS SEMITRANSPARENTES				
Referencia y descripción	**Transmitancia vidrio (W/m²·°C)**	**Factor solar**	**Transmitancia carpintería (W/m²·°C)**	**Permeabilidad (m³/h m²)**
MAE Cortizo: Vidrio: Doble acristalamiento 6/16/4-4 para ahorro energético con control solar bajo emisivo y cámara de Argon 90% Carpintería: VER_Con rotura de puente térmico entre 4 y 12 mm	1,000	0,50	4,000	9,0
Exutorios: Vidrio: VER_DC_4-6-33,1 Carpintería: VER_Con rotura de puente térmico entre 4 y 12 mm	3,200	0,75	4,000	27,0

8.4. CONDICIONES OPERACIONALES

Las condiciones operacionales que describen el funcionamiento del edificio serán las correspondientes a "NO RESIDENCIAL: Intensidad Alta - 12h" cuyos parámetros se describen en el anejo correspondiente.

8.4.1. Niveles de ocupación e iluminación

En cada espacio se ha estimado el número de ocupantes en función de la actividad prevista, de la superficie útil del recinto o bien a partir de datos facilitados por el promotor.

Atendiendo a los mismos criterios se ha elegido el grado de actividad metabólica de cada grupo de personas con objeto de estimar sus aportes térmicos sensibles y latentes.

El nivel de iluminación y las cargas internas debidas a equipos eléctricos o térmicos corresponden a ratios utilizados habitualmente para cada tipo de actividad o condiciones operativas.

OCUPACIÓN, ILUMINACIÓN Y EQUIPOS DE LOS ESPACIOS EN P1							
Espacios	Ocupación				Iluminación (W/m²)	Equipos	
	Número Ocupantes	Densidad (m²/persona)	Aporte Sensible (W/m²)	Aporte Latente (W/m²)		Aporte Sensible (W/m²)	Aporte Latente (W/m²)
P.ALTA (NO RESIDENCIAL: Intensidad Alta - 12h)	3069	3,00	28,34	28,34	15,00	7,50	0,00

8.5. CONDICIONES EXTERIORES DE PROYECTO

Se utilizan dos juegos de condiciones climáticas diferentes, uno con datos para un día tipo de cada mes, que representa las condiciones climáticas extremas y que será utilizado para el cálculo de las cargas térmicas máximas y mínimas; y otro con la evolución anual hora a hora (8760 registros) de las principales variables climáticas, y que será utilizado en el cómputo de la demanda energética anual.

Las condiciones exteriores para cálculos de potencia térmica se obtienen de la Guía técnica de IDAE "Condiciones climáticas exteriores de proyecto" a partir de las condiciones exteriores para el día tipo de Julio a las 15 hora solar:

- Percentil condiciones de verano 1,0 %
- Temperatura seca verano 33,6 °C
- Temperatura húmeda verano 21,1 °C
- Humedad relativa de verano 32,3 %

Las condiciones exteriores extremas para cálculos de calefacción serán las mismas para cualquier hora y mes de invierno:

- Percentil condiciones de invierno Otras fuentes de datos %
- Temperatura seca invierno -3,4 °C
- Temperatura húmeda invierno -3,8 °C

- Humedad relativa de invierno 90,0 %

Las condiciones climáticas para el resto de los días del año se obtienen aplicando las tablas de correcciones de la norma UNE 100014-2004 "Climatización. Bases para el proyecto. Condiciones exteriores de cálculo" según los parámetros siguientes:

- Variación diurna de temperaturas 13,9 °C
- Variación anual de temperaturas 37,0 °C

Para estimar la radiación solar máxima incidente se utilizará el modelo no espectral desarrollado por Bird y Hulstrom considerando una atmósfera Normal (ciudad).

Se considera que la temperatura del terreno es 13,8 °C, obtenida como la media anual de las temperaturas secas exteriores.

El cálculo de la demanda de energía se realizará en base a los datos meteorológicos sintéticos, generados con el programa CLIMED 1.3 a partir de los datos climáticos de la Agencia Estatal de Meteorología. Estos datos están disponibles para todas las capitales de provincia, ciudades autónomas y localidades tipo de cada zona climática y se suministran junto a los programas informáticos oficiales LIDER y CALENER.

El archivo de datos climáticos utilizado es "MadridPVGIS.met".

Teniendo en cuenta el entorno que rodea al edificio, se considera que la calidad del aire exterior es de nivel ODA 2: Aire con concentraciones altas de partículas y/o gases contaminantes.

8.6. RESUMEN DE CARGAS TÉRMICAS POR ESPACIOS

A continuación, se detallan los resultados del cálculo de cargas térmicas de calefacción y refrigeración para cada espacio en el momento de máximas cargas individuales:

RESUMEN DE CARGAS TÉRMICAS PARA REFRIGERACIÓN ESPACIOS EN P1											
Espacio	Fecha	GTH (W)	RSC (%)	TEN (%)	TPA (%)	OC (%)	IL (%)	EQ (%)	VE (%)	ESHF	Ratio (W/m²)
P.ALTA	24 Agosto 12hs	1.166.341	32,0	4,4	4,8	43,7	10,7	5,8	-1,5	0,77	126,7

RESUMEN DE CARGAS TÉRMICAS PARA CALEFACCIÓN ESPACIOS EN P1											
Espacio	Fecha	GTH (W)	RSC (%)	TEN (%)	TPA (%)	OC (%)	IL (%)	EQ (%)	VE (%)	ESHF	Ratio (W/m²)
P.ALTA	21 Diciembre 6hs	-520.190	0,0	12,4	51,6	0,0	0,0	0,0	36,0	1,00	56,5

Dónde:

- GTH: Carga térmica total (W)
- RSC: Ganancias por radiación solar (% carga total)
- TEN: Transmisión a través de la envolvente (% carga total)
- TPA: Transmisión por particiones y huecos (% carga total)
- OC: Fuentes internas ocupación (% carga total)
- IL: Fuentes internas iluminación (% carga total)
- EQ: Fuentes internas equipos (% carga total)
- VE: Ventilación e infiltraciones (% carga total)
- ESHF: Factor de carga sensible del espacio

8.7. DESCRIPCIÓN DE LA INSTALACIÓN

La potencia térmica nominal de climatización instalada para el conjunto de salas climatizadas es de 1.152,433/457,342 kW FRIO/CALOR, siendo de 9.205,68 m² la superficie útil total acondicionada para estos espacios.

El sistema instalado en todo el edificio se basa en el uso de unidades de tratamiento de aire alimentadas por las plantas enfriadoras y calderas ubicadas en el edificio anexo de instalaciones. A continuación se describe el sistema por plantas:

- **Planta Alta:** se emplean un total de 12 climatizadores modelo 39YA de CARRIER o Equivalente, ubicados en los huecos existentes de la estructura metálica de techo, apoyados sobre la misma. Estos equipos dispondrán de recuperador de calor rotativo, baterías independientes para calor y para frío, filtros correspondientes para asegurar la calidad del aire, motores eléctricos con variador de frecuencia y compuertas de regulación para ofrecer la posibilidad de emplear free-cooling.

  Para la difusión de aire se utilizan conductos circulares de chapa aislados interiormente distribuidos por los huecos existentes de la estructura metálica.

  En esta planta la altura disponible es elevada, por lo que se opta por instalar toberas individuales de largo alcance a una altura de instalación de 7,00 m. Para el tratamiento interior de la zona ocupada se emplea el modelo termorregulable DF-49-TR-12-INJ de KOOLAIR o Equivalente, para asegurar el correcto funcionamiento verano/invierno, instaladas enfrentadas para choque de vena de aire. Para el tratamiento perimetral del vidrio se emplea el modelo DF-49-12-INJ de KOOLAIR o Equivalente, evitando así las condensaciones superficiales que se puedan producir.

Para el retorno de aire se emplean rejillas de retícula modelo 22-5 de KOOLAIR o Equivalente, instaladas en la envolvente y de la uta, extrayendo directamente de sala.

La admisión y expulsión de aire se realiza en huecos en el cristal de fachada, mediante rejillas de lamas con perfil antilluvia y malla antipájaros modelo 210-TA de KOOLAIR o Equivalente. Estas rejillas se ubicarán de forma estratégica y con la correcta orientación para evitar el by-pass térmico entre la toma de aire y la salida.

Toda la distribución de agua de climatización se realizará con tuberías de Polipropileno Copolímero Random (PP-R) serie 5, SDR 11, aisladas con espuma elastomérica según RITE. Las que discurran por el exterior del edificio irán protegidas con virola de aluminio con el fin de aislar contra agentes ambientales.

Se emplean equipos de bombeo con variador de frecuencia instalados en el cuarto de instalaciones destinado para tal fin.

Para el control de la presión y el caudal se emplean válvulas de equilibrado modelo STAF-SG de TOUR-ANDERSON, ubicadas en los ramales principales de alimentación a cada planta y en la entrada de cada climatizador. Además se emplean válvulas motorizadas conectadas al sistema de gestión centralizada de climatización del edificio, ubicadas en la entrada de cada climatizador.

Toda la información relativa a la instalación térmica se encuentra detallada en los planos y anexos correspondientes del Proyecto, y en los apartados posteriores de este documento.

8.7.1. Justificación del sistema elegido

La elección de los subsistemas se ha realizado teniendo como objetivos preferentes la eficiencia energética del edificio y el bienestar térmico de los ocupantes, para ello se han tenido en cuenta los siguientes aspectos:

- Compartimentación del edificio, espacios acondicionados.
- Condiciones operacionales, actividad y uso de cada espacio.
- Simultaneidad de utilización.
- Bajo nivel de ruidos y vibraciones.
- Cámaras y recintos disponibles para los dispositivos de la instalación.
- Protección del medio ambiente.

8.8. EXIGENCIA DE BIENESTAR E HIGIENE

El cumplimiento de esta exigencia se justifica con la verificación de los requisitos descritos en la IT 1.1.2. y relacionados a continuación:

8.8.1. Calidad térmica del ambiente

La exigencia de calidad térmica del ambiente se considera satisfecha en el diseño y dimensionado de la instalación térmica, si los parámetros que definen el bienestar térmico, como la temperatura seca del aire y operativa, humedad relativa, temperatura media del recinto, velocidad media del aire en la zona ocupada e intensidad de la turbulencia se mantienen en la zona ocupada dentro de los valores establecidos en la IT 1.1.4.1.1.

La siguiente tabla contiene los distintos espacios climatizados del edificio, indicando para cada uno de ellos los parámetros del bienestar térmico que se han elegido para el diseño y dimensionado de sus instalaciones térmicas. En los apartados siguientes se justifica esta elección.

PARÁMETROS DE BIENESTAR TÉRMICO ESPACIOS EN P1						
Espacio	Condiciones operacionales	Temperatura operativa verano (°C)	Humedad relativa verano (%)	Temperatura operativa invierno (°C)	Humedad relativa invierno (%)	Velocidad media del aire zona ocupada (m/s)
P.ALTA	NO RESIDENCIAL: Intensidad Alta - 12h	24,5±1,5	45,0-60,0	20,5±1,5	-	0,14-0,18

Temperatura operativa y humedad relativa

Las condiciones interiores de diseño de la temperatura operativa y la humedad relativa se fijarán en base a la actividad metabólica de las personas, su grado de vestimenta y el porcentaje estimado de insatisfechos (PPD).

Teniendo en cuenta una actividad sedentaria de 1,2 met, un grado de vestimenta de 0,5 clo en verano y 1,0 clo en invierno, y un PPD menor al 10%, los valores de la temperatura operativa y la humedad relativa, asumiendo un nivel de velocidad de aire bajo (< 0,1 m/s), deben estar comprendidos entre los límites que reproducimos a continuación:

Estimación	Temperatura operativa (°C)	Humedad relativa (%)
Verano	23...25	45...60
Invierno	21...23	40...50

Para el dimensionamiento de los sistemas de calefacción se ha empleado una temperatura de cálculo de las condiciones interiores de 21 ºC, mientras que para los sistemas de refrigeración la temperatura de cálculo ha sido de 25°C.

Velocidad media del aire

La velocidad media del aire en zona ocupada se limitará al valor que aparece en la tabla anterior, obtenido de acuerdo con el apartado IT.1.1.4.1.3. del RITE, difusión por mezcla a la temperatura seca ambiente, para una intensidad de turbulencia del 40% y un PPD por corrientes del 15%.

8.8.2. Calidad del aire interior

En aplicación del apartado IT 1.1.4.2., los locales en los que se realice alguna actividad humana dispondrán de un sistema de ventilación que aporte suficiente caudal de aire exterior para evitar la formación de altas concentraciones de contaminantes.

Caudal mínimo del aire exterior de ventilación

El caudal mínimo de aire exterior de ventilación de cada espacio se obtiene en función del uso del local, del número de ocupantes y en algunos casos de la superficie útil, aplicando la tabla 2.1 del Documento Básico HS3 del Código Técnico de la Edificación en el caso de edificios de viviendas, y en el resto de los edificios la norma UNE-EN 16798-3 "Ventilación de los edificios. Parte 3: Para edificios no residenciales. Requisitos de eficiencia para los sistemas de ventilación y climatización". Los niveles de ventilación asignados a cada espacio son los que aparecen en la siguiente tabla:

AIRE EXTERIOR DE VENTILACIÓN DE LOS ESPACIOS EN P1						
Espacio	Calidad de aire interior			Caudal total (l/s)	Renov. (1/h)	Notas
	Criterio	l/s/per.	l/s/m²			
P.ALTA	IDA3 (Calidad media)	8,00	0,55	32.736,00	1,30	80,0%R.s.

En general se utilizará el método indirecto de caudal de aire exterior por persona (A), salvo en los espacios no dedicados a ocupación humana permanente, o bien en aquellos en los que el número de personas no esté definido, en los que se utilizará el método indirecto de caudal de aire por unidad de superficie (D). Las tablas 1.4.2.1 y 1.4.2.4 del RITE relacionan la calidad de aire interior IDA con los caudales de aire exterior que es necesario suministrar dependiendo del método utilizado.

Aire de extracción

En aplicación del apartado IT 1.1.4.2.5. sólo el aire de categoría AE 1 (bajo nivel de contaminación) podrá ser retornado a los locales, y el de categoría AE 2 (moderado nivel de contaminación) usado como aire de transferencia desde un local hacia locales de servicio, aseos y garajes.

El aire de las categorías AE 3 y AE 4 (alto y muy alto nivel de contaminación) no puede ser empleado en ningún caso como aire de recirculación o de transferencia.

8.8.3. Exigencia de higiene

Las redes de conductos estarán equipadas de aperturas de servicio de acuerdo con lo indicado en la norma UNE-EN 12097 para permitir las operaciones de limpieza y desinfección.

Los elementos instalados en las redes de conductos serán desmontables y tendrán una apertura de acceso o una sección desmontable de conducto para permitir las operaciones de mantenimiento.

Los falsos techos deben tener registros de inspección en correspondencia con los registros en conductos y los aparatos situados en los mismos.

8.8.4. Exigencia de calidad del ambiente acústico

Se tendrán en cuenta las prescripciones del Documento Básico HR. Protección frente al ruido, en especial las siguientes cuestiones:

Encuentros con los conductos de instalaciones

Cuando un conducto de instalaciones colectivas se adose a un elemento de separación vertical, se revestirá de tal forma que no disminuya el aislamiento acústico del elemento de separación y se garantice la continuidad de la solución constructiva.

En el caso de que un conducto de instalaciones, por ejemplo, de instalaciones hidráulicas o de ventilación, atraviese un elemento de separación horizontal, se recubrirá y se sellarán las holguras de los huecos efectuados en el forjado para paso del conducto con un material elástico que impida el paso de vibraciones a la estructura del edificio.

Deben eliminarse los contactos entre el suelo flotante y los conductos de instalaciones que discurran bajo él. Para ello, los conductos se revestirán de un material elástico.

Techos suspendidos y suelos registrables

Cuando discurran conductos de instalaciones por el techo suspendido o por el suelo registrable, debe evitarse que dichos conductos conecten rígidamente el forjado y las capas que forman el techo o el suelo.

Ruidos y vibraciones de las instalaciones

Se limitarán los niveles de ruido y de vibraciones que las instalaciones puedan transmitir a los recintos protegidos y habitables del edificio a través de las sujeciones o puntos de contacto de aquellas con los elementos constructivos, de tal forma que no se aumenten perceptiblemente los niveles debidos a las restantes fuentes de ruido del edificio.

El nivel de potencia acústica máximo de los equipos generadores de ruido estacionario (como los quemadores, las calderas, las bombas de impulsión, la maquinaria de los ascensores, los compresores, grupos electrógenos, extractores, etc.) situados en recintos de instalaciones, así como las rejillas y difusores

terminales de instalaciones de aire acondicionado, será tal que se cumplan los niveles de inmisión en los recintos colindantes, expresados en el desarrollo reglamentario de la Ley 37/2003 del Ruido.

El nivel de potencia acústica máximo de los equipos situados en cubiertas y zonas exteriores anejas será tal que en el entorno del equipo y en los recintos habitables y protegidos no se superen los objetivos de calidad acústica correspondientes.

Condiciones de montaje

Los equipos se instalarán sobre soportes antivibratorios elásticos cuando se trate de equipos pequeños y compactos o sobre una bancada de inercia cuando el equipo no posea una base propia suficientemente rígida para resistir los esfuerzos causados por su función o se necesite la alineación de sus componentes, como por ejemplo del motor y el ventilador o del motor y la bomba.

En el caso de equipos instalados sobre una bancada de inercia, tales como bombas de impulsión, la bancada será de hormigón o acero de tal forma que tenga la suficiente masa e inercia para evitar el paso de vibraciones al edificio. Entre la bancada y la estructura del edificio deben interponerse elementos antivibratorios.

Se consideran válidos los soportes antivibratorios y los conectores flexibles que cumplan la UNE 100153 IN.

Se instalarán conectores flexibles a la entrada y a la salida de las tuberías de los equipos.

En las chimeneas de las instalaciones térmicas que lleven incorporados dispositivos electromecánicos para la extracción de productos de combustión se utilizarán silenciadores.

Conducciones hidráulicas

En el paso de las tuberías a través de los elementos constructivos se utilizarán sistemas antivibratorios tales como manguitos elásticos estancos, coquillas, pasamuros estancos, abrazaderas y suspensiones elásticas.

La velocidad de circulación del agua se limitará a 1 m/s en las tuberías de calefacción y los radiadores de las viviendas.

No deben apoyarse los radiadores en el pavimento y fijarse a la pared simultáneamente, salvo que la pared esté apoyada en el suelo flotante.

Equipos de aire acondicionado

Los conductos de aire acondicionado deben ser absorbentes acústicos cuando la instalación lo requiera y deben utilizarse silenciadores específicos.

Se evitará el paso de las vibraciones de los conductos a los elementos constructivos mediante sistemas antivibratorios, tales como abrazaderas, manguitos y suspensiones elásticas.

Ventilación

Los conductos de extracción que discurran dentro de una unidad de uso deben revestirse con elementos constructivos cuyo índice global de reducción acústica, ponderado A, RA, sea al menos 33 dBA

Asimismo, cuando un conducto de ventilación se adose a un elemento de separación vertical se revestirá de tal forma que no disminuya el aislamiento acústico del elemento de separación y se garantice la continuidad de la solución constructiva.

En el caso de que dos unidades de uso colindantes horizontalmente compartieran el mismo conducto colectivo de extracción, se cumplirán las condiciones especificadas en el DB HS3.

8.9. EXIGENCIA DE EFICIENCIA ENERGÉTICA

Se opta por el procedimiento simplificado definido en la IT 1.2.2 para asegurar el cumplimiento de esta exigencia. Esta opción se basa en la adopción de medidas destinadas a la limitación indirecta del consumo de energía de la instalación térmica mediante la verificación de los valores límite y soluciones especificadas en los apartados siguientes.

8.9.1. Generación de calor y frío.

Con objeto de mejorar la eficiencia energética de los generadores, ajustar la potencia a la demanda térmica real y reducir la potencia de diseño en proyecto, se han tenido en cuenta los siguientes criterios de cálculo:

- Para el cálculo de las cargas térmicas máximas de invierno, las temperaturas secas a considerar son las correspondientes a un percentil del 99% para todos los tipos de edificios en general.
- Para el cálculo de las cargas térmicas máximas de verano, las temperaturas seca y húmeda coincidente a considerar son las correspondientes a un percentil del 1% para todos los tipos de edificios en general.
- Como excepción, para edificios con usos especiales, como hospitales, museos, etc. se ha tenido en cuenta un percentil del 99,6% para las cargas máximas de invierno y uno del 0,4% para el cálculo de las cargas térmicas máximas de verano.

El procedimiento de análisis que se ha utilizado obtiene las cargas térmicas de cada espacio para todas las horas de un día tipo de cada mes. De esta manera se obtienen los valores de la carga máxima simultánea de cada sistema, así como las cargas parciales y mínimas, valores que se han utilizado para la selección del tipo y de la potencia de cada una de las plantas generadoras.

8.9.2. Redes de tuberías y conductos.

Aislamiento térmico.

En aplicación del apartado IT 1.2.4.2. todas las tuberías y accesorios, así como los equipos, aparatos y depósitos de las instalaciones térmicas dispondrán de un aislamiento térmico cuando contengan fluidos refrigerados con temperatura menor que la temperatura del ambiente del local por el que discurran, o fluidos con temperatura mayor que 40 °C cuando estén instalados en locales no calefactados.

Las pérdidas térmicas globales por el conjunto de tuberías no superarán el 4% de la potencia máxima que transportan. En ningún caso el espesor será menor al indicado en las tablas de la IT 1.2.4.2.1.2

Los conductos y accesorios de la red de impulsión de aire dispondrán de un aislamiento térmico suficiente para que la pérdida de calor no sea mayor que el 4% de la potencia que transportan y siempre que sea suficiente para evitar condensaciones.

En los anexos a este proyecto correspondientes a los métodos y al detalle de los cálculos se justifica el cumplimiento de esta exigencia utilizando el procedimiento alternativo, siguiendo los criterios indicados en la norma UNE-EN ISO 12241.

Los anexos justifican documentalmente por cada tramo, el espesor empleado del material aislante elegido, las pérdidas o ganancias de calor y las pérdidas totales de la red.

Potencia específica.

Los anexos de cálculo incluyen la justificación, para cada circuito hidráulico, de la potencia específica de los sistemas de bombeo (SFP) y la categoría a la que pertenecen los sistemas de ventilación y acondicionamiento, verificando que se cumplen las siguientes limitaciones:

Tipo de sistema	Sistemas de acondicionamiento	Sistemas de ventilación
Ventilador impulsión	SFP4	SFP3
Ventilador retorno	SFP3	SFP2

Las redes de tuberías se han diseñado para conseguir el mayor equilibrado posible de las distintas unidades terminales, posteriormente se han insertado válvulas de equilibrado para conseguir un ajuste óptimo.

8.9.3. Control.

Todos los subsistemas de climatización se dotarán de los correspondientes sistemas de control automático necesarios para mantener en los locales las condiciones de diseño ajustando el consumo de energía a las variaciones de la carga térmica.

La tabla siguiente describe el equipamiento mínimo de los sistemas de control automático que se emplearán para el control de las instalaciones, de acuerdo con el apartado IT 1.2.4.3.:

Categorías de control de las condiciones termohigrométricas:

- THM-C0: Ventilación.
- THM-C1: Variación de la temperatura del fluido portador (agua o aire) en función de la temperatura exterior y/o control de la temperatura del ambiente por zona térmica.

- THM-C2: Como THM-C1, más control de la humedad relativa media o la del local más representativo.
- THM-C3: Como THM-C1, más variación de la temperatura del fluido portador frío en función de la temperatura exterior y/o control de la temperatura del ambiente por zona térmica.
- THM-C4: Como THM-C3, más control de la humedad relativa media o la del local más representativo.
- THM-C5: Como THM-C3, más control de la humedad relativa en los locales.

Métodos de control de la calidad del aire interior:

- IDA-C1: El sistema funciona continuamente.
- IDA-C2: Control manual. El sistema funciona manualmente, controlado por un interruptor.
- IDA-C3: Control por tiempo. El sistema funciona de acuerdo a un determinado horario.
- IDA-C4: Control por presencia. El sistema funciona por una señal de presencia (encendido de luces, infrarrojos, etc.).
- IDA-C5: Control por ocupación. El sistema funciona dependiendo del número de personas presentes.
- IDA-C6: Control directo. El sistema está controlado por sensores que miden parámetros de calidad del aire interior (CO2 o VOCs).

8.10. ESTIMACIÓN DE CONSUMOS

En este apartado se desglosan los consumos mensual y anual expresados en energía primaria y emisiones de dióxido de carbono de cada uno de los sistemas diseñados.

Para obtener estos resultados se ha seguido un método de cálculo de simulación detallada en el que se han tenido en cuenta los siguientes datos:

- Año meteorológico, condiciones operacionales anuales y factores de rendimiento definidos en los documentos reconocidos relativos a la limitación de la demanda y calificación energética, utilizados en los programas oficiales LIDER y CALENER.
- Procedimiento de cálculo de ganancias instantáneas, conversión a cargas térmicas y demanda de energía siguiendo los métodos descritos en el anejo de cálculo.
- Conversiones de energía final a energía primaria y a emisiones de CO2 según los coeficientes de paso suministrados por IDAE y utilizados en los programas oficiales mencionados anteriormente.

CONSUMOS ENERGÉTICOS Y EMISIONES SISTEMAS TÉRMICOS EDIFICIO COMPLETO								
Mes	Demanda Refrig. kWh	Demanda Calef. kWh	E. Final Refrig. kWh	E. Final Calef. kWh	E. Primaria Refrig. kWh	E. Primaria Calef. kWh	Emisiones CO2 Refrig. kg	Emisiones CO2 Calef. kg
Enero	4.619,0	304,0	4.619,0	304,0	10.937,7	359,4	1.528,87	94,55
Febrero	3.383,3	150,9	3.383,3	150,9	8.011,6	178,4	1.119,87	46,93
Marzo	23.699,8	10.313,9	23.699,8	10.313,9	56.121,2	12.191,0	7.844,64	3.207,62
Abril	111.460,0	905,9	111.460,0	905,9	263.937,3	1.070,7	36.893,27	281,73
Mayo	204.354,2	0,0	204.354,2	0,0	483.910,9	0,0	67.641,26	0,00
Junio	253.935,9	0,0	253.935,9	0,0	601.320,2	0,0	84.052,78	0,00
Julio	300.694,2	0,0	300.694,2	0,0	712.043,9	0,0	99.529,79	0,00
Agosto	340.968,0	0,0	340.968,0	0,0	807.412,1	0,0	112.860,39	0,00
Septiembre	237.294,1	0,0	237.294,1	0,0	561.912,3	0,0	78.544,34	0,00
Octubre	144.986,9	2.958,7	144.986,9	2.958,7	343.329,0	3.497,2	47.990,66	920,16
Noviembre	13.662,9	891,9	13.662,9	891,9	32.353,8	1.054,2	4.522,43	277,38
Diciembre	11.975,2	792,0	11.975,2	792,0	28.357,2	936,1	3.963,79	246,30
Total anual	1.651.033,5	16.317,2	1.651.033,5	16.317,2	3.909.647,2	19.287,0	546.492,08	5.074,66

8.11. EQUIPOS CONSUMIDORES DE ENERGÍA

A continuación, se relacionan todos los equipos agrupados por sistemas térmicos, indicando tanto el tipo de energía necesaria para su funcionamiento como la potencia demandada.

8.11.1. Unidades de tratamiento de aire

SISTEMAS CONSUMIDORES DE ENERGÍA	
UTA 16-27 (PA)	SUMINISTRO E INSTALACIÓN DE CLIMATIZADOR DE 30.514 m³/h MARCA CARRIER MODELO 39YA- 8.6 O EQUIVALENTE, CERTIFICADO EUROVENT (EN 1886) D1/L1/F9/T2/TB2. INCLUYE: BATERÍA DE FRÍO Y CALOR, VENTILADORES, RECUPERADOR ROTATIVO, HUMECTADOR, COMPUERTAS, PRE-FILTRO Y FILTRO DE IMPULSIÓN/RETORNO, CUADRO DE FUERZA Y CONTROL CON LAS PROTECCIONES INDIVIDUALES Y CONTACTORES DE MOTORES, INTERFACE DE CONTROL CON PANTALLA DIGITAL, CON LAS SIGUIENTES CARACTERÍSTICAS: CAUDAL AIRE: 30.514 m³/h, CAPACIDAD REFRIGERACIÓN: 95,12 kW, TEMPERATURA FLUIDO ENTRADA: 7,0 ºC, TEMPERATURA FLUIDO SALIDA: 12,0 ºC, CAUDAL AGUA FRÍA: 6,13 l/s, CAPACIDAD CALEFACCIÓN: 20,46 kW, TEMPERATURA FLUIDO ENTRADA: 45,0 ºC, TEMPERATURA FLUIDO SALIDA: 40,0 ºC, CAUDAL AGUA CALIENTE: 0,99 l/s, PESO MÁX: 3.325 kg, DIMENSIONES MÁX: 5410 X 2727 X 3614 mm, TENSIÓN: 400V

8.12. EXIGENCIA DE SEGURIDAD

La correcta aplicación de esta exigencia debe verificarse a través de los requisitos descritos en la IT 1.3.2 que relacionamos a continuación:

8.12.1. Protección contra incendios

Esta exigencia se verifica a través del documento básico CTE-SI Seguridad en caso de incendio, y en particular los siguientes requisitos del apartado SI.1 Propagación interior:

SI. Apartado 2.2. Locales y zonas de riesgo especial.

Las condiciones de ventilación de los locales y de los equipos exigidas en esta reglamentación deberán ser compatibles con las de compartimentación establecidas en el DB.

A estos efectos se excluyen los equipos situados en las cubiertas de los edificios, aunque estén protegidos mediante elementos de cobertura.

SI. Apartado 3. Espacios ocultos. Paso de instalaciones a través de elementos de compartimentación de incendios

La compartimentación contra incendios de los espacios ocupables debe tener continuidad en los espacios ocultos, tales como patinillos, cámaras, falsos techos, suelos elevados, etc., salvo cuando éstos estén compartimentados respecto de los primeros al menos con la misma resistencia al fuego, pudiendo reducirse ésta a la mitad en los registros para mantenimiento.

La resistencia al fuego requerida a los elementos de compartimentación de incendios se debe mantener en los puntos en los que dichos elementos son atravesados por elementos de las instalaciones, tales como cables, tuberías, conducciones, conductos de ventilación, etc. Para ello puede optarse por una de las siguientes alternativas:

a) Disponer un elemento que, en caso de incendio, obture automáticamente la sección de paso y garantice en dicho punto una resistencia al fuego al menos igual a la del elemento atravesado, por ejemplo, una compuerta cortafuegos automática EI t (i->o) siendo t el tiempo de resistencia al fuego requerida al elemento de compartimentación atravesado, o un dispositivo intumescente de obturación.
b) Elementos pasantes que aporten una resistencia al menos igual a la del elemento atravesado, por ejemplo, conductos de ventilación EI t (i->o) siendo t el tiempo de resistencia al fuego requerida al elemento de compartimentación atravesado.

8.13. ANEXO DE CÁLCULO

8.13.1. Métodos de cálculo cargas térmicas

Datos de partida y bases de cálculo

El cálculo térmico y energético se realiza de acuerdo con el "Documento de Condiciones de Aceptación de Programas Informáticos Alternativos", editado por el IDAE en colaboración con la Dirección General de Urbanismo y Política de Vivienda.

Este documento describe las bases de funcionamiento de los programas oficiales LIDER y CALENER, en particular:

- Nivel mínimo de modelización, hipótesis comunes y valores por defecto.
- Datos climáticos oficiales de un año tipo generados hora a hora (8760 registros) para cada una de las capitales de provincia y ciudades autónomas.
- Catálogo de materiales del Instituto Eduardo Torroja de Ciencias de la Construcción.
- Condiciones operacionales tipo para Viviendas y No Residencial.
- Factores de corrección de equipos (CALENER_VYP y CALENER_GT).

También se tienen en cuenta las prescripciones del RITE-2007 (R.D. 47/2007), en especial las que afectan a las condiciones de cálculo y ventilación:

- Calidad térmica del ambiente. Condiciones interiores.
- Calidad aire interior. Ventilación. IDA y CTE-HS3

Operativa de cálculo

La secuencia de cálculo que se ha seguido es la siguiente:

- Cálculo de las ganancias instantáneas para las 8760 horas del año tipo oficial.
- Cálculo de las ganancias instantáneas para las 24 horas del día tipo de cada mes obtenidas sus condiciones según las normas UNE 100001 y UNE 100014.
- Conversión de las ganancias instantáneas a carga térmica supuesta constante la temperatura interior de los locales.
- Selección de la potencia nominal de los equipos y unidades terminales en base a las cargas térmicas correspondientes a los días tipo de cada mes.

- Cálculo de la potencia de suministro/extracción de los equipos acondicionadores teniendo en cuenta las cargas térmicas obtenidas para el año tipo y la variación de las temperaturas de consigna de acuerdo a las condiciones operacionales.
- Obtención de la demanda de energía teórica.
- Simulación del funcionamiento de los equipos y unidades terminales.
- Cálculo del consumo energético y de las emisiones de CO2.

A continuación, se describen de forma detallada cada uno de los métodos de cálculo utilizados en estos procesos.

Ganancias instantáneas

Las ganancias térmicas instantáneas representan los flujos de calor que entran (positivos) o salen (negativos) del espacio acondicionado. A continuación, se detalla el cálculo de estas ganancias según su procedencia.

Ganancias por radiación solar a través de cerramientos semitransparentes

La ganancia solar $Q_{GAN,t}$ en un instante t. sobre una superficie acristalada de área *A* y con una fracción de vidrio de *FV* viene dada por la expresión:

$$Q_{GAN,t} = I_{TR} \cdot A \cdot FV$$

Donde:

- I_{TR}: Radiación máxima que atraviesa la superficie acristalada (w/m²)

La energía que atraviesa el cerramiento semitransparente viene dada por la radiación transmitida más la absorbida que es devuelta hacia el interior.

$$I_{TR} = I'_D \cdot \tau_D + I_d \cdot \tau_d + (\alpha_D \cdot I'_D + \alpha_d \cdot I_d) \cdot \frac{hi}{he + hi}$$

- I'_D: Radiación directa sobre la superficie soleada del cerramiento (w/m²)
- t_D: Transmisividad del vidrio a incidencia real.
- t_d: Transmisividad del vidrio a incidencia normal.
- a_D: Absortividad del vidrio a incidencia real.
- a_d: Absortividad del vidrio a incidencia normal.

- hi: Coeficiente de convección interior (W/m²·K)
- he: Coeficiente de convección exterior (W/m²·K)

El factor solar resultante del cerramiento semitransparente para las condiciones de radiación definidas tendría la siguiente forma:

$$FS = \frac{I_{TR}}{I_T} = \frac{I'_D \cdot \tau_D + I_d \cdot \tau_d + (\alpha_D \cdot I'_D + \alpha_d \cdot I_d) \cdot \frac{hi}{he + hi}}{I_D + I_d}$$

Se realiza el cálculo de la posición solar en cada instante, calculando la fracción soleada y sombreada de cada cerramiento semitransparente, teniendo en cuenta para ello tanto las sombras producidas por el propio edificio como las debidas a los obstáculos de sombra que se hayan definido.

El documento de "Aceptación de programas Informáticos alternativos" a LIDER y CALENER da los siguientes valores por defecto:

- Coeficiente de reflexión de las superficies adyacentes 0,2.
- Resistencia superficial exterior convectivo-radiante (1/he): 0,04 m²·K/W
- Resistencia superficial interior convectivo-radiante (1/hi): 0,13 m²·K/W

Los valores de la transmisividad y absortividad de los vidrios se obtienen partiendo del factor solar dado por el fabricante y aplicando las tablas 4.2 y 4.3 de este documento.

Transmisión a través de paredes y techos

En este aparatado se contemplan los cerramientos opacos de separación con el ambiente exterior, exceptuando los que no reciben directamente los rayos solares.

La ganancia instantánea se debe tanto a la diferencia de temperaturas del aire en contacto con sus caras interiores y exteriores, como a la radiación solar absorbida por las superficies exteriores.

Se requiere un método de cálculo en régimen transitorio ya que tanto la radiación solar como la temperatura exterior varían con el tiempo, además la inercia térmica del cerramiento influye en el almacenamiento de calor y por tanto en el retardo en la transmisión térmica.

La ganancia instantánea para cada hora se calcula suponiendo que la transferencia de calor se realiza en modo transitorio, de forma periódica y unidimensional, utilizando los Factores de respuesta periódicos normalizados (CTSFs):

$$Q_{GAN,t} = \sum_{n=0}^{23} c_j \cdot UA \cdot \left(t_{sa,t-n\Delta} - t_{ai}\right)$$

Donde:

- A: Área de la superficie interior del cerramiento (m²).
- U: Transmitancia térmica del cerramiento (W/m²·K).
- $t_{sa,t-nD}$: Temperatura sol aire en el instante t-nD.
- D: Incremento de tiempos igual a 1 hora.
- t_{ai}: Temperatura de consigna del espacio supuesta constante.
- c_j: Factores de respuesta según el tipo de cerramiento.

Los coeficientes CTSFs de cada tipo constructivo se obtienen por el método del volumen finito implícito unidimensional (FVM) en función de las distintas capas de materiales que lo componen.

La temperatura sol-aire es una temperatura ficticia que sirve para corregir el efecto de la convección y de los rayos solares sobre la superficie exterior del cerramiento:

$$t_{sa} = t_{ec} + \alpha \cdot \frac{I_t}{h_e} - h_r \cdot \frac{(t_{ec} - t_c)}{h_e}$$

Donde:

- t_{sa}: Temperatura sol-aire para un día y una hora dadas (°C).
- t_{ec}: Temperatura seca exterior corregida según día y hora (°C).
- I_T: Radiación solar incidente en la superficie (w/m²).
- h_e: Coeficiente de termotransferencia de la superficie exterior (w/m² °C).
- h_r: Coeficiente de radiación de la superficie exterior (w/m² °C).
- t_c: Temperatura de cielo según día y hora (°C).
- a: Absortividad de la superficie frente la radiación solar (depende del color).

Transmisión excepto paredes y techos.

En este aparatado se tratan las particiones interiores de separación entre espacios, así como los cerramientos de la envolvente que no están expuestos a la radiación solar.

También se calcula según este método las ganancias por conducción a través de cerramientos semitransparentes.

Las ganancias instantáneas se calculan en régimen permanente ya que las condiciones de contorno se mantienen prácticamente constantes y además se trata de cerramientos de poca masa, con lo cual su inercia térmica es despreciable.

$$Q_{GAN,t} = U \cdot A \cdot (t_l - t_{ai})$$

Donde:

- U: Transmitancia del cerramiento (w/m²·°C).
- A: Área de la superficie interior del cerramiento (m²).
- t_l: Temperatura del lado contiguo (°C).
- t_{ai}: Temperatura interior del espacio supuesta constante (°C).

Ganancias debidas a la ventilación de aire exterior e infiltraciones

Ganancias instantáneas de calor debido al aire exterior introducido en los locales por medio de la ventilación, o a causa de las infiltraciones por los huecos del edificio. Estas ganancias se consideran convectivas y pasan directamente a ser cargas de refrigeración.

$$Q_{GAN,t} = 1{,}23 \cdot f_a \cdot \dot{V}_{ae\,s} \cdot Fu_t \cdot (t_{ec} - t_{ai})$$

- Donde:
- f_a: Coeficiente corrector por altitud geográfica.
- V_{ae}: Caudal de aire exterior (l/s).
- t_{ec}: Temperatura seca exterior corregida (°C).
- t_{ai}: Temperatura del espacio interior supuesta constante (°C).
- Fu_t: Factor de utilización de la ventilación para el instante t.

Se considera que el 100% del calor sensible aparece por convección.

$$Q_{GANl,t} = 3010 \cdot f_a \cdot \dot{V}_{ae\,s} \cdot Fu_t \left(X_{ec} - X_{ai}\right)$$

Donde:

- $Q_{GANl,t}$: Ganancia de calor latente en el instante t (w).
- f_a: Coeficiente corrector por altitud geográfica.
- V_{ae}: Caudal de aire exterior (l/s).
- X_{ec}: Humedad específica exterior corregida (kg agua/kg aire).
- X_{ai}: Humedad específica del espacio interior (kg agua/kg aire).
- Fu_t: Factor de utilización de la ventilación para el instante t.

Ganancia de calor debida a fuentes internas

En este apartado se agrupan las ganancias de calor debida a los elementos existentes en el interior de los locales a acondicionar. Estos son las personas, la iluminación, los equipos eléctricos y los térmicos.

Ocupación

Calor generado por las personas que se encuentran dentro de cada local. Este calor es función principalmente del número de personas y del tipo de actividad que están desarrollando.

$$Q_{GAN,t} = Qo_s \cdot n \cdot Fu_t$$

Donde:

- Qo_s: Ganancia sensible por persona (w). Depende del tipo de actividad.
- n: Número de ocupantes.
- Fu_t: Factor de ocupación para el instante t.

Se considera que el 60% del calor sensible se disipa por radiación y el resto por convección.

$$Q_{GANl,t} = Qo_l \cdot n \cdot Fu_t$$

Donde:

- Qo_l: Ganancia latente por persona (w). Depende del tipo de actividad.
- n: Número de ocupantes.

- Fu_t: Factor de ocupación para el instante t.

Iluminación

Calor generado por los aparatos de alumbrado que se encuentran dentro de cada local. Este calor es función principalmente del número y tipo de luminarias instaladas.

$$Q_{GAN,t} = Qi \cdot n \cdot Fu_t$$

Donde:

- Qi: Potencia por luminaria (w). Para fluorescente se multiplica por 1,25.
- n: Número de luminarias.
- Fu_t: Factor de utilización de la iluminación para el instante t.

Se considera que 80% del calor se disipa por radiación y el resto por convección.

Equipos eléctricos y térmicos

Calor generado por los aparatos eléctricos o térmicos que se encuentran dentro de cada local. Este calor es función principalmente del número y tipo de aparatos.

$$Q_{GAN,t} = Qe_s \cdot n \cdot Fu_t$$

Donde:

- Qe_s: Ganancia sensible por aparato (w). Depende del tipo.
- n: Número de aparatos.
- Fu_t: Factor de utilización de la iluminación para el instante t.

Se considera que el 70% del calor sensible se disipa por radiación y el resto por convección.

Donde:

- Qe_l: Ganancia latente por aparato (w). Depende del tipo.
- n: Número de aparatos.
- Fu_t: Factor de utilización de la iluminación para el instante t.

Carga térmica a partir de ganancias instantáneas

La carga térmica depende de la magnitud y naturaleza de la ganancia instantánea, así como del tipo de construcción del local, de su contenido, del tipo de iluminación y de su nivel de circulación de aire.

Las ganancias instantáneas de calor latente, así como las fracciones correspondientes de calor sensible que aparecen por convección pasan directamente a ser cargas térmicas.

Las ganancias debidas a la radiación y transmisión se transforman en cargas de refrigeración por medio del método de las series radiantes temporales (RTSM):

$$Q_{REF,t} = r_0 \cdot Q_{GAN,t} + r_1 \cdot Q_{GAN,t-\Delta} + r_2 \cdot Q_{GAN,t-\Delta 2} + \ldots + r_{23} \cdot Q_{GAN,t-\Delta 23}$$

- $Q_{TER,t}$: Carga térmica para el instante t (w).
- D: Incremento de tiempos igual a 1 hora.
- r_0, r_1 ... r_{23}: Factores RTF.

Se utilizan dos juegos de factores RTF, uno para las ganancias solares y otro para las no solares. Estos coeficientes se obtienen en función de la geometría de cada zona y de la composición de los cerramientos que la delimitan.

Cálculo de la potencia demandada por el equipo

El cálculo de la carga térmica se realiza admitiendo una temperatura constante en el interior del espacio acondicionado, sin embargo, este supuesto no es real ya que el equipo de climatización, en la mayoría de las ocasiones, no tiene un funcionamiento continuo.

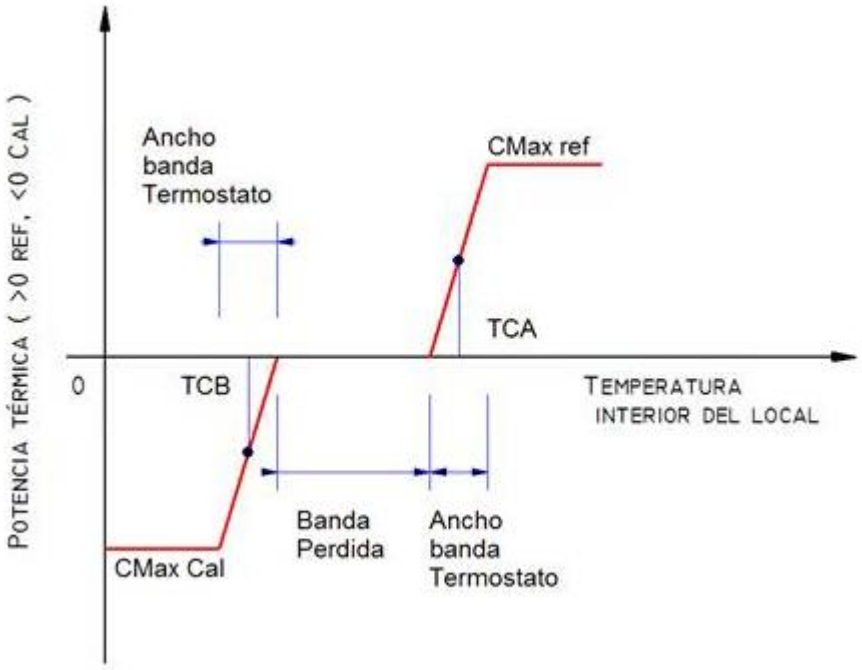
Por ejemplo, una parada nocturna o durante fin de semana hace que la temperatura interior del local oscile libremente. Cuando el equipo arranca las condiciones de partida son muy diferentes a las que se tomaron para el cálculo de la carga térmica, y por tanto la potencia del equipo podrá ser muy superior.

Por tanto, la potencia de extracción es la cantidad de calor eliminado o añadido realmente por el sistema de climatización de una zona, bajo la hipótesis de que la temperatura de la zona no es constante con el tiempo.

El efecto que esta desviación de la temperatura interior tiene sobre la carga térmica resultante se resuelve utilizando el concepto de función de transferencia.

Se requieren datos adicionales como son las características del equipo acondicionador y las condiciones operacionales de utilización del local, que describe el modo de funcionamiento a lo largo de un año tipo, con los períodos de parada y los períodos de ajuste a temperatura de consigna alta y baja.

Se ha utilizado un modelo termostático de control proporcional con banda perdida y gamas dobles de reducción de la sección de paso. TCA y TCB representan las temperaturas de consigna Alta y Baja respectivamente.



De este modo se supone que existe una relación lineal entre las desviaciones de la temperatura interior del local con respecto a la temperatura de consigna y el calor extraído por el sistema, según la ecuación:

$$ER_t = W_t + S \cdot t_{rt}$$

Donde:

- ER_t: Velocidad de eliminación del calor del ambiente en el instante t.
- t_{rt}: Temperatura del aire en el espacio en el tiempo t.
- W y S: Parámetros que caracterizan el rendimiento del equipo de climatización y que están relacionados con la capacidad máxima de calefacción y refrigeración, y con el ancho de banda del termostato.

La función de transferencia que relaciona la velocidad de extracción de calor con la temperatura del aire ambiente tiene la forma siguiente:

$$\sum_{i=0}^{1} p_i \cdot (ER_{t-\Delta} - Q_{t-\Delta}) = \sum_{i=0}^{2} g_i \cdot (T_{rc} - T_{r,t-\Delta})$$

Donde:

- ER_t: Velocidad de eliminación del calor del ambiente en el instante t.
- g_i y p_i: Coeficientes de la función de transferencia.
- Q_t: Carga térmica a temperatura constante para el instante t.
- T_{rc}: Temperatura ambiental supuestamente constante.
- $T_{r,t}$: Temperatura ambiental resultante.
- D: Incremento de tiempos igual a 1 hora.

Los coeficientes de la función de transferencia g se obtienen según el tipo de construcción, de la transmitancia hacia los alrededores y del nivel de ventilación e infiltraciones.

Las dos ecuaciones anteriores pueden resolverse simultáneamente para ERt, teniendo en cuenta que nunca se podrán superar las capacidades máximas del equipo de climatización, ERmax y ERmin, para refrigeración y calefacción respectivamente.

De esta forma se obtienen las potencias reales de acondicionamiento, así como la evolución de la temperatura en el interior del local para cada instante de funcionamiento.

Cálculo de la demanda térmica y emisiones de CO2

La demanda térmica se obtiene integrando las potencias de calefacción y refrigeración calculadas según el procedimiento descrito en el apartado anterior, para el período de funcionamiento de las instalaciones.

El consumo de energía final se calcula simulando el comportamiento de los equipos de climatización en base a los datos de consumo del fabricante y aplicando los factores de corrección por funcionamiento a carga parcial, por variación de las condiciones de temperatura y humedad que afectan a los equipos, etc.

Los factores de corrección que se utilizan son los utilizados por el programa oficial CALENER, descritos en el documento "Condiciones de aceptación de programas informáticos alternativos", editados por el IDAE en colaboración con la Dirección General de Urbanismo y Política de Vivienda.

Utilizando los coeficientes de paso de energía final a energía primaria y a emisiones de CO2 se obtienen tanto las necesidades energéticas, como los costes de operación y los niveles de emisiones contaminantes.

Los coeficientes de paso que aparecen en la tabla siguiente son los proporcionados por el IDAE en el documento de referencia mencionado anteriormente:

Tipo de energía	Coeficiente de paso a energía primaria: kWhep / kWhef	Coeficiente de paso a emisiones kg CO2 / kWhef
Gas Natural	1,195	0,252
GLP	1,204	0,254
Gasóleo	1,182	0,311
Fuel-oil	1,182	0,311
Carbón doméstico	1,084	0,472
Biomasa y biocarburantes	1,037	0,018
Biomasa densificada, pellets	1,113	0,018
Electricidad conv. Peninsular	2,368	0,331
Electricidad conv. Extrapeninsular (Canarias)	2,994	0,776
Electricidad conv. Extrapeninsular (Baleares)	3,049	0,932
Electricidad conv. Extrapeninsular (Ceuta y Melilla)	2,790	0,721

Radiación solar

Se sigue el método desarrollado por Bird y Hulstrom (modelo "C" de Iqbal) basado en la identificación de coeficientes de atenuación extraterrestre debida a los elementos que constituyen la atmósfera: polvo, vapor de agua, ozono, otros gases, etc...

Radiación total incidente sobre una superficie horizontal

$$I_{Th} = I_n \cdot \cos\theta_z + I_{dh}$$

Donde:

- I_{th}: Radiación total sobre superficie horizontal (w/m²).
- I_n: Radiación directa según los rayos solares (w/m²).
- I_{dh}: Radiación difusa sobre superficie horizontal (w/m²).
- q_z: Ángulo cenital, formado entre los rayos solares y la vertical del lugar (°).

$$I_n = 0{,}9751 \cdot I_{sc} \cdot (1 + 0{,}033 \cdot \cos(\frac{360 \cdot ND}{365})) \cdot \tau_r \cdot \tau_o \cdot \tau_g \cdot \tau_w \cdot \tau_a$$

- ND: Día del año Juliano.
- I_{sc}: Constante solar (1367 w/m²).

- t_r: Coef. Transmisión por escáterin o cambio de dirección de la radiación solar debido a las moléculas del aire.
- t_o: Coef. Transmisión debida a la absorción del ozono.
- t_g: Coef. Transmisión debida a la absorción por la mezcla uniforme de gases (excepto ozono y vapor de agua).
- t_w: Coef. Transmisión debida a la absorción del vapor de agua.
- t_a: Coef. Transmisión tanto por absorción como por cambio de dirección de la radiación solar debido a la presencia de aerosoles.

$$I_{dh} = I_{dr} + I_{da} + I_{dm}$$

- I_{dr}: Radiación debida a la difusión por moléculas de aire (difusión por Rayleigh) (w/m²).
- I_{da}: Radiación difusa debida a los cambios de dirección por aerosoles (w/m²).
- I_{dm}: Radiación difusa por múltiples reflexiones entre la tierra y la atmósfera (w/m²)

$$I_{dr} = 0{,}79 \cdot I_{sc} \cdot (1 + 0{,}033 \cdot \cos(\frac{360 \cdot ND}{365})) \cdot \tau_o \cdot \tau_g \cdot \tau_w \cdot \tau_{aa} \cdot 0{,}5 \cdot (\frac{1 - \tau_r}{1 - m_a + m_a^{1{,}02}}) \cdot \cos(\theta_z)$$

- t_{aa}: Coef. Transmisión exclusivamente debido a la absorción por los aerosoles.
- m_a: Masa óptica del aire.

$$I_{da} = 0{,}79 \cdot I_{sc} \cdot (1 + 0{,}033 \cdot \cos(\frac{360 \cdot ND}{365})) \cdot \tau_o \cdot \tau_g \cdot \tau_w \cdot \tau_{aa} \cdot F_c \cdot (\frac{1 - \tau_{as}}{1 - m_a + m_a^{1{,}02}}) \cdot \cos(\theta_z)$$

- t_{as}: Coef. Transmisión exclusivamente debido a la difusión por los aerosoles.
- F_c: Representa el tanto por ciento de energía que ante una dispersión con aerosoles va hacia delante.

$$I_{dm} = (I_n \cdot \cos(\theta_z) + I_{dr} + I_{da}) \cdot \frac{\rho_g \cdot \rho'_a}{1 - \rho_g \cdot \rho'_a}$$

- ρ_g: Coeficiente de reflexión de los alrededores a la superficie estudiada (albedó).
- ρ_a: Coeficiente de reflexión múltiple del cielo (albedó de la atmósfera).

Radiación total incidente sobre una superficie inclinada

$$I_T = I_D + I_d$$

Donde:

- I_T: Radiación total sobre superficie inclinada (w/m²).
- I_D: Radiación directa sobre superficie inclinada (w/m²).
- I_d: Radiación total difusa (w/m²).

$$I_D = I_n \cdot \cos(i)$$

- i: Ángulo de incidencia, formado entre la dirección de los rayos solares y la normal a la superficie considerada (°).

$$I_d = I_{dat} + I_{dre}$$

- I_{dat}: Radiación difusa desde la atmósfera (w/m²).
- I_{dre}: Radiación difusa reflejada (w/m²)

$$I_{dat} = \frac{1-\cos(\eta)}{2} \cdot I_{dh}$$

- η: Inclinación de la superficie sobre la horizontal (°).

$$I_{dre} = \frac{1-\cos(\eta)}{2} \cdot \rho_g \cdot (I_n \cdot \cos(\theta_Z) + I_{dh})$$

Caudal de infiltraciones

El caudal de infiltraciones se calcula mediante un método de zona única, es decir, para todos los espacios del edificio al mismo tiempo. Este método consiste en calcular el número de renovaciones hora del conjunto de espacios teniendo en cuenta la permeabilidad de los huecos y los defectos de la construcción del edificio.

Posteriormente se comprobará en cada espacio si la ventilación forzada compensa las infiltraciones.

En primer lugar, se calculan los coeficientes de caudal normalizados a 1 Pa para todos los huecos del edificio, a partir del área de cada hueco y de su nivel de permeabilidad:

$$Q_{p100} = \frac{P_p \cdot A_p}{3{,}6} \text{ en l/s}$$

- Q_{p100}: Caudal de infiltraciones debidas a la permeabilidad de huecos a 100 Pa, en l/s.
- P_p: Permeabilidad del hueco en m³/(h·m²).
- A_p: Área del hueco en m²

$$C_p = \frac{Q_{p100}}{100^{0{,}67}}$$

- C_p: Coeficiente de caudal del hueco a 1 Pa.

Seguidamente se calculan los coeficientes de caudal por defectos de la construcción para cada uno de los espacios del edificio:

$$Q_{d1} = \frac{R_d \cdot V_d}{3{,}6} \text{ en l/s}$$

- Q_{d1}: Caudal de infiltraciones a 1Pa por defectos de la construcción.
- V_d: Volumen interior del espacio (m³).
- R_d: Nivel de renovaciones/hora por defectos de la construcción según el tipo de edificio:
  - *Vivienda unifamiliar: 0,30 1/h*
  - *Bloque de viviendas: 0,24 1/h*
  - *Otros usos: 0,1 1/h*

$$C_d = \frac{Q_{d1}}{1^{0,67}} = Q_{d1}$$

- C_d: Coeficiente de caudal por defectos de la construcción a 1 Pa.

Se supondrá que los huecos están repartidos uniformemente en las fachadas expuestas y no expuestas:

- Coeficiente de caudal a 1Pa para elementos expuestos:

$$C_{Te} = 0,5 \cdot \left(\sum C_p + \sum C_d \right)$$

- Coeficiente de caudal a 1Pa para elementos no expuestos:

$$C_{Tn} = 0,5 \cdot \left(\sum C_p + \sum C_d \right)$$

La sobrepresión a que están sometidas las distintas zonas del edificio será:

$$\Delta P = Fp \cdot d \cdot \frac{v^2}{2}$$ en Pa

- DP: Diferencia de presiones en Pa.
- d: Densidad del aire en función de la altitud, en kg/m³.
- v: Velocidad del viento, en m/s.
- Fp: Factor de presión en función de la orientación:
  - *Fachada expuesta: 0,25*
  - *Fachada no expuesta: -0,50*
  - *Elementos horizontales: -0,60*

Caudal de infiltraciones por la fachada expuesta:

$$Qe = C_{Te} \cdot (\Delta P_e)^{0,67}$$

Caudal de infiltraciones por la fachada no expuesta

$$Qn = C_{Tn} \cdot (\Delta P_n)^{0,67}$$

Caudal de infiltraciones por los huecos horizontales

$$Qh = C_{Th} \cdot (\Delta P_h)^{0,67}$$

Para finalizar se calcula el número de renovaciones/horas generales para todos los espacios del edificio:

$$Ri = \frac{Qe + Qn + Qh}{\sum V_d}$$

El caudal de infiltraciones en cada espacio será:

$$Qi = Ri \cdot V_d$$

8.13.2. Detalle del cálculo cargas térmicas

Las hojas de carga térmica describen de forma exhaustiva el origen y cuantía de la carga térmica relacionada con cada uno de los espacios acondicionados, obtenida para el instante de cálculo más desfavorable teniendo en cuenta tanto la evolución de las condiciones climáticas exteriores como las condiciones operacionales internas de cada recinto.

Las cargas se agrupan en:

- Ganancia solar cristal: Debida a la radiación incidente en los cerramientos semitransparentes.
- Transmisión paredes y techo: Cerramientos opacos situados al exterior y soleados.
- Transmisión excepto paredes y techo: Cerramientos opacos al exterior en sombra, de separación con el terreno, particiones interiores y transmisión por cerramientos semitransparentes.
- Calor sensible interno: Aporte sensible debido a ocupantes, iluminación, aparatos eléctricos y térmicos situados en el interior del espacio.
- Calor sensible aire de ventilación: Debido al aire de ventilación e infiltraciones.
- Calor latente interno: Calor latente provocado por la actividad metabólica de los ocupantes y los aparatos que absorban o generen humedad.
- Calor latente aire de ventilación: Procedente del aire exterior cuyo contenido de humedad es diferente al del aire del interior de los locales.

- Carga total de refrigeración o calefacción: Sumatorio de los componentes anteriores al que además se le ha aplicado el coeficiente de seguridad correspondiente.

Los valores que aparecen con signo positivo son ganancias instantáneas o cargas de refrigeración, mientras que los negativos son de calefacción.

ABREVIATURAS Y UNIDADES:

- Ts.: Temperatura seca (°C).
- Th.: Temperatura húmeda (°C).
- Hr.: Humedad relativa (%).
- Xe.: Humedad específica (g/kg).
- Or.: Orientación del cerramiento exterior.
- Sup.: Superficie de cerramiento considerada (m^2).
- F.: Factor solar de un cerramiento semitransparente.
- U.: Transmitancia térmica del cerramiento ($W/m^2 \cdot °C$).
- GSC.: Energía que atraviesa la superficie semitransparente (W/m^2).
- G.Inst.: Ganancias instantaneas (W).
- Carga Term.: Cargas térmica de calefacción o de refrigeración (según signo, en W).
- Tsa: Temperatura Sol-Aire (°C).
- Tac: Temperatura ambiente contiguo (°C).
- Ud. Número de elementos del mismo tipo (personas, equipos...)
- %Uso: Porcentaje de utilización definido por las condiciones operacionales para el instante considerado.
- Tec: Temperatura seca exterior corregida (°C).
- Xec: Humedad específica correspondiente a las temperaturas exteriores seca y húmeda corregidas (g/kg).

EXPEDIENTE	***Pabellón de Cristal***
PROYECTO	***Pabellón de Cristal***
FECHA	***08/05/2024***

HOJA DE CARGAS PARA REFRIGERACIÓN DE ESPACIO

ESPACIO	*P.ALTA*
ACTIVIDAD	*E.4.1: Alumbrado general*
C. OPERAC.	*NO RESIDENCIAL: Intensidad Alta - 12h*
DIMENSIONES	*9.205,68 m² x 9,816 m*
VOLUMEN	*90.363.795 l*

FECHA CÁLCULO	*24 Agosto 12hs (14h 17m hora oficial)*			
CONDICIONES	**Ts(°C)**	**Th(°C)**	**Hr(%)**	**Xe(g/kg)**
Exteriores	30,8	20,5	39,1	10,85
Interiores	24,5	19,0	60,0	11,54
Diferencias	6,3	1,5	-20,9	-0,69

GANANCIA SOLAR CRISTAL	CÓDIGO MATERIAL	Or.	Sup. (m²)	F	GSC	G. Inst. (W)	Carga Term.(W)
VE-215 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-216 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-217 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-218 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-219 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-220 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-221 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-222 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-223 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-224 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-225 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-226 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-227 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-228 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-229 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-230 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-231 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-232 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-233 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-234 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-235 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-236 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-237 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**

VE-238 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-239 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-240 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-241 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-242 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-243 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-244 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-245 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-246 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-247 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-248 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-249 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-250 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-251 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-252 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-253 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-254 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-255 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-256 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-257 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-258 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-259 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-260 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-261 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-262 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-263 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-264 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-265 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-266 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-267 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	81,6	313	**259**
VE-268 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-269 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-270 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-271 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-272 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	81,6	313	**259**

VE-273 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	81,6	313	**259**
VE-274 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	81,6	313	**259**
VE-379 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-380 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-381 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-382 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-383 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-384 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-385 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-386 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-387 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-388 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-389 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-390 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-391 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-392 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-393 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-394 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-395 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-396 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-397 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-398 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-399 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-400 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-401 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-402 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-403 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-404 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-405 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-406 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-407 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-408 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-409 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-410 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-411 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**

VE-412 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-413 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-414 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-415 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-416 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-417 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-418 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-419 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-420 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-421 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-422 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-423 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-424 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-425 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-426 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-427 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-428 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-429 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-430 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-432 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-434 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-436 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-438 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-970 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-971 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-972 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-973 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-974 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-975 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-976 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-977 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-978 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-979 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-980 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-981 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**

VE-982 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-983 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-984 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-985 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-986 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-987 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-988 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-989 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-990 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-991 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-992 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-993 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-994 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-995 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-996 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-997 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-998 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-999 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1000 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1001 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1002 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1003 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1004 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1005 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1006 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1007 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1008 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1009 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1010 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1011 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1012 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1013 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1014 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1015 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1016 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**

VE-1017 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1018 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1019 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1020 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1021 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1022 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1023 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1024 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1025 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1026 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1027 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1028 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1029 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1030 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1031 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1032 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1033 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1034 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1035 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1036 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1037 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1038 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1039 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1040 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1041 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1042 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1043 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1044 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1045 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1046 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1047 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1048 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1049 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1050 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1051 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**

VE-1052 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1053 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1054 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1055 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1056 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1057 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1058 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1059 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1060 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1061 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1062 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1063 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1064 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1065 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1066 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1067 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1068 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-1069 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1070 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1071 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1072 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1073 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1074 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1075 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1076 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1077 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1078 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1079 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1080 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-1081 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-870 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-871 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	240,1	830	**687**
VE-872 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-873 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-874 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	240,1	830	**687**

VE-875 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	240,1	830	**687**
VE-876 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	240,1	830	**687**
VE-877 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-878 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-879 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-880 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-881 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-882 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-883 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-884 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-885 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-886 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-887 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-888 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-889 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-890 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-891 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-892 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-893 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-894 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-895 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-896 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-897 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-898 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-899 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-900 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-901 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-902 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-903 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-904 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-905 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-906 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-907 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-908 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-909 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**

VE-910 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-911 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-912 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-913 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-914 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-915 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-916 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-917 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-918 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-919 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-920 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-921 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-922 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-923 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-924 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-925 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-926 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-927 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-928 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-929 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-930 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-931 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-932 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-933 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-934 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-935 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-936 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-937 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-938 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-939 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-940 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-941 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-942 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-943 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-944 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**

VE-945 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-946 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-947 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-948 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-949 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-950 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-951 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-952 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-953 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-954 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-955 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-956 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-957 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-958 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-959 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-960 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-961 (puerta/ventana)	Exutorios	S	5,76	0,75	360,1	1.660	**1.373**
VE-962 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-963 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-964 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-965 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-966 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-967 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-968 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-969 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	240,1	1.106	**916**
VE-499 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-659 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-660 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-661 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-662 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-663 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-664 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-665 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-666 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-667 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**

VE-668 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-669 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-670 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-671 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-672 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-673 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-674 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-675 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-676 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-677 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-678 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-679 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-680 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-681 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-682 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-683 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-684 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-685 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-686 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-687 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-688 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-689 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-690 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-691 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-692 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-693 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-694 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-695 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-696 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-697 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-698 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-699 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-700 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-701 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-702 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**

VE-703 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-704 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-705 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-706 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-707 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-708 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-709 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-710 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-711 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-712 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-713 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-714 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-715 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-716 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-717 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-718 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-719 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-720 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-721 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-722 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-723 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-724 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-725 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-726 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-727 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-728 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-729 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-730 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-731 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-732 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-733 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-734 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-735 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-736 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-737 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**

VE-738 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-739 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-740 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-741 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-742 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-743 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-744 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-745 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-746 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-747 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-748 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-749 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-750 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-751 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-752 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-753 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-754 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-755 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-756 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-757 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-758 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-759 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-760 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-761 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-762 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-763 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-764 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-765 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-766 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-767 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-768 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-769 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-375 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-376 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-377 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**

VE-378 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-439 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-440 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-441 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-442 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-443 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-444 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-445 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-446 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-447 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-448 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-449 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-450 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-451 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-452 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-453 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-454 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-455 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-456 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-457 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-458 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-459 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-460 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-461 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-462 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-463 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-464 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-465 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-466 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-467 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-468 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-469 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-470 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-471 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-472 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**

VE-473 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-474 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-475 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-476 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-477 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-478 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-479 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-480 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-481 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-482 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-483 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-484 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-485 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-486 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-492 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	98,5	151	**125**
VE-494 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	98,5	151	**125**
VE-495 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	98,5	151	**125**
VE-498 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	98,5	151	**125**
VE-371 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-372 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-373 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-374 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-431 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-433 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-435 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-437 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	98,5	265	**219**
VE-770 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-771 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-772 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-773 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-774 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-775 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-776 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-777 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-778 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**

VE-779 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-780 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-781 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-782 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-783 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-784 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-785 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-786 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-787 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-788 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-789 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-790 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-791 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-792 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-793 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-794 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-795 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-796 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-797 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-798 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-799 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-800 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-801 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-802 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-803 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-804 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-805 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-806 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-807 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-808 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-809 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-810 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-811 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-812 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-813 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**

VE-814 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-815 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-816 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-817 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-818 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-819 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-820 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-821 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-822 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-823 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-824 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-825 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-826 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-827 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-828 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-829 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-830 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-831 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-832 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-833 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-834 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-835 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-836 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-837 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-838 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-839 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-840 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-841 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-842 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-843 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-844 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-845 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-846 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-847 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-848 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**

VE-849 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-850 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-851 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-852 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-853 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-854 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-855 (puerta/ventana)	Exutorios	N	5,76	0,75	122,4	564	**467**
VE-856 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-857 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-858 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-859 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-860 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-861 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-862 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-863 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-864 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-865 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	81,6	376	**311**
VE-866 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	81,6	282	**233**
VE-867 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	81,6	282	**233**
VE-868 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	81,6	282	**233**
VE-869 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	81,6	282	**233**
VE-153 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-160 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	81,6	157	**130**
VE-161 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	81,6	157	**130**
VE-162 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-163 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	81,6	157	**130**
VE-164 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-165 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	81,6	157	**130**
VE-166 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-167 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-168 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-169 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-170 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-171 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-172 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**

VE-173 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-174 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-175 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-176 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-177 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-178 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-179 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-180 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-181 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-182 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-183 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-184 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-185 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-186 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-187 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-188 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-189 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-190 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-191 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-192 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-193 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-194 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-195 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-196 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-197 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-198 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-199 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-200 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-201 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-202 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-203 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-204 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-205 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-206 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-207 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**

VE-208 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-209 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-210 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-211 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-212 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-213 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-214 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-487 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-488 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-489 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-490 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	98,5	454	**376**
VE-491 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	98,5	340	**282**
VE-493 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	98,5	340	**282**
VE-496 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	98,5	340	**282**
VE-497 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	98,5	340	**282**
VE-151 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-152 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-154 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-155 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-156 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-157 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
VE-158 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	81,6	219	**181**
VE-159 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	81,6	376	**311**
							355.601

TRANSMISIÓN PAREDES Y TECHO	CÓDIGO MATERIAL	Or.	Sup. (m^2)	U	Tsa	G. Inst. (W)	Carga (W)
CU-008 (cubierta)	CUBIERTA8	H	9.199,22	0,211	63,1	60.915	**46.647**
FA-031 (muro)	Muro Hormigón	E	29,84	3,448	37,6	697	**534**
FA-035 (muro)	Muro Hormigón	O	13,04	3,448	41,5	204	**156**
FA-040 (muro)	Muro Hormigón	S	28,88	3,448	51,3	564	**432**
FA-037 (muro)	Muro Hormigón	S	23,76	3,448	51,3	464	**355**
FA-033 (muro)	Muro Hormigón	N	28,88	3,448	37,6	310	**237**
FA-032 (muro)	Muro Hormigón	O	12,80	3,448	41,5	200	**153**
FA-041 (muro)	Muro Hormigón	O	1,52	3,448	41,5	24	**18**
FA-038 (muro)	Muro Hormigón	N	23,76	3,448	37,6	255	**195**

FA-039 (muro)	Muro Hormigón	E	16,88	3,448	37,6	394	**302**
FA-034 (muro)	Muro Hormigón	O	1,68	3,448	41,5	26	**20**
FA-036 (muro)	Muro Hormigón	E	1,52	3,448	37,6	35	**27**
							49.078

TRANSMISIÓN EXCEPTO PAREDES Y TECHO	CÓDIGO MATERIAL	Sup. (m²)	U	Tac	G. Inst. (W)	Carga Term. (W)
PH-007 (techo n/a)	C13.1a CHAPA ALUMINIO MW 50	128,96	0,697	27,7	283	**223**
PH-009 (suelo n/a)	FORJ-LOAL-03	9.199,74	0,610	27,7	17.673	**13.890**
VE-215 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-216 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-217 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-218 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-219 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-220 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-221 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-222 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-223 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-224 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-225 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-226 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-227 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-228 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-229 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-230 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-231 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-232 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-233 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-234 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-235 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-236 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-237 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-238 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-239 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-240 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-241 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-242 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-243 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-244 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-245 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-246 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-247 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-248 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-249 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-250 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-251 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-252 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-253 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-254 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-255 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-256 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-257 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-258 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-259 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-260 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-261 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-262 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-263 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-264 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-265 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-266 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-267 (puerta/ventana)	MAE Cortizo	4,80	1,600	30,8	48	**38**
VE-268 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-269 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-270 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-271 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-272 (puerta/ventana)	MAE Cortizo	4,80	1,600	30,8	48	**38**
VE-273 (puerta/ventana)	MAE Cortizo	4,80	1,600	30,8	48	**38**
VE-274 (puerta/ventana)	MAE Cortizo	4,80	1,600	30,8	48	**38**
VE-379 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-380 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-381 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-382 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-383 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-384 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-385 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-386 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-387 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-388 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-389 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-390 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-391 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-392 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-393 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-394 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-395 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-396 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-397 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-398 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-399 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-400 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-401 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-402 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-403 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-404 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-405 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-406 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-407 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-408 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-409 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-410 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-411 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-412 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-413 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-414 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-415 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-416 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-417 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-418 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-419 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-420 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-421 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-422 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-423 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-424 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-425 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-426 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-427 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-428 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-429 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-430 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-432 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-434 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-436 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-438 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-970 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-971 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-972 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-973 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-974 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-975 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-976 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-977 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-978 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-979 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-980 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-981 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-982 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-983 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-984 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-985 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-986 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-987 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-988 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-989 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-990 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-991 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-992 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-993 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-994 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-995 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-996 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-997 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-998 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-999 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1000 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1001 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1002 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1003 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1004 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1005 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1006 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1007 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1008 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1009 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1010 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1011 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1012 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1013 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1014 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1015 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1016 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1017 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1018 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1019 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1020 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-1021 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1022 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1023 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1024 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1025 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1026 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1027 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1028 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1029 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1030 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1031 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1032 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1033 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1034 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1035 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1036 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1037 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1038 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1039 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1040 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1041 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1042 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1043 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1044 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1045 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1046 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1047 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1048 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1049 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1050 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1051 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1052 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1053 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1054 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1055 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-1056 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1057 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1058 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1059 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1060 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1061 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1062 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1063 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1064 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1065 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1066 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1067 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1068 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-1069 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1070 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1071 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1072 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1073 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1074 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1075 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1076 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1077 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1078 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1079 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1080 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-1081 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-870 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-871 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-872 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-873 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-874 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-875 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-876 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-877 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-878 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-879 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-880 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-881 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-882 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-883 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-884 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-885 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-886 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-887 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-888 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-889 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-890 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-891 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-892 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-893 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-894 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-895 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-896 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-897 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-898 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-899 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-900 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-901 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-902 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-903 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-904 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-905 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-906 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-907 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-908 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-909 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-910 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-911 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-912 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-913 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**

VE-914 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-915 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-916 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-917 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-918 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-919 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-920 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-921 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-922 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-923 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-924 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-925 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-926 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-927 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-928 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-929 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-930 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-931 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-932 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-933 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-934 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-935 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-936 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-937 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-938 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-939 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-940 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-941 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-942 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-943 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-944 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-945 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-946 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-947 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-948 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-949 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-950 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-951 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-952 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-953 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-954 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-955 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-956 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-957 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-958 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-959 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-960 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-961 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-962 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-963 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-964 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-965 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-966 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-967 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-968 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-969 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-499 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-659 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-660 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-661 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-662 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-663 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-664 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-665 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-666 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-667 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-668 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-669 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-670 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-671 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-672 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-673 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-674 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-675 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-676 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-677 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-678 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-679 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-680 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-681 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-682 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-683 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-684 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-685 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-686 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-687 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-688 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-689 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-690 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-691 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-692 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-693 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-694 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-695 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-696 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-697 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-698 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-699 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-700 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-701 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-702 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-703 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-704 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-705 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-706 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-707 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-708 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-709 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-710 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-711 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-712 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-713 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-714 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-715 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-716 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-717 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-718 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-719 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-720 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-721 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-722 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-723 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-724 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-725 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-726 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-727 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-728 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-729 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-730 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-731 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-732 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-733 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-734 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-735 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-736 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-737 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-738 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-739 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-740 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-741 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-742 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-743 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-744 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-745 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-746 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-747 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-748 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-749 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-750 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-751 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-752 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-753 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-754 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-755 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-756 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-757 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-758 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-759 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-760 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-761 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-762 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-763 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-764 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-765 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-766 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-767 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-768 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-769 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-375 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-376 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-377 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-378 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-439 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-440 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-441 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-442 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-443 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-444 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-445 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-446 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-447 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-448 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-449 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-450 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-451 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-452 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-453 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-454 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-455 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-456 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-457 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-458 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-459 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-460 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-461 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-462 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-463 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-464 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-465 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-466 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-467 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-468 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-469 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-470 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-471 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-472 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-473 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-474 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-475 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-476 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-477 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-478 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-479 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-480 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-481 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-482 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-483 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-484 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-485 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-486 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-492 (puerta/ventana)	MAE Cortizo	1,92	1,600	30,8	19	**15**
VE-494 (puerta/ventana)	MAE Cortizo	1,92	1,600	30,8	19	**15**
VE-495 (puerta/ventana)	MAE Cortizo	1,92	1,600	30,8	19	**15**
VE-498 (puerta/ventana)	MAE Cortizo	1,92	1,600	30,8	19	**15**
VE-371 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-372 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-373 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-374 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-431 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-433 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-435 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-437 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-770 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-771 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-772 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-773 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-774 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-775 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-776 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-777 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-778 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-779 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-780 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-781 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-782 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**

VE-783 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-784 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-785 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-786 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-787 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-788 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-789 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-790 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-791 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-792 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-793 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-794 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-795 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-796 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-797 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-798 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-799 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-800 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-801 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-802 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-803 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-804 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-805 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-806 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-807 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-808 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-809 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-810 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-811 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-812 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-813 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-814 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-815 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-816 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-817 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-818 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-819 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-820 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-821 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-822 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-823 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-824 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-825 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-826 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-827 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-828 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-829 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-830 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-831 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-832 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-833 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-834 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-835 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-836 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-837 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-838 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-839 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-840 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-841 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-842 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-843 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-844 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-845 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-846 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-847 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-848 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-849 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-850 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-851 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-852 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**

VE-853 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-854 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-855 (puerta/ventana)	Exutorios	5,76	3,360	30,8	122	**97**
VE-856 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-857 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-858 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-859 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-860 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-861 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-862 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-863 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-864 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-865 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-866 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-867 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-868 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-869 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-153 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-160 (puerta/ventana)	MAE Cortizo	2,40	1,600	30,8	24	**19**
VE-161 (puerta/ventana)	MAE Cortizo	2,40	1,600	30,8	24	**19**
VE-162 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-163 (puerta/ventana)	MAE Cortizo	2,40	1,600	30,8	24	**19**
VE-164 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-165 (puerta/ventana)	MAE Cortizo	2,40	1,600	30,8	24	**19**
VE-166 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-167 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-168 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-169 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-170 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-171 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-172 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-173 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-174 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-175 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-176 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-177 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-178 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-179 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-180 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-181 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-182 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-183 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-184 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-185 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-186 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-187 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-188 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-189 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-190 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-191 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-192 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-193 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-194 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-195 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-196 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-197 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-198 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-199 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-200 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-201 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-202 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-203 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-204 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-205 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-206 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-207 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-208 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-209 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-210 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-211 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**

VE-212 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-213 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-214 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-487 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-488 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-489 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-490 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-491 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-493 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-496 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-497 (puerta/ventana)	MAE Cortizo	4,32	1,600	30,8	44	**35**
VE-151 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-152 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-154 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-155 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-156 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-157 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
VE-158 (puerta/ventana)	MAE Cortizo	3,36	1,600	30,8	34	**27**
VE-159 (puerta/ventana)	MAE Cortizo	5,76	1,600	30,8	58	**46**
Puentes térmicos integrados en fachadas	VARIOS	373,200	0,896	30,8	2.106	**1.655**
Puentes térmicos contorno de huecos	VARIOS	6.416,000	0,143	30,8	5.773	**4.537**
						53.358

CALOR SENSIBLE INTERNO	Potencia	Ud.	%Uso	G. Inst. (W)	Carga Term. (W)
Ocupación estándar 28,34 W/m² (W/persona)	85,00	3.069,0	100	260.865	**225.012**
Iluminación estándar (W/m²)	15,00	9.205,7	100	138.085	**118.790**
Equipos estándar (W/m²)	7,50	9.205,7	100	69.043	**64.298**
					408.100

CALOR SENSIBLE AIRE VENTILACIÓN	Caudal (l/s)	Tec	%Uso	G. Inst. (W)	Carga Term. (W)
Ventilación IDA3 (Calidad media) (recuperador 80%)	32.736,00	30,8	100	47.029	**47.029**
					47.029
TOTAL CALOR SENSIBLE					***913.167 W***

CALOR LATENTE INTERNO	Potencia	Ud.	%Uso	G. Inst. (W)	Carga Term. (W)
Ocupación estándar 28,34 W/m² (W/persona)	85,00	3.069,0	100	260.865	**260.865**
					260.865

CALOR LATENTE AIRE VENTILACIÓN	Caudal (l/s)	Xec	%Uso	G. Inst. (W)	Carga Term. (W)
Ventilación IDA3 (Calidad media)	32.736,00	10,85	100	-63.231	**-63.231**
					-63.231
TOTAL CALOR LATENTE					***197.634 W***
CARGA TOTAL DE REFRIGERACIÓN					***1.166.341 W***

- *Factor de calor sensible de la zona (RSHF): 0,77*
- *Factor de seguridad (Aplicado al resultado total): 5,0 %*
- *Carga de refrigeración por unidad de superficie: 126,70 W/m²*
- *Temperatura operativa resultante: 25,9 °C*
- ***NOTA: Los valores positivos son cargas de refrigeración y los negativos cargas de calefacción***

EXPEDIENTE	***Pabellón de Cristal***
PROYECTO	***Pabellón de Cristal***
FECHA	***08/05/2024***
ESPACIO	*P.ALTA*
ACTIVIDAD	*E.4.1: Alumbrado general*
C. OPERAC.	*NO RESIDENCIAL: Intensidad Alta - 12h*
DIMENSIONES	*9.205,68 m² x 9,816 m*
VOLUMEN	*90.363.795 l*

HOJA DE CARGAS PARA CALEFACCIÓN DE ESPACIO

FECHA CÁLCULO	*21 Diciembre 6hs (7h 12m hora oficial)*			
CONDICIONES	Ts(°C)	Th(°C)	Hr(%)	Xe(g/kg)
Exteriores	-3,4	-3,8	90,0	2,55
Interiores	20,5	-	-	-
Diferencias	-23,9	-	-	-

GANANCIA SOLAR CRISTAL	CÓDIGO MATERIAL	Or.	Sup. (m²)	F	GSC	G. Inst. (W)	Carga Term.(W)
VE-215 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-216 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-217 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-218 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-219 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-220 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-221 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-222 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-223 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-224 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**

VE-225 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-226 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-227 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-228 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-229 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-230 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-231 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-232 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-233 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-234 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-235 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-236 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-237 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-238 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-239 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-240 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-241 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-242 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-243 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-244 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-245 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-246 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-247 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-248 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-249 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-250 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-251 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-252 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-253 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-254 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-255 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-256 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-257 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-258 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-259 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**

VE-260 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-261 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-262 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-263 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-264 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-265 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-266 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-267 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	0,0	0	**0**
VE-268 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-269 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-270 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-271 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-272 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	0,0	0	**0**
VE-273 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	0,0	0	**0**
VE-274 (puerta/ventana)	MAE Cortizo	E	4,80	0,50	0,0	0	**0**
VE-379 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-380 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-381 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-382 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-383 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-384 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-385 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-386 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-387 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-388 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-389 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-390 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-391 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-392 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-393 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-394 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-395 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-396 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-397 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-398 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**

VE-399 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-400 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-401 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-402 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-403 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-404 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-405 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-406 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-407 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-408 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-409 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-410 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-411 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-412 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-413 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-414 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-415 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-416 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-417 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-418 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-419 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-420 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-421 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-422 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-423 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-424 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-425 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-426 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-427 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-428 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-429 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-430 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-432 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-434 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-436 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**

VE-438 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-970 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-971 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-972 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-973 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-974 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-975 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-976 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-977 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-978 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-979 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-980 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-981 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-982 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-983 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-984 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-985 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-986 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-987 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-988 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-989 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-990 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-991 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-992 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-993 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-994 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-995 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-996 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-997 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-998 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-999 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1000 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1001 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1002 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1003 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**

VE-1004 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1005 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1006 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1007 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1008 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1009 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1010 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1011 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1012 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1013 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1014 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1015 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1016 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1017 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1018 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1019 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1020 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1021 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1022 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1023 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1024 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1025 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1026 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1027 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1028 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1029 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1030 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1031 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1032 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1033 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1034 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1035 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1036 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1037 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1038 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**

VE-1039 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1040 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1041 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1042 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1043 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1044 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1045 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1046 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1047 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1048 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1049 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1050 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1051 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1052 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1053 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1054 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1055 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1056 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1057 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1058 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1059 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1060 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1061 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1062 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1063 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1064 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1065 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1066 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1067 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1068 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-1069 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1070 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1071 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1072 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1073 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**

VE-1074 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1075 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1076 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1077 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1078 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1079 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1080 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-1081 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-870 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-871 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	0,0	0	**0**
VE-872 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-873 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-874 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	0,0	0	**0**
VE-875 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	0,0	0	**0**
VE-876 (puerta/ventana)	MAE Cortizo	S	4,32	0,50	0,0	0	**0**
VE-877 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-878 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-879 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-880 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-881 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-882 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-883 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-884 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-885 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-886 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-887 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-888 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-889 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-890 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-891 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-892 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-893 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-894 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-895 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-896 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**

VE-897 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-898 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-899 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-900 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-901 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-902 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-903 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-904 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-905 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-906 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-907 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-908 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-909 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-910 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-911 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-912 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-913 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-914 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-915 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-916 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-917 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-918 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-919 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-920 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-921 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-922 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-923 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-924 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-925 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-926 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-927 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-928 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-929 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-930 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-931 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**

VE-932 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-933 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-934 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-935 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-936 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-937 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-938 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-939 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-940 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-941 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-942 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-943 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-944 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-945 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-946 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-947 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-948 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-949 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-950 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-951 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-952 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-953 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-954 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-955 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-956 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-957 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-958 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-959 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-960 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-961 (puerta/ventana)	Exutorios	S	5,76	0,75	0,0	0	**0**
VE-962 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-963 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-964 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-965 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-966 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**

VE-967 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-968 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-969 (puerta/ventana)	MAE Cortizo	S	5,76	0,50	0,0	0	**0**
VE-499 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-659 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-660 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-661 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-662 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-663 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-664 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-665 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-666 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-667 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-668 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-669 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-670 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-671 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-672 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-673 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-674 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-675 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-676 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-677 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-678 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-679 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-680 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-681 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-682 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-683 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-684 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-685 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-686 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-687 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-688 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-689 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**

VE-690 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-691 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-692 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-693 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-694 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-695 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-696 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-697 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-698 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-699 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-700 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-701 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-702 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-703 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-704 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-705 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-706 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-707 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-708 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-709 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-710 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-711 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-712 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-713 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-714 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-715 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-716 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-717 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-718 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-719 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-720 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-721 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-722 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-723 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-724 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**

VE-725 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-726 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-727 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-728 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-729 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-730 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-731 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-732 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-733 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-734 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-735 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-736 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-737 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-738 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-739 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-740 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-741 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-742 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-743 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-744 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-745 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-746 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-747 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-748 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-749 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-750 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-751 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-752 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-753 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-754 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-755 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-756 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-757 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-758 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-759 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**

VE-760 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-761 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-762 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-763 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-764 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-765 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-766 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-767 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-768 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-769 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-375 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-376 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-377 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-378 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-439 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-440 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-441 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-442 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-443 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-444 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-445 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-446 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-447 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-448 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-449 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-450 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-451 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-452 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-453 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-454 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-455 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-456 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-457 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-458 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-459 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**

VE-460 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-461 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-462 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-463 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-464 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-465 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-466 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-467 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-468 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-469 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-470 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-471 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-472 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-473 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-474 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-475 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-476 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-477 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-478 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-479 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-480 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-481 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-482 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-483 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-484 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-485 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-486 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-492 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	0,0	0	**0**
VE-494 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	0,0	0	**0**
VE-495 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	0,0	0	**0**
VE-498 (puerta/ventana)	MAE Cortizo	O	1,92	0,50	0,0	0	**0**
VE-371 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-372 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-373 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-374 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**

VE-431 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-433 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-435 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-437 (puerta/ventana)	MAE Cortizo	O	3,36	0,50	0,0	0	**0**
VE-770 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-771 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-772 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-773 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-774 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-775 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-776 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-777 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-778 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-779 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-780 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-781 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-782 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-783 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-784 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-785 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-786 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-787 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-788 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-789 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-790 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-791 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-792 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-793 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-794 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-795 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-796 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-797 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-798 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-799 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-800 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**

VE-801 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-802 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-803 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-804 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-805 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-806 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-807 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-808 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-809 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-810 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-811 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-812 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-813 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-814 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-815 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-816 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-817 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-818 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-819 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-820 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-821 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-822 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-823 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-824 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-825 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-826 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-827 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-828 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-829 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-830 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-831 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-832 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-833 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-834 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-835 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**

VE-836 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-837 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-838 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-839 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-840 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-841 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-842 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-843 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-844 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-845 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-846 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-847 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-848 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-849 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-850 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-851 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-852 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-853 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-854 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-855 (puerta/ventana)	Exutorios	N	5,76	0,75	0,0	0	**0**
VE-856 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-857 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-858 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-859 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-860 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-861 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-862 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-863 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-864 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-865 (puerta/ventana)	MAE Cortizo	N	5,76	0,50	0,0	0	**0**
VE-866 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	0,0	0	**0**
VE-867 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	0,0	0	**0**
VE-868 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	0,0	0	**0**
VE-869 (puerta/ventana)	MAE Cortizo	N	4,32	0,50	0,0	0	**0**
VE-153 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**

VE-160 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	0,0	0	**0**
VE-161 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	0,0	0	**0**
VE-162 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-163 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	0,0	0	**0**
VE-164 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-165 (puerta/ventana)	MAE Cortizo	E	2,40	0,50	0,0	0	**0**
VE-166 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-167 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-168 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-169 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-170 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-171 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-172 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-173 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-174 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-175 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-176 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-177 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-178 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-179 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-180 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-181 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-182 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-183 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-184 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-185 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-186 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-187 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-188 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-189 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-190 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-191 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-192 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-193 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-194 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**

VE-195 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-196 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-197 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-198 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-199 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-200 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-201 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-202 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-203 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-204 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-205 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-206 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-207 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-208 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-209 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-210 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-211 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-212 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-213 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-214 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-487 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-488 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-489 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-490 (puerta/ventana)	MAE Cortizo	O	5,76	0,50	0,0	0	**0**
VE-491 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	0,0	0	**0**
VE-493 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	0,0	0	**0**
VE-496 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	0,0	0	**0**
VE-497 (puerta/ventana)	MAE Cortizo	O	4,32	0,50	0,0	0	**0**
VE-151 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-152 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-154 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-155 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-156 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**
VE-157 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
VE-158 (puerta/ventana)	MAE Cortizo	E	3,36	0,50	0,0	0	**0**

VE-159 (puerta/ventana)	MAE Cortizo	E	5,76	0,50	0,0	0	**0**
							0
TRANSMISIÓN PAREDES Y TECHO	**CÓDIGO MATERIAL**	**Or.**	**Sup. (m²)**	**U**	**Text**	**G. Inst. (W)**	**Carga (W)**
CU-008 (cubierta)	CUBIERTA8	H	9.199,22	0,211	-3,4	-46.317	**-46.317**
FA-031 (muro)	Muro Hormigón	E	29,84	3,448	-3,4	-2.459	**-2.459**
FA-035 (muro)	Muro Hormigón	O	13,04	3,448	-3,4	-1.075	**-1.075**
FA-040 (muro)	Muro Hormigón	S	28,88	3,448	-3,4	-2.380	**-2.380**
FA-037 (muro)	Muro Hormigón	S	23,76	3,448	-3,4	-1.958	**-1.958**
FA-033 (muro)	Muro Hormigón	N	28,88	3,448	-3,4	-2.380	**-2.380**
FA-032 (muro)	Muro Hormigón	O	12,80	3,448	-3,4	-1.055	**-1.055**
FA-041 (muro)	Muro Hormigón	O	1,52	3,448	-3,4	-125	**-125**
FA-038 (muro)	Muro Hormigón	N	23,76	3,448	-3,4	-1.958	**-1.958**
FA-039 (muro)	Muro Hormigón	E	16,88	3,448	-3,4	-1.391	**-1.391**
FA-034 (muro)	Muro Hormigón	O	1,68	3,448	-3,4	-138	**-138**
FA-036 (muro)	Muro Hormigón	E	1,52	3,448	-3,4	-125	**-125**
							-61.362
TRANSMISIÓN EXCEPTO PAREDES Y TECHO	**CÓDIGO MATERIAL**	**Sup. (m²)**		**U**	**Tac**	**G. Inst. (W)**	**Carga Term. (W)**
PH-007 (techo n/a)	C13.1a CHAPA ALUMINIO MW 50	128,96		0,697	8,6	-1.074	**-1.074**
PH-009 (suelo n/a)	FORJ-LOAL-03	9.199,74		0,610	8,6	-67.046	**-67.046**
VE-215 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-216 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-217 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-218 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-219 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-220 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-221 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-222 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-223 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-224 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-225 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-226 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-227 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**
VE-228 (puerta/ventana)	MAE Cortizo	5,76		1,600	-3,4	-220	**-220**

VE-229 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-230 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-231 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-232 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-233 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-234 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-235 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-236 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-237 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-238 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-239 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-240 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-241 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-242 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-243 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-244 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-245 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-246 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-247 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-248 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-249 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-250 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-251 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-252 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-253 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-254 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-255 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-256 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-257 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-258 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-259 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-260 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-261 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-262 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-263 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-264 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-265 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-266 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-267 (puerta/ventana)	MAE Cortizo	4,80	1,600	-3,4	-184	**-184**
VE-268 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-269 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-270 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-271 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-272 (puerta/ventana)	MAE Cortizo	4,80	1,600	-3,4	-184	**-184**
VE-273 (puerta/ventana)	MAE Cortizo	4,80	1,600	-3,4	-184	**-184**
VE-274 (puerta/ventana)	MAE Cortizo	4,80	1,600	-3,4	-184	**-184**
VE-379 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-380 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-381 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-382 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-383 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-384 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-385 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-386 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-387 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-388 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-389 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-390 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-391 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-392 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-393 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-394 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-395 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-396 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-397 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-398 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-399 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-400 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-401 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-402 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-403 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-404 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-405 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-406 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-407 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-408 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-409 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-410 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-411 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-412 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-413 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-414 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-415 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-416 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-417 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-418 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-419 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-420 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-421 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-422 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-423 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-424 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-425 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-426 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-427 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-428 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-429 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-430 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-432 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-434 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-436 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-438 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-970 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-971 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-972 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-973 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-974 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-975 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-976 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-977 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-978 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-979 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-980 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-981 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-982 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-983 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-984 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-985 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-986 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-987 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-988 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-989 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-990 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-991 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-992 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-993 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-994 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-995 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-996 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-997 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-998 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-999 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1000 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1001 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1002 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1003 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1004 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1005 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1006 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1007 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-1008 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1009 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1010 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1011 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1012 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1013 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1014 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1015 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1016 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1017 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1018 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1019 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1020 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1021 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1022 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1023 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1024 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1025 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1026 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1027 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1028 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1029 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1030 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1031 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1032 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1033 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1034 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1035 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1036 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1037 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1038 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1039 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1040 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1041 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1042 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-1043 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1044 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1045 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1046 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1047 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1048 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1049 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1050 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1051 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1052 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1053 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1054 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1055 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1056 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1057 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1058 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1059 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1060 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1061 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1062 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1063 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1064 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1065 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1066 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1067 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1068 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-1069 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1070 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1071 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1072 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1073 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1074 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1075 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1076 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1077 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-1078 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1079 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1080 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-1081 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-870 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-871 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-872 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-873 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-874 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-875 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-876 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-877 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-878 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-879 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-880 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-881 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-882 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-883 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-884 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-885 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-886 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-887 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-888 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-889 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-890 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-891 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-892 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-893 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-894 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-895 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-896 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-897 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-898 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-899 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-900 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-901 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-902 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-903 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-904 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-905 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-906 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-907 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-908 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-909 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-910 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-911 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-912 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-913 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-914 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-915 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-916 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-917 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-918 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-919 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-920 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-921 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-922 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-923 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-924 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-925 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-926 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-927 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-928 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-929 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-930 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-931 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-932 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-933 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-934 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-935 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-936 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-937 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-938 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-939 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-940 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-941 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-942 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-943 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-944 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-945 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-946 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-947 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-948 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-949 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-950 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-951 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-952 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-953 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-954 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-955 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-956 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-957 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-958 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-959 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-960 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-961 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-962 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-963 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-964 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-965 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-966 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-967 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-968 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-969 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-499 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**

VE-659 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-660 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-661 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-662 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-663 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-664 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-665 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-666 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-667 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-668 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-669 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-670 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-671 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-672 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-673 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-674 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-675 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-676 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-677 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-678 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-679 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-680 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-681 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-682 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-683 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-684 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-685 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-686 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-687 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-688 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-689 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-690 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-691 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-692 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-693 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-694 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-695 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-696 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-697 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-698 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-699 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-700 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-701 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-702 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-703 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-704 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-705 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-706 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-707 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-708 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-709 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-710 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-711 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-712 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-713 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-714 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-715 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-716 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-717 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-718 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-719 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-720 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-721 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-722 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-723 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-724 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-725 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-726 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-727 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-728 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-729 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-730 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-731 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-732 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-733 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-734 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-735 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-736 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-737 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-738 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-739 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-740 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-741 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-742 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-743 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-744 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-745 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-746 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-747 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-748 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-749 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-750 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-751 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-752 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-753 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-754 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-755 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-756 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-757 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-758 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-759 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-760 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-761 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-762 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-763 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**

VE-764 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-765 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-766 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-767 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-768 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-769 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-375 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-376 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-377 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-378 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-439 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-440 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-441 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-442 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-443 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-444 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-445 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-446 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-447 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-448 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-449 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-450 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-451 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-452 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-453 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-454 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-455 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-456 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-457 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-458 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-459 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-460 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-461 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-462 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-463 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-464 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-465 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-466 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-467 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-468 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-469 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-470 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-471 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-472 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-473 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-474 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-475 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-476 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-477 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-478 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-479 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-480 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-481 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-482 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-483 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-484 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-485 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-486 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-492 (puerta/ventana)	MAE Cortizo	1,92	1,600	-3,4	-73	**-73**
VE-494 (puerta/ventana)	MAE Cortizo	1,92	1,600	-3,4	-73	**-73**
VE-495 (puerta/ventana)	MAE Cortizo	1,92	1,600	-3,4	-73	**-73**
VE-498 (puerta/ventana)	MAE Cortizo	1,92	1,600	-3,4	-73	**-73**
VE-371 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-372 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-373 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-374 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-431 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-433 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-435 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-437 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**

VE-770 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-771 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-772 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-773 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-774 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-775 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-776 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-777 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-778 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-779 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-780 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-781 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-782 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-783 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-784 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-785 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-786 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-787 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-788 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-789 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-790 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-791 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-792 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-793 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-794 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-795 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-796 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-797 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-798 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-799 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-800 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-801 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-802 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-803 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-804 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-805 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-806 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-807 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-808 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-809 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-810 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-811 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-812 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-813 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-814 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-815 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-816 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-817 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-818 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-819 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-820 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-821 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-822 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-823 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-824 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-825 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-826 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-827 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-828 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-829 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-830 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-831 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-832 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-833 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-834 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-835 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-836 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-837 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-838 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-839 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-840 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-841 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-842 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-843 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-844 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-845 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-846 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-847 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-848 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-849 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-850 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-851 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-852 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-853 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-854 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-855 (puerta/ventana)	Exutorios	5,76	3,360	-3,4	-463	**-463**
VE-856 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-857 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-858 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-859 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-860 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-861 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-862 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-863 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-864 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-865 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-866 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-867 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-868 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-869 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-153 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-160 (puerta/ventana)	MAE Cortizo	2,40	1,600	-3,4	-92	**-92**
VE-161 (puerta/ventana)	MAE Cortizo	2,40	1,600	-3,4	-92	**-92**
VE-162 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-163 (puerta/ventana)	MAE Cortizo	2,40	1,600	-3,4	-92	**-92**

VE-164 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-165 (puerta/ventana)	MAE Cortizo	2,40	1,600	-3,4	-92	**-92**
VE-166 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-167 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-168 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-169 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-170 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-171 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-172 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-173 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-174 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-175 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-176 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-177 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-178 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-179 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-180 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-181 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-182 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-183 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-184 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-185 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-186 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-187 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-188 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-189 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-190 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-191 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-192 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-193 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-194 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-195 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-196 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-197 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-198 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**

VE-199 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-200 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-201 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-202 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-203 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-204 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-205 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-206 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-207 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-208 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-209 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-210 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-211 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-212 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-213 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-214 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-487 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-488 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-489 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-490 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-491 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-493 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-496 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-497 (puerta/ventana)	MAE Cortizo	4,32	1,600	-3,4	-165	**-165**
VE-151 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-152 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-154 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-155 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-156 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-157 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
VE-158 (puerta/ventana)	MAE Cortizo	3,36	1,600	-3,4	-128	**-128**
VE-159 (puerta/ventana)	MAE Cortizo	5,76	1,600	-3,4	-220	**-220**
Puentes térmicos integrados en fachadas	VARIOS	373,200	0,896	-3,4	-7.989	**-7.989**
Puentes térmicos contorno de huecos	VARIOS	6.416,000	0,143	-3,4	-21.900	**-21.900**

					-255.645
CALOR SENSIBLE INTERNO	**Potencia**	**Ud.**	**%Uso**	**G. Inst. (W)**	**Carga Term. (W)**
Ocupación estándar 28,34 W/m² (W/persona)	85,00	3.069,0	0	0	**0**
Iluminación estándar (W/m²)	15,00	9.205,7	0	0	**0**
Equipos estándar (W/m²)	7,50	9.205,7	0	0	**0**
					0
CALOR SENSIBLE AIRE VENTILACIÓN	**Caudal (l/s)**	**Tec**	**%Uso**	**G. Inst. (W)**	**Carga Term. (W)**
Ventilación IDA3 (Calidad media) (recuperador 80%)	32.736,00	-3,4	100	-178.412	**-178.412**
					-178.412
TOTAL CALOR SENSIBLE					***-495.419 W***
CALOR LATENTE AIRE VENTILACIÓN	**Caudal (l/s)**	**Xec**	**%Uso**	**G. Inst. (W)**	**Carga Term. (W)**
Ventilación IDA3 (Calidad media)	32.736,00	2,55	0	0	**0**
					0
TOTAL CALOR LATENTE					***0 W***
CARGA TOTAL DE CALEFACCIÓN					***-520.190 W***

- *Factor de calor sensible de la zona (RSHF): 1,00*
- *Factor de seguridad (Aplicado al resultado total): 5,0 %*
- *Carga de calefacción por unidad de superficie: 56,51 W/m²*
- *Temperatura operativa resultante: 19,8 °C*
- ***NOTA: Los valores positivos son cargas de refrigeración y los negativos cargas de calefacción***

8.13.3. Método de cálculo conductos

Cálculos de pérdidas de presión

Las fórmulas de cálculo que se han utilizado son las expuestas en el manual DTIE 5.01 "Cálculo de conductos", editado por ATECYR y "HANDBOOK FUNDAMENTALS 2001" editado por ASHRAE, de las cuales reproducimos las más importantes:

Pérdidas de presión por fricción

Las pérdidas de presión debidas al rozamiento de la corriente de aire en el interior del conducto se calculan utilizando la ecuación de Darcy-Weisbach-Colebrook, aproximando el factor de fricción mediante la ecuación de Blasius, y particularizando para el aire húmedo:

$$\Delta P_f = \alpha \cdot 14{,}1 \cdot 10^{-3} \cdot L \cdot \frac{v^{1,82}}{Dh^{1,22}}$$

Siendo:

- DP_f = Pérdidas de presión por fricción, en Pa
- Dh = Diámetro hidráulico, en m
- v = Velocidad, en m/s
- L = Longitud total, en m
- a = Factor que depende de la superficie del material utilizado (adimensional)

Esta ecuación es válida para temperaturas comprendidas entre 15,0 °C y 40,0 °C, presiones inferiores a la correspondiente a una altitud de 1.000,00 m. Y humedades relativas comprendidas entre 0% y 90%.

Pérdidas de presión por singularidades

Se denomina singularidad a cualquier elemento de la red de conductos que produce un cambio significativo en la dirección o en la velocidad de la corriente de aire (codos, derivaciones, transiciones...)

La pérdida de presión en estos elementos es proporcional a la velocidad del aire a la entrada, de acuerdo con la siguiente ecuación:

$$\Delta P_s = Co \cdot \frac{\rho \cdot v^2}{2}$$

Siendo:

- DP_s = Pérdidas de presión por singularidades, en Pa
- Co = coeficiente de pérdida dinámica (adimensional)
- v = Velocidad, en m/s
- r = Densidad del aire húmedo, en kg/m³

Los coeficientes Co de pérdida de carga dinámica están tabulados para los distintos tipos de accesorios normalmente utilizados en las redes de conductos. Los cálculos se han realizado tomando como fuente de datos "ASHRAE Duct Fitting Database 5.0.10".

Conductos rectangulares

La pérdida de carga en conductos de sección rectangular de lados *a* y *b* se calcula utilizando las mismas ecuaciones descritas anteriormente, pero utilizando el diámetro equivalente D_e resultante de aplicar la siguiente expresión:

$$D_e = 1{,}30 \cdot \frac{(a \cdot b)^{0{,}6255}}{(a+b)^{0{,}251}}$$

Pérdidas de presión en unidades terminales

Las unidades terminales de impulsión y retorno se han seleccionado en función de los siguientes criterios:

1. El caudal de cálculo es el necesario para vencer las cargas térmicas o cumplir los criterios de ventilación.
2. La velocidad media del aire en la zona ocupada se debe mantener dentro de los valores máximos establecidos.
3. Los niveles de ruido generado están limitados por la actividad desarrollada en cada recinto.

Las pérdidas de carga en los elementos de difusión se calculan de acuerdo con la siguiente ecuación:

$$\Delta P_T = (Cd + 1) \cdot \frac{\rho \cdot Q^2}{S_e \cdot 2}$$

Siendo:

- DP_T = Pérdidas de presión total en la unidad terminal, en Pa
- Cd = Coeficiente de pérdidas en difusor (adimensional)
- Q = Caudal de aire, en m^3/s
- r = Densidad del aire húmedo, en kg/m^3
- Se = Sección de entrada a la unidad terminal, en m^2

El coeficiente de pérdidas del difusor se obtiene a partir de los datos del fabricante para el punto de funcionamiento en condiciones nominales.

Métodos de dimensionamiento de conductos

Se han tenido en cuenta los métodos de dimensionado siguientes:

Método de Rozamiento Constante

Consiste en calcular los conductos de forma que la pérdida de carga por unidad de longitud en todos los tramos del sistema sea idéntica. El área de la sección de cada conducto está relacionada únicamente con el caudal de aire que transporta, por tanto, a igual porcentaje de caudal sobre el total, igual área de conductos.

Método de la Recuperación estática

El fundamento de este método consiste en dimensionar el conducto de forma que el aumento de presión estática (ganancia debida a la reducción de velocidad) en cada rama o boca de impulsión, compense las pérdidas por rozamiento en la siguiente sección del conducto. De esta forma la presión estática será la misma en cada boca y al comienzo de cada rama.

La presión estática necesaria en el ventilador se calcula teniendo en cuenta la pérdida de carga en el tramo de mayor resistencia y la ganancia de presión debida a la reducción de la velocidad desde el ventilador hasta el final de este tramo.

Método de la Velocidad Constante

Este método se basa en el cálculo de la sección de conducto necesaria en cada tramo para que las velocidades medias del aire se mantengan constantes e iguales a las del conducto principal.

Cálculo de las características del ventilador

Una vez calculadas las dimensiones de los conductos y seleccionados los tamaños de las bocas de impulsión y de retorno es posible obtener las características del ventilador:

Caudal nominal: Suma de los caudales individuales de todas las bocas del mismo tipo conectadas a la red. Se comprueba que el caudal total de impulsión sea aproximadamente igual al de retorno.

El caudal de aire se reparte en las redes de impulsión de modo que siempre se produce la misma pérdida de carga desde el ventilador hasta cualquier boca de salida. Lo mismo sucede en las redes de retorno.

Presión nominal: La presión total se determina en base a la boca con mayores pérdidas de presión desde el ventilador. Para las restantes bocas del mismo tipo se calculan las pérdidas que es necesario provocar para el equilibrado de la red.

En sistemas compuestos por redes de impulsión y de retorno el ventilador ha de vencer la presión necesaria en ambas redes.

Cálculos de pérdidas térmicas

Las pérdidas térmicas en los conductos se calculan según las indicaciones de la norma UNE-EN ISO 12241 tomando las condiciones de contorno expuestas en la publicación del IDAE "Comentarios al RITE 2007" y las consideraciones para conductos desarrolladas en la Guía Técnica N.º 3 del IDAE "Diseño y cálculo de aislamientos".

El cálculo se realiza para cada uno de los tramos que componen la red, teniendo en cuenta sus dimensiones, espesores y materiales de aislamiento térmico, así como las condiciones térmicas de los ambientes por los que discurren.

Coeficiente de convección interior

Se considera que en la práctica el flujo estará siempre en régimen turbulento, debido tanto a la presencia del ventilador como al rango de velocidades, que será del orden de los 6 m/s. En estas condiciones el coeficiente de convección interior se puede expresar como:

$$h_{cvi} = (3{,}76 - 0{,}00497 \cdot T) \cdot \frac{V^{0,8}}{D^{0,2}}$$

Dónde:

- V = Velocidad media en el interior del tramo, en m/s
- T = Temperatura del fluido, en °C
- D = Diámetro del conducto de sección circular o diámetro hidráulico en el de sección rectangular, en m

Resistencia térmica interior

En el interior del conducto sólo se contabilizará el intercambio de calor por convección, ya que por radiación es despreciable (las paredes interiores se encuentran a la misma temperatura). La resistencia térmica interior para conductos de sección rectangular será:

$$R_i = \frac{1}{h_{cvi}}$$

Y para conductos de sección circular:

$$R_i = \frac{1}{h_{cvi} \cdot \pi \cdot D}$$

Dónde:

- h_{cvi} = Coeficiente de convección interior, en W/(m^2·K)
- D = Diámetro del conducto, en m

Coeficiente de convección exterior

Para conductos de sección rectangular el flujo de calor se calcula a través de cada pared, tomándolas como placas planas.

Como coeficiente de convección se toma el valor medio ponderado que tiene en cuenta la existencia de dos superficies planas verticales y dos horizontales de dimensiones relativamente variables, y su régimen de circulación:

$$h_{cve} = 1{,}17 \cdot \sqrt[4]{\frac{\Delta T}{H}}$$

Dónde:

- H = Anchura del conducto, en m
- DT = valor absoluto de la diferencia de temperaturas entre la pared y el aire (°C)

Coeficiente de radiación exterior

En la práctica se desconoce el valor de las temperaturas superficiales del resto de superficies, por lo que una buena aproximación será suponerlas igual a la temperatura del aire. Así, la expresión del flujo de calor se puede expresar (linealizando la ecuación) como un coeficiente de convección equivalente de radiación por la diferencia de temperaturas entre la pared y el medio (aire).

De este modo, el valor del coeficiente de convección equivalente en radiación será:

$$h_{rad} = \varepsilon \cdot \sigma \cdot \left(TK_{sup} - TK_{aire}\right) \cdot \left(TK_{sup}^2 - TK_{aire}^2\right)$$

Dónde:

- e = Coeficiente de emisividad: 0,3 para superficies metálicas y 0,9 para las restantes
- s = Constante de Estefan Boltzman, en W/(m^2·K^4)
- TK_{sup} = Temperatura superficial (K)

- TK_{aire} = Temperatura del ambiente (K)

Resistencia térmica exterior

En el exterior el intercambio de calor por radiación no es despreciable, luego la resistencia térmica exterior para conductos de sección rectangular tendrá en cuenta el intercambio convectivo y el radiante, y se expresará de esta forma:

$$R_e = \frac{1}{h_{cve} + h_{rad}}$$

Y para conductos de sección circular:

$$R_e = \frac{1}{(h_{cve} + h_{rad}) \cdot \pi \cdot D_e}$$

Dónde:

- h_{cve} = Coeficiente de convección exterior, en $W/(m^2 \cdot K)$
- h_{rad} = Coeficiente de radiación exterior, en $W/(m^2 \cdot K)$
- D_e = Diámetro exterior (incluye espesor de aislamiento), en m

Resistencia térmica del material aislante

La resistencia térmica proporcionada por el material de aislamiento térmico se calcula para conductos de sección rectangular mediante la siguiente expresión:

$$R_m = \frac{e}{\lambda}$$

Y para conductos de sección circular:

$$R_m = \frac{ln\left(\frac{D_e}{D_i}\right)}{2 \cdot \pi \cdot \lambda}$$

Dónde:

- e = Espesor de aislamiento térmico, en m
- l = Conductividad térmica del material aislante, en W/(m^2·K)
- D_i = Diámetro interior, en m
- D_e = Diámetro exterior (incluye espesor de aislamiento), en m

Resistencia térmica lineal total del conjunto

La resistencia térmica total expresada por metro lineal de conducto se expresa como:

$$R_l = \frac{R_i + R_m + R_e}{P}$$

Dónde:

- R_l = Resistencia térmica lineal, en m·K/W
- R_i = Resistencia térmica interior, en m^2·K/W
- R_m = Resistencia térmica material aislante, en m^2·K/W
- R_e = Resistencia térmica exterior, en m^2·K/W
- P = Perímetro exterior de la sección, en m

Temperatura de salida del conducto

Las pérdidas térmicas entre el fluido transportado y el ambiente se materializan en una variación de la temperatura desde la entrada hasta la salida del tramo, que puede calcularse con la siguiente expresión:

$$T_{fluido,sal} = T_{ext} + \left(T_{fluido,ent} - T_{ext}\right) \cdot e^{\frac{-L}{S \cdot \rho \cdot V \cdot C_p \cdot R_l}}$$

Dónde:

- T_{ext} = Temperatura ambiente exterior, en °C
- $T_{fluido,sal}$ = Temperatura del fluido a la salida del conducto, en °C
- $T_{fluido,ent}$ = Temperatura del fluido a la entrada del conducto, en °C
- L = Longitud del tramo de conducto, en m
- S = Área de la sección del conducto, en m^2
- V = Velocidad del fluido, en m/s

- r = Densidad del fluido, en kg/m_3
- C_p = Calor específico del fluido, en J/(Kg·K)
- R_l = Resistencia térmica lineal, en m·K/W

Pérdidas térmicas en el conducto

La cantidad de calor total intercambiado en el tramo es función del caudal del fluido transportado, así como de las temperaturas de entrada y salida:

$$q_w = S \cdot \rho \cdot V \cdot C_p \cdot \left(T_{fluido,ent} - T_{fluido,sal}\right)$$

Dónde:

- $T_{fluido,sal}$ = Temperatura del fluido a la salida del conducto, en °C
- $T_{fluido,ent}$ = Temperatura del fluido a la entrada del conducto, en °C
- S = Área de la sección del conducto, en m^2
- V = Velocidad del fluido, en m/s
- r = Densidad del fluido, en kg/mz_3
- C_p = Calor específico del fluido, en J/(kg·K)

Cálculos acústicos

Ruido generado en el ventilador

La potencia acústica de emisión generada en los ventiladores se obtiene a partir de los datos de ensayo del fabricante, o en caso de que estos no estén disponibles, se estiman mediante la fórmula empírica siguiente:

$$Lw = 10 \cdot Log\ Q + 20 \cdot Log\ Pst + 40$$

Siendo:

- Lw = Nivel de potencia acústica, en dB
- Q = Caudal de aire, en m^3/s
- Pst = Presión estática en Pa

Dependiendo del tipo de ventilador, axial o centrífugo, se aplican los siguientes factores correctores para obtener la potencia acústica por bandas de octava:

Tipo	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz
Axial	-5	-6	-7	-8	-10
Centrífugo	-7	-12	-17	-22	-27

Atenuación en los conductos

La atenuación de los conductos (también denominada pérdida por inserción) se evalúa mediante la fórmula siguiente:

$$DL = 1{,}05 \cdot L \cdot (P/S) \cdot a^{1,4}$$

Siendo:

- DL = Atenuación acústica, en dB
- L = Longitud del conducto, en m
- P = Perímetro de la sección del conducto, en m
- S = Área de la sección del conducto, en m²
- a = Coeficiente de absorción acústica del material de las paredes del conducto

También se producen atenuaciones acústicas en las singularidades de la red:

Bifurcaciones:

$$DL = 10 \cdot Log(F/F1)$$ (DTIE 2.03 ATECYR)

Dónde *F* es el área total de bifurcaciones y *F1* es la sección de la derivación.

Ensanches:

$$DL = 10 \cdot Log(m+1)^2/(4 \cdot m)$$ (DTIE 2.03 ATECYR)

Dónde *m* es la relación de áreas de entrada y salida.

Codos:

Atenuaciones entre 1 y 3 dB dependiendo de la frecuencia y de las dimensiones del codo. Valores tomados de ábacos obtenidos de forma experimental (Acústica en instalaciones de climatización TROX).

Elementos auxiliares

Todos los elementos auxiliares de la instalación (compuertas, filtros, obstáculos, etc.) provocan ruido regenerado cuando la corriente de aire los atraviesa.

Algunos además tienen la capacidad de reducir los niveles sonoros, como ocurre con los silenciadores, que aumentan la capacidad de atenuación mediante el uso de materiales absorbentes.

Para tener en cuenta estos efectos se recurre a los datos de ensayo aportados por los fabricantes.

Unidades terminales

La potencia acústica emitida por las bocas de salida/entrada de aire se obtiene de los catálogos de sus fabricantes en función del tamaño, velocidad del aire y tipo constructivo.

$$Lwi = Lw_R \cdot Q / Q_R$$

Dónde *Lwi* es el nivel de ruido resultante en dB, Lw_R es el nivel de ruido para el caudal de referencia Q_R y *Q* es el caudal nominal.

También se tiene en cuenta la atenuación acústica debida a los fenómenos de reflexión de la onda en las bocas de impulsión.

Nivel sonoro total los locales

El nivel sonoro resultante en un espacio se calcula a partir de los niveles sonoros individuales de cada una de las fuentes situadas en su interior, según la ecuación siguiente:

$$L_{Total} = 10 \cdot Log \sum_{i=1}^{n} 10^{\frac{Lwi}{10}}$$

Dónde n es el número total de fuentes sonoras y los niveles Li son los debidos a cada una de las fuentes, expresados en dB. Se calcula un valor de LTotal para cada banda de octava (125 Hz, 250 Hz, 500 Hz, 1000 Hz y 2000 Hz).

El nivel de presión acústica en cualquier punto del local receptor puede estimarse como superposición de los campos directos y reverberados, mediante las ecuaciones:

Campo acústico directo (dB):

$$Lp,d = LTotal + 10\ Log\ (q) - 20\ Log(d) - 11$$

Campo acústico reverberado (dB):

$$Lp,r = LTotal + 10\ Log(Tr) - 10\ Log(V) + 14$$

Campo acústico total (dB):

$$Lp,tot = 10\ Log\ (\ 10\ Lp,d / 10 + 10\ Lp,r / 10\ )$$

Siendo:

- q = Directividad de las bocas (semiesférica = 4)
- d = Distancia del receptor a la rejilla en m (se considera 1m)
- V = Volumen del local, en m^3
- Tr = Tiempo de reverberación del local, en s

El tiempo de reverberación del local se determina por medio de la ecuación:

$$Tr = 0{,}16 \cdot V/A$$

Siendo *A* la superficie de absorción en m^2, que por simplicidad se considera igual a la superficie del techo.

Una vez efectuado el cálculo en bandas de octava se efectúa el cálculo del valor global correspondiente utilizando la ponderación A, para verificar el grado de confort o la conformidad con la reglamentación.

Banda octava	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz
Ponderación base A	-16	-9	-3	0	+1

8.13.4. Detalle de cálculo conductos

Resumen ventiladores

PARÁMETROS DE DISEÑO DE LOS VENTILADORES			
Referencia	Caudal (m^3/h)	Presión estática (Pa)	Presión total (Pa)
UTA 27	30.514,0	357,28	374,99
UTA 26	30.514,0	388,69	406,40
UTA 25	30.514,0	400,04	417,75
UTA 24	30.514,0	399,05	416,76
UTA 23	30.514,0	392,93	410,64
UTA 22	30.514,0	357,69	375,40
UTA 21	30.514,0	357,07	374,78
UTA 20	30.514,0	388,48	406,19
UTA 19	30.514,0	398,88	416,60
UTA 18	30.514,0	397,95	415,67
UTA 17	30.514,0	392,93	410,64
UTA 16	30.514,0	357,69	375,40

Cálculos de pérdidas de presión

A continuación, se muestran listados con las principales características y resultados del cálculo de los conductos y unidades terminales de cada subsistema.

SUBSISTEMA UTA 16

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 16					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	276,35	294,07	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			357,69	375,40	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 16											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	16,738	30,821	30.514,0	6,91	11,17	6,06	17,23	17,23
CON [6-7]	Ø1250	1,22718	1.250	4,277	127,526	21.360,0	4,83	24,14	0,81	24,95	42,19
CON [7-8]	Ø1250	1,22718	1.250	10,000	16,905	10.252,8	2,32	0,84	0,50	1,34	43,52
CON [9-10]	Ø750	0,44179	750	8,418	42,842	10.252,8	6,45	25,53	5,02	30,55	74,07
CON [10-11]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,88
CON [11-12]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	99,01
CON [12-13]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,83
CON [13-14]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,39
CON [14-15]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,76
CON [15-16]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,99
CON [10-17]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,88
CON [17-18]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	99,01
CON [18-19]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,83
CON [19-20]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,39
CON [20-21]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,76
CON [21-22]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,99
CON [23-24]	Ø750	0,44179	750	8,418	69,408	11.107,2	6,98	47,85	5,80	53,66	95,84
CON [24-25]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	125,90
CON [25-26]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	127,37
CON [26-27]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	128,50
CON [27-28]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	129,32
CON [28-29]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	129,88
CON [29-30]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	130,25
CON [30-31]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	130,48
CON [24-32]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	123,13
CON [32-33]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	124,26
CON [33-34]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	125,08

CON [34-35]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	125,65
CON [35-36]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	126,02
CON [36-37]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	126,25
CON [6-38]	Ø1250	1,22718	1.250	5,044	649,969	9.154,0	2,07	26,32	0,20	26,53	43,76
CON [39-40]	Ø750	0,44179	750	8,806	41,977	9.154,0	5,76	20,35	4,27	24,62	68,38
CON [40-41]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,82
CON [42-43]	Ø600	0,28274	600	1,259	84,621	4.577,0	4,50	34,37	0,51	34,88	179,94
CON [43-44]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	181,01
CON [44-45]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,73
CON [45-46]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	182,19
CON [46-47]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	182,47
CON [40-48]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,82
CON [49-50]	Ø600	0,28274	600	0,761	84,621	4.577,0	4,50	34,37	0,31	34,68	179,74
CON [50-51]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	180,81
CON [51-52]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,53
CON [52-53]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	181,99
CON [53-54]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	182,27
CON [55-56]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [57-58]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 16										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	91,52	202,55
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	95,64	198,43
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	97,56	196,51
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	98,93	195,13
BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	98,56	195,50
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	109,39	184,68
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	91,52	202,55
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	95,64	198,43
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	97,56	196,51
BI [20]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	98,93	195,13
BI [21]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	98,56	195,50
BI [22]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	109,39	184,68
BI [25]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	56,94	237,13
BI [26]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	62,03	232,03
BI [27]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	66,15	227,92
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	68,07	226,00

BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	69,45	224,62
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	69,08	224,99
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	79,90	214,16
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	66,26	227,80
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	70,38	223,68
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	72,30	221,76
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	73,68	220,39
BI [36]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	73,31	220,76
BI [37]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	84,13	209,93
BI [43]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	294,07
BI [44]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,99
BI [45]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	290,49
BI [46]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,94
BI [47]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	278,53
BI [50]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	293,86
BI [51]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,79
BI [52]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	290,28
BI [53]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,74
BI [54]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	278,33
BR [56]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [58]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 16										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m^3/h)	Nivel s. (dBA)	S Ent. (m^2)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [41-42]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	145,06
CMP [48-49]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,20	145,06

SUBSISTEMA UTA 17

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 17					
	Caudal (m^3/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	311,59	329,30	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0

TOTAL			392,93	410,64	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 17											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m^2)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m^3/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	11,650	30,279	30.514,0	6,91	10,97	4,22	15,19	15,19
CON [6-7]	Ø1250	1,22718	1.250	4,267	127,526	21.360,0	4,83	24,14	0,81	24,95	40,14
CON [7-8]	Ø1250	1,22718	1.250	10,000	16,905	10.252,8	2,32	0,84	0,50	1,34	41,48
CON [8-9]	Ø750	0,44179	750	3,318	12,188	10.252,8	6,45	7,26	1,98	9,24	50,72
CON [9-10]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	74,53
CON [10-11]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	75,66
CON [11-12]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	76,48
CON [12-13]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	77,04
CON [13-14]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	77,41
CON [14-15]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	77,64
CON [9-16]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	74,53
CON [16-17]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	75,66
CON [17-18]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	76,48
CON [18-19]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	77,04
CON [19-20]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	77,41
CON [20-21]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	77,64
CON [7-22]	Ø750	0,44179	750	3,318	36,044	11.107,2	6,98	24,85	2,29	27,14	67,28
CON [22-23]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	94,57
CON [23-24]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	95,70
CON [24-25]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	96,52
CON [25-26]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	97,09
CON [26-27]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	97,45
CON [27-28]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	97,69
CON [22-29]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	97,34
CON [29-30]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	98,81
CON [30-31]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	99,93
CON [31-32]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	100,75
CON [32-33]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	101,32
CON [33-34]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	101,69
CON [34-35]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	101,92
CON [6-36]	Ø1250	1,22718	1.250	2,033	649,969	9.154,0	2,07	26,32	0,08	26,41	41,60
CON [39-40]	Ø750	0,44179	750	25,489	103,135	9.154,0	5,76	50,01	12,36	62,37	103,97
CON [40-41]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	122,41
CON [42-43]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	215,18
CON [43-44]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	216,25
CON [44-45]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	216,97

CON [45-46]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	217,43
CON [46-47]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	217,71
CON [40-48]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	122,41
CON [49-50]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	215,18
CON [50-51]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	216,25
CON [51-52]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	216,97
CON [52-53]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	217,43
CON [53-54]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	217,71
CON [55-56]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [57-58]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 17

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [10]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	150,11	179,19
BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	154,23	175,08
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	156,15	173,16
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	157,52	171,78
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	157,15	172,15
BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	167,98	161,33
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	150,11	179,19
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	154,23	175,08
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	156,15	173,16
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	157,52	171,78
BI [20]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	157,15	172,15
BI [21]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	167,98	161,33
BI [23]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	130,06	199,24
BI [24]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	134,18	195,12
BI [25]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	136,10	193,20
BI [26]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	137,48	191,83
BI [27]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	137,11	192,20
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	147,93	181,37
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	120,74	208,57
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	125,83	203,47
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	129,95	199,36
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	131,87	197,44
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	133,24	196,06
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	132,88	196,43
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	143,70	185,60

BI [43]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	329,30
BI [44]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	327,23
BI [45]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	325,72
BI [46]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	326,18
BI [47]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	313,77
BI [50]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	329,30
BI [51]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	327,23
BI [52]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	325,72
BI [53]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	326,18
BI [54]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	313,77
BR [56]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [58]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 17										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m³/h)	Nivel s. (dBA)	S Ent. (m²)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [41-42]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	180,64
CMP [48-49]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	180,64

SUBSISTEMA UTA 18

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 18					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	316,62	334,33	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			397,95	415,67	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 18											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	15,908	74,122	30.514,0	6,91	26,86	5,76	32,62	32,62
CON [6-7]	Ø1250	1,22718	1.250	1,100	12,213	19.406,8	4,39	1,94	0,17	2,12	34,74

CON [7-8]	Ø1250	1,22718	1.250	8,900	13,718	10.252,8	2,32	0,68	0,44	1,13	35,86
CON [8-9]	Ø750	0,44179	750	3,318	12,188	10.252,8	6,45	7,26	1,98	9,24	45,10
CON [9-10]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	68,91
CON [10-11]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	70,04
CON [11-12]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	70,86
CON [12-13]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	71,42
CON [13-14]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	71,79
CON [14-15]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	72,02
CON [9-16]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	68,91
CON [16-17]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	70,04
CON [17-18]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	70,86
CON [18-19]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	71,42
CON [19-20]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	71,79
CON [20-21]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	72,02
CON [24-25]	Ø750	0,44179	750	22,889	130,244	9.154,0	5,76	63,15	11,10	74,25	108,99
CON [25-26]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	127,43
CON [27-28]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	220,20
CON [28-29]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	221,27
CON [29-30]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	221,99
CON [30-31]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	222,45
CON [31-32]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	222,73
CON [25-33]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	127,43
CON [34-35]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	220,20
CON [35-36]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	221,27
CON [36-37]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	221,99
CON [37-38]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	222,45
CON [38-39]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	222,73
CON [6-40]	Ø750	0,44179	750	3,318	59,011	11.107,2	6,98	40,69	2,29	42,97	75,59
CON [40-41]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	105,65
CON [41-42]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	107,12
CON [42-43]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	108,25
CON [43-44]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	109,07
CON [44-45]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	109,63
CON [45-46]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	110,00
CON [46-47]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	110,23
CON [40-48]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	102,89
CON [48-49]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	104,01
CON [49-50]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	104,84
CON [50-51]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	105,40
CON [51-52]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	105,77
CON [52-53]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	106,00
CON [54-55]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [56-57]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 18										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [10]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	160,75	173,58
BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	164,87	169,46
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	166,79	167,54
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	168,16	166,16
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	167,80	166,53
BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	178,62	155,71
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	160,75	173,58
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	164,87	169,46
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	166,79	167,54
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	168,16	166,16
BI [20]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	167,80	166,53
BI [21]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	178,62	155,71
BI [28]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	334,33
BI [29]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	332,25
BI [30]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	330,75
BI [31]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	331,21
BI [32]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	318,79
BI [35]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	334,33
BI [36]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	332,25
BI [37]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	330,75
BI [38]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	331,21
BI [39]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	318,79
BI [41]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	117,45	216,88
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	122,54	211,78
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	126,66	207,67
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	128,58	205,75
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	129,96	204,37
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	129,59	204,74
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	140,41	193,92
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	126,78	207,55
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	130,89	203,44
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	132,81	201,52
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	134,19	200,14
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	133,82	200,51
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	144,64	189,68
BR [55]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27

BI [57]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 18										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m^3/h)	Nivel s. (dBA)	S Ent. (m^2)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [26-27]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	185,66
CMP [33-34]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	185,66

SUBSISTEMA UTA 19

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 19					
	Caudal (m^3/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	317,55	335,26	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			398,88	416,60	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 19											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m^2)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m^3/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	16,283	74,122	30.514,0	6,91	26,86	5,90	32,76	32,76
CON [6-7]	Ø1250	1,22718	1.250	6,100	12,213	19.406,8	4,39	1,94	0,97	2,91	35,67
CON [7-8]	Ø1250	1,22718	1.250	3,900	13,718	10.252,8	2,32	0,68	0,19	0,88	36,55
CON [8-9]	Ø750	0,44179	750	3,318	12,188	10.252,8	6,45	7,26	1,98	9,24	45,79
CON [9-10]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	69,59
CON [10-11]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	70,72
CON [11-12]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	71,54
CON [12-13]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	72,10
CON [13-14]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	72,47
CON [14-15]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	72,71
CON [9-16]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	69,59

CON [16-17]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	70,72
CON [17-18]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	71,54
CON [18-19]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	72,10
CON [19-20]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	72,47
CON [20-21]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	72,71
CON [24-25]	Ø750	0,44179	750	22,889	130,244	9.154,0	5,76	63,15	11,10	74,25	109,92
CON [25-26]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	128,36
CON [27-28]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	221,13
CON [28-29]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	222,20
CON [29-30]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	222,93
CON [30-31]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	223,38
CON [31-32]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	223,66
CON [25-33]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	128,36
CON [34-35]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	221,13
CON [35-36]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	222,20
CON [36-37]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	222,93
CON [37-38]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	223,38
CON [38-39]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	223,66
CON [6-40]	Ø750	0,44179	750	3,318	59,011	11.107,2	6,98	40,69	2,29	42,97	75,73
CON [40-41]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	103,02
CON [41-42]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	104,15
CON [42-43]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	104,97
CON [43-44]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	105,54
CON [44-45]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	105,90
CON [45-46]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	106,14
CON [40-47]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	105,79
CON [47-48]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	107,25
CON [48-49]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	108,38
CON [49-50]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	109,20
CON [50-51]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	109,77
CON [51-52]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	110,13
CON [52-53]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	110,37
CON [54-55]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [56-57]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 19

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [10]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	161,00	174,26

BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	165,12	170,14
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	167,04	168,22
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	168,41	166,85
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	168,04	167,21
BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	178,87	156,39
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	161,00	174,26
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	165,12	170,14
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	167,04	168,22
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	168,41	166,85
BI [20]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	168,04	167,21
BI [21]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	178,87	156,39
BI [28]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	335,26
BI [29]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	333,18
BI [30]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	331,68
BI [31]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	332,14
BI [32]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	319,72
BI [35]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	335,26
BI [36]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	333,18
BI [37]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	331,68
BI [38]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	332,14
BI [39]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	319,72
BI [41]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	127,57	207,69
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	131,69	203,57
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	133,61	201,65
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	134,98	200,28
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	134,61	200,64
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	145,44	189,82
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	118,24	217,01
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	123,34	211,92
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	127,46	207,80
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	129,37	205,88
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	130,75	204,51
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	130,38	204,88
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	141,21	194,05
BR [55]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [57]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 19										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m³/h)	Nivel s. (dBA)	S Ent. (m²)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [26-27]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	186,59
CMP [33-34]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	186,59

SUBSISTEMA UTA 20

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 20					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	307,14	324,85	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			388,48	406,19	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 20											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	16,283	74,122	30.514,0	6,91	26,86	5,90	32,76	32,76
CON [6-7]	Ø1250	1,22718	1.250	10,000	12,213	19.406,8	4,39	1,94	1,59	3,53	36,29
CON [7-8]	Ø1250	1,22718	1.250	3,500	17,613	9.154,0	2,07	0,71	0,14	0,86	37,14
CON [11-12]	Ø750	0,44179	750	25,489	103,135	9.154,0	5,76	50,01	12,36	62,37	99,51
CON [12-13]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	117,95
CON [14-15]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	210,73
CON [15-16]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	211,79
CON [16-17]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	212,52
CON [17-18]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	212,97
CON [18-19]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	213,25
CON [12-20]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	117,95
CON [21-22]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	210,73
CON [22-23]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	211,79
CON [23-24]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	212,52
CON [24-25]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	212,97
CON [25-26]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	213,25
CON [7-27]	Ø750	0,44179	750	3,318	35,099	10.252,8	6,45	20,92	1,98	22,90	59,19
CON [27-28]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	82,99

CON [28-29]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	84,12
CON [29-30]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	84,94
CON [30-31]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	85,50
CON [31-32]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	85,87
CON [32-33]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	86,10
CON [27-34]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	82,99
CON [34-35]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	84,12
CON [35-36]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	84,94
CON [36-37]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	85,50
CON [37-38]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	85,87
CON [38-39]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	86,10
CON [6-40]	Ø750	0,44179	750	3,318	59,011	11.107,2	6,98	40,69	2,29	42,97	75,73
CON [40-41]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	105,79
CON [41-42]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	107,25
CON [42-43]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	108,38
CON [43-44]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	109,20
CON [44-45]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	109,77
CON [45-46]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	110,13
CON [46-47]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	110,37
CON [40-48]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	103,02
CON [48-49]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	104,15
CON [49-50]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	104,97
CON [50-51]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	105,54
CON [51-52]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	105,90
CON [52-53]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	106,14
CON [54-55]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [56-57]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 20

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m³/h)	Q real (m³/h)	Nivel s. (dBA)	S Sal. (m²)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [15]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	324,85
BI [16]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	322,77
BI [17]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	321,27
BI [18]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	321,73
BI [19]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	309,31
BI [22]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	324,85
BI [23]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	322,77
BI [24]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	321,27

BI [25]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	321,73
BI [26]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	309,31
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	137,19	187,66
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	141,31	183,54
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	143,23	181,62
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	144,61	180,24
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	144,24	180,61
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	155,06	169,79
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	137,19	187,66
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	141,31	183,54
BI [36]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	143,23	181,62
BI [37]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	144,61	180,24
BI [38]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	144,24	180,61
BI [39]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	155,06	169,79
BI [41]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	107,84	217,01
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	112,93	211,92
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	117,05	207,80
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	118,97	205,88
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	120,34	204,51
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	119,97	204,88
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	130,80	194,05
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	117,16	207,69
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	121,28	203,57
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	123,20	201,65
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	124,57	200,28
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	124,20	200,64
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	135,03	189,82
BR [55]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [57]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 20										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m^3/h)	Nivel s. (dBA)	S Ent. (m^2)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [13-14]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	176,19
CMP [20-21]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	176,19

SUBSISTEMA UTA 21

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 21					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	275,73	293,44	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			357,07	374,78	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 21											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [6-7]	Ø1250	1,22718	1.250	21,383	85,828	30.514,0	6,91	31,10	7,75	38,85	38,85
CON [7-8]	Ø1250	1,22718	1.250	10,000	12,213	19.406,8	4,39	1,94	1,59	3,53	42,38
CON [8-9]	Ø1250	1,22718	1.250	6,521	17,613	9.154,0	2,07	0,71	0,26	0,98	43,36
CON [10-11]	Ø750	0,44179	750	8,558	41,977	9.154,0	5,76	20,35	4,15	24,50	67,86
CON [11-12]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,30
CON [13-14]	Ø600	0,28274	600	1,010	84,621	4.577,0	4,50	34,37	0,41	34,78	179,32
CON [14-15]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	180,39
CON [15-16]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,11
CON [16-17]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	181,57
CON [17-18]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	181,84
CON [11-19]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,30
CON [20-21]	Ø600	0,28274	600	1,010	84,621	4.577,0	4,50	34,37	0,41	34,78	179,32
CON [21-22]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	180,39
CON [22-23]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,11
CON [23-24]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	181,57
CON [24-25]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	181,84
CON [26-27]	Ø750	0,44179	750	8,418	67,986	10.252,8	6,45	40,52	5,02	45,54	87,91
CON [27-28]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	111,72
CON [28-29]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	112,85
CON [29-30]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	113,67
CON [30-31]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	114,23
CON [31-32]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	114,60
CON [32-33]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	114,83
CON [27-34]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	111,72
CON [34-35]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	112,85
CON [35-36]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	113,67

CON [36-37]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	114,23
CON [37-38]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	114,60
CON [38-39]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	114,83
CON [40-41]	Ø750	0,44179	750	8,418	90,110	11.107,2	6,98	62,13	5,80	67,93	106,78
CON [41-42]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	136,84
CON [42-43]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	138,30
CON [43-44]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	139,43
CON [44-45]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	140,25
CON [45-46]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	140,81
CON [46-47]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	141,18
CON [47-48]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	141,42
CON [41-49]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	134,07
CON [49-50]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	135,20
CON [50-51]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	136,02
CON [51-52]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	136,58
CON [52-53]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	136,95
CON [53-54]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	137,18
CON [55-56]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [57-58]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 21

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [14]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	293,44
BI [15]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,36
BI [16]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	289,86
BI [17]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,32
BI [18]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	277,90
BI [21]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	293,44
BI [22]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,36
BI [23]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	289,86
BI [24]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,32
BI [25]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	277,90
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	77,06	216,38
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	81,17	212,27
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	83,09	210,35
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	84,47	208,97
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	84,10	209,34
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	94,92	198,52

BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	77,06	216,38
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	81,17	212,27
BI [36]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	83,09	210,35
BI [37]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	84,47	208,97
BI [38]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	84,10	209,34
BI [39]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	94,92	198,52
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	45,38	248,06
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	50,47	242,97
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	54,59	238,85
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	56,51	236,93
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	57,88	235,56
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	57,52	235,92
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	68,34	225,10
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	54,70	238,74
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	58,82	234,62
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	60,74	232,70
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	62,12	231,32
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	61,75	231,69
BI [54]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	72,57	220,87
BR [56]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [58]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 21										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m³/h)	Nivel s. (dBA)	S Ent. (m²)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [12-13]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	144,53
CMP [19-20]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	144,53

SUBSISTEMA UTA 22

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 22					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	276,35	294,07	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0

TOTAL			357,69	375,40	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 22											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m^2)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m^3/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	16,738	30,821	30.514,0	6,91	11,17	6,06	17,23	17,23
CON [6-7]	Ø1250	1,22718	1.250	5,044	649,969	9.154,0	2,07	26,32	0,20	26,53	43,76
CON [8-9]	Ø750	0,44179	750	8,806	41,977	9.154,0	5,76	20,35	4,27	24,62	68,38
CON [9-10]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,82
CON [11-12]	Ø600	0,28274	600	0,761	84,621	4.577,0	4,50	34,37	0,31	34,68	179,74
CON [12-13]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	180,81
CON [13-14]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,53
CON [14-15]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	181,99
CON [15-16]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	182,27
CON [9-17]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,82
CON [18-19]	Ø600	0,28274	600	1,259	84,621	4.577,0	4,50	34,37	0,51	34,88	179,94
CON [19-20]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	181,01
CON [20-21]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,73
CON [21-22]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	182,19
CON [22-23]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	182,47
CON [6-24]	Ø1250	1,22718	1.250	4,277	127,526	21.360,0	4,83	24,14	0,81	24,95	42,19
CON [24-25]	Ø1250	1,22718	1.250	10,000	14,098	11.107,2	2,51	0,81	0,58	1,39	43,57
CON [26-27]	Ø750	0,44179	750	8,418	43,464	11.107,2	6,98	29,97	5,80	35,77	79,34
CON [27-28]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	106,63
CON [28-29]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	107,76
CON [29-30]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	108,58
CON [30-31]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	109,15
CON [31-32]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	109,52
CON [32-33]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	109,75
CON [27-34]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	109,40
CON [34-35]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	110,87
CON [35-36]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	112,00
CON [36-37]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	112,82
CON [37-38]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	113,38
CON [38-39]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	113,75
CON [39-40]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	113,98
CON [41-42]	Ø750	0,44179	750	8,418	71,776	10.252,8	6,45	42,78	5,02	47,80	89,98
CON [42-43]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	113,78
CON [43-44]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	114,91
CON [44-45]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	115,73
CON [45-46]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	116,30

CON [46-47]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	116,67
CON [47-48]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	116,90
CON [42-49]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	113,78
CON [49-50]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	114,91
CON [50-51]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	115,73
CON [51-52]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	116,30
CON [52-53]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	116,67
CON [53-54]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	116,90
CON [55-56]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [57-58]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 22										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [12]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	293,86
BI [13]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,79
BI [14]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	290,28
BI [15]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,74
BI [16]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	278,33
BI [19]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	294,07
BI [20]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,99
BI [21]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	290,49
BI [22]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,94
BI [23]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	278,53
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	82,76	211,30
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	86,88	207,18
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	88,80	205,26
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	90,18	203,89
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	89,81	204,26
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	100,63	193,43
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	73,44	220,63
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	78,53	215,53
BI [36]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	82,65	211,42
BI [37]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	84,57	209,50
BI [38]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	85,95	208,12
BI [39]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	85,58	208,49
BI [40]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	96,40	197,66
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	75,62	218,45

BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	79,73	214,33
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	81,65	212,41
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	83,03	211,04
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	82,66	211,41
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	93,48	200,58
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	75,62	218,45
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	79,73	214,33
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	81,65	212,41
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	83,03	211,04
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	82,66	211,41
BI [54]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	93,48	200,58
BR [56]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [58]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 22										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m³/h)	Nivel s. (dBA)	S Ent. (m²)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [10-11]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,20	145,06
CMP [17-18]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	145,06

SUBSISTEMA UTA 23

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 23					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	311,59	329,30	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			392,93	410,64	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 23											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	11,650	30,279	30.514,0	6,91	10,97	4,22	15,19	15,19

CON [6-7]	Ø1250	1,22718	1.250	2,033	649,969	9.154,0	2,07	26,32	0,08	26,41	41,60
CON [10-11]	Ø750	0,44179	750	25,489	103,135	9.154,0	5,76	50,01	12,36	62,37	103,97
CON [11-12]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	122,41
CON [13-14]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	215,18
CON [14-15]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	216,25
CON [15-16]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	216,97
CON [16-17]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	217,43
CON [17-18]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	217,71
CON [11-19]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	122,41
CON [20-21]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	215,18
CON [21-22]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	216,25
CON [22-23]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	216,97
CON [23-24]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	217,43
CON [24-25]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	217,71
CON [6-26]	Ø1250	1,22718	1.250	4,267	127,526	21.360,0	4,83	24,14	0,81	24,95	40,14
CON [26-27]	Ø750	0,44179	750	3,318	38,889	10.252,8	6,45	23,18	1,98	25,16	65,30
CON [27-28]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	89,10
CON [28-29]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	90,23
CON [29-30]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	91,05
CON [30-31]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	91,62
CON [31-32]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	91,98
CON [32-33]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	92,22
CON [27-34]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	89,10
CON [34-35]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	90,23
CON [35-36]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	91,05
CON [36-37]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	91,62
CON [37-38]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	91,98
CON [38-39]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	92,22
CON [26-40]	Ø1250	1,22718	1.250	10,000	14,098	11.107,2	2,51	0,81	0,58	1,39	41,53
CON [40-41]	Ø750	0,44179	750	3,318	12,364	11.107,2	6,98	8,52	2,29	10,81	52,34
CON [41-42]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	79,64
CON [42-43]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	80,76
CON [43-44]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	81,58
CON [44-45]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	82,15
CON [45-46]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	82,52
CON [46-47]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	82,75
CON [41-48]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	82,40
CON [48-49]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	83,87
CON [49-50]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	85,00
CON [50-51]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	85,82
CON [51-52]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	86,38
CON [52-53]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	86,75
CON [53-54]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	86,98
CON [55-56]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24

CON [57-58]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 23										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m³/h)	Q real (m³/h)	Nivel s. (dBA)	S Sal. (m²)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [14]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	329,30
BI [15]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	327,23
BI [16]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	325,72
BI [17]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	326,18
BI [18]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	313,77
BI [21]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	329,30
BI [22]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	327,23
BI [23]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	325,72
BI [24]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	326,18
BI [25]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	313,77
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	135,53	193,77
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	139,65	189,65
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	141,57	187,73
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	142,95	186,36
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	142,58	186,73
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	153,40	175,90
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	135,53	193,77
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	139,65	189,65
BI [36]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	141,57	187,73
BI [37]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	142,95	186,36
BI [38]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	142,58	186,73
BI [39]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	153,40	175,90
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	145,00	184,30
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	149,12	180,19
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	151,04	178,27
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	152,41	176,89
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	152,05	177,26
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	162,87	166,43
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	135,68	193,63
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	140,77	188,53
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	144,89	184,42
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	146,81	182,50
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	148,18	181,12
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	147,81	181,49

BI [54]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	158,64	170,67
BR [56]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [58]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 23										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m³/h)	Nivel s. (dBA)	S Ent. (m²)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [12-13]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	180,64
CMP [19-20]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	180,64

SUBSISTEMA UTA 24

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 24					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	317,71	335,42	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			399,05	416,76	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 24											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	15,908	74,122	30.514,0	6,91	26,86	5,76	32,62	32,62
CON [6-7]	Ø1250	1,22718	1.250	1,100	11,175	20.261,2	4,59	1,92	0,19	2,11	34,73
CON [10-11]	Ø750	0,44179	750	22,889	132,512	9.154,0	5,76	64,25	11,10	75,35	110,08
CON [11-12]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	128,52
CON [13-14]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	221,30
CON [14-15]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	222,37
CON [15-16]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	223,09
CON [16-17]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	223,55
CON [17-18]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	223,83
CON [11-19]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	128,52

CON [20-21]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	221,30
CON [21-22]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	222,37
CON [22-23]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	223,09
CON [23-24]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	223,55
CON [24-25]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	223,83
CON [7-26]	Ø1250	1,22718	1.250	8,900	13,483	11.107,2	2,51	0,78	0,51	1,29	36,02
CON [26-27]	Ø750	0,44179	750	3,318	12,364	11.107,2	6,98	8,52	2,29	10,81	46,83
CON [27-28]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	74,12
CON [28-29]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	75,25
CON [29-30]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	76,07
CON [30-31]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	76,64
CON [31-32]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	77,01
CON [32-33]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	77,24
CON [27-34]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	76,89
CON [34-35]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	78,36
CON [35-36]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	79,49
CON [36-37]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	80,31
CON [37-38]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	80,87
CON [38-39]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	81,24
CON [39-40]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	81,47
CON [6-41]	Ø750	0,44179	750	3,318	65,922	10.252,8	6,45	39,29	1,98	41,27	73,89
CON [41-42]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,69
CON [42-43]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	98,82
CON [43-44]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,64
CON [44-45]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,20
CON [45-46]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,57
CON [46-47]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,81
CON [41-48]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,69
CON [48-49]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	98,82
CON [49-50]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,64
CON [50-51]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,20
CON [51-52]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,57
CON [52-53]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,81
CON [54-55]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [56-57]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 24

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m³/h)	Q real (m³/h)	Nivel s. (dBA)	S Sal. (m²)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34

BI [14]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	335,42
BI [15]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	333,34
BI [16]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	331,84
BI [17]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	332,30
BI [18]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	319,88
BI [21]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	335,42
BI [22]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	333,34
BI [23]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	331,84
BI [24]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	332,30
BI [25]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	319,88
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	156,63	178,79
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	160,75	174,67
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	162,67	172,76
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	164,04	171,38
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	163,67	171,75
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	174,50	160,92
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	147,30	188,12
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	152,40	183,02
BI [36]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	156,51	178,91
BI [37]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	158,43	176,99
BI [38]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	159,81	175,61
BI [39]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	159,44	175,98
BI [40]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	170,27	165,15
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	133,06	202,36
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	137,18	198,24
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	139,10	196,32
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	140,47	194,95
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	140,11	195,31
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	150,93	184,49
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	133,06	202,36
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	137,18	198,24
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	139,10	196,32
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	140,47	194,95
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	140,11	195,31
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	150,93	184,49
BR [55]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [57]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 24										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m³/h)	Nivel s. (dBA)	S Ent. (m²)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [12-13]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	186,76
CMP [19-20]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	186,76

SUBSISTEMA UTA 25

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 25					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	318,71	336,42	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			400,04	417,75	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 25											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	16,283	74,122	30.514,0	6,91	26,86	5,90	32,76	32,76
CON [6-7]	Ø750	0,44179	750	3,318	65,922	10.252,8	6,45	39,29	1,98	41,27	74,02
CON [7-8]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,83
CON [8-9]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	98,96
CON [9-10]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,78
CON [10-11]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,34
CON [11-12]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,71
CON [12-13]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,94
CON [7-14]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,83
CON [14-15]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	98,96
CON [15-16]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,78
CON [16-17]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,34
CON [17-18]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,71
CON [18-19]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,94
CON [6-20]	Ø1250	1,22718	1.250	6,100	11,175	20.261,2	4,59	1,92	1,05	2,97	35,73
CON [20-21]	Ø1250	1,22718	1.250	3,900	13,483	11.107,2	2,51	0,78	0,22	1,00	36,73
CON [21-22]	Ø750	0,44179	750	3,318	12,364	11.107,2	6,98	8,52	2,29	10,81	47,54

CON [22-23]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	77,60
CON [23-24]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	79,06
CON [24-25]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	80,19
CON [25-26]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	81,01
CON [26-27]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	81,58
CON [27-28]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	81,95
CON [28-29]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	82,18
CON [22-30]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	74,83
CON [30-31]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	75,96
CON [31-32]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	76,78
CON [32-33]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	77,35
CON [33-34]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	77,71
CON [34-35]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	77,95
CON [38-39]	Ø750	0,44179	750	22,889	132,512	9.154,0	5,76	64,25	11,10	75,35	111,08
CON [39-40]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	129,52
CON [41-42]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	222,29
CON [42-43]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	223,36
CON [43-44]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	224,08
CON [44-45]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	224,54
CON [45-46]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	224,82
CON [39-47]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	129,52
CON [48-49]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	222,29
CON [49-50]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	223,36
CON [50-51]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	224,08
CON [51-52]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	224,54
CON [52-53]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	224,82
CON [54-55]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [56-57]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 25

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m³/h)	Q real (m³/h)	Nivel s. (dBA)	S Sal. (m²)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [8]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	133,92	202,49
BI [9]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	138,04	198,38
BI [10]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	139,96	196,46
BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	141,33	195,08
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	140,97	195,45
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	151,79	184,63
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	133,92	202,49

BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	138,04	198,38
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	139,96	196,46
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	141,33	195,08
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	140,97	195,45
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	151,79	184,63
BI [23]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	147,59	188,83
BI [24]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	152,69	183,73
BI [25]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	156,80	179,61
BI [26]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	158,72	177,69
BI [27]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	160,10	176,32
BI [28]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	159,73	176,69
BI [29]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	170,55	165,86
BI [30]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	156,92	179,50
BI [31]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	161,03	175,38
BI [32]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	162,95	173,46
BI [33]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	164,33	172,09
BI [34]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	163,96	172,46
BI [35]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	174,79	161,63
BI [42]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	336,42
BI [43]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	334,34
BI [44]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	332,84
BI [45]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	333,30
BI [46]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	320,88
BI [49]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	336,42
BI [50]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	334,34
BI [51]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	332,84
BI [52]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	333,30
BI [53]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	320,88
BR [55]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [57]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 25										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m^3/h)	Nivel s. (dBA)	S Ent. (m^2)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [40-41]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	187,75
CMP [47-48]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	187,75

SUBSISTEMA UTA 26

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 26					
	Caudal (m³/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	307,35	325,06	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			388,69	406,40	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 26											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m²)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m³/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [5-6]	Ø1250	1,22718	1.250	16,283	74,122	30.514,0	6,91	26,86	5,90	32,76	32,76
CON [6-7]	Ø1250	1,22718	1.250	10,000	11,175	20.261,2	4,59	1,92	1,72	3,64	36,40
CON [7-8]	Ø750	0,44179	750	3,318	34,565	11.107,2	6,98	23,83	2,29	26,12	62,52
CON [8-9]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	89,81
CON [9-10]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	90,94
CON [10-11]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	91,76
CON [11-12]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	92,32
CON [12-13]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	92,69
CON [13-14]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	92,92
CON [8-15]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	92,58
CON [15-16]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	94,04
CON [16-17]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	95,17
CON [17-18]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	95,99
CON [18-19]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	96,55
CON [19-20]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	96,92
CON [20-21]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	97,16
CON [7-22]	Ø1250	1,22718	1.250	3,500	20,126	9.154,0	2,07	0,82	0,14	0,96	37,36
CON [25-26]	Ø750	0,44179	750	25,489	103,135	9.154,0	5,76	50,01	12,36	62,37	99,72
CON [26-27]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	118,16
CON [28-29]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	210,94
CON [29-30]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	212,01
CON [30-31]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	212,73
CON [31-32]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	213,19
CON [32-33]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	213,47
CON [26-34]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	118,16
CON [35-36]	Ø600	0,28274	600	0,410	84,621	4.577,0	4,50	34,37	0,17	34,54	210,94
CON [36-37]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	212,01

CON [37-38]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	212,73
CON [38-39]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	213,19
CON [39-40]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	213,47
CON [6-41]	Ø750	0,44179	750	3,318	65,922	10.252,8	6,45	39,29	1,98	41,27	74,02
CON [41-42]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,83
CON [42-43]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	98,96
CON [43-44]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,78
CON [44-45]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,34
CON [45-46]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,71
CON [46-47]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,94
CON [41-48]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	97,83
CON [48-49]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	98,96
CON [49-50]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	99,78
CON [50-51]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	100,34
CON [51-52]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	100,71
CON [52-53]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	100,94
CON [54-55]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [56-57]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 26

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [9]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	130,59	194,48
BI [10]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	134,70	190,36
BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	136,62	188,44
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	138,00	187,06
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	137,63	187,43
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	148,45	176,61
BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	121,26	203,80
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	126,35	198,71
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	130,47	194,59
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	132,39	192,67
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	133,77	191,30
BI [20]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	133,40	191,66
BI [21]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	144,22	180,84
BI [29]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	325,06
BI [30]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	322,98
BI [31]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	321,48
BI [32]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	321,94

BI [33]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	309,52
BI [36]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	325,06
BI [37]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	322,98
BI [38]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	321,48
BI [39]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	321,94
BI [40]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	309,52
BI [42]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	122,57	202,49
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	126,68	198,38
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	128,60	196,46
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	129,98	195,08
BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	129,61	195,45
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	140,43	184,63
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	122,57	202,49
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	126,68	198,38
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	128,60	196,46
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	129,98	195,08
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	129,61	195,45
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	140,43	184,63
BR [55]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [57]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 26										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m^3/h)	Nivel s. (dBA)	S Ent. (m^2)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [27-28]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	176,40
CMP [34-35]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	176,40

SUBSISTEMA UTA 27

CARACTERÍSTICAS DEL VENTILADOR DEL SUBSISTEMA UTA 27					
	Caudal (m^3/h)	Velocidad (m/s)	Presión estática (Pa)	Presión total (Pa)	Temperatura aire (°C)
IMPULSIÓN	30.514,0	5,42	275,94	293,65	15,0
EXTRACCIÓN	30.514,0	4,24	47,08	36,27	26,0
ADMISIÓN	30.514,0	4,24	92,15	81,34	37,8
EXPULSIÓN	30.514,0	4,24	87,35	98,16	25,0
TOTAL			357,28	374,99	

DETALLE DEL CÁLCULO DE CONDUCTOS DEL SUBSISTEMA UTA 27											
Tramo	Dimensiones (Horz.xVert.) ó Ø (mm)	Área (m^2)	Ø eqv. (mm)	Long. (m)	Leqv. (m)	Caudal (m^3/h)	Veloc. (m/s)	DPs (Pa)	DPf (Pa)	DPc (Pa)	Pv (Pa)
CON [1-2]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,34	0,34	0,34
CON [6-7]	Ø1250	1,22718	1.250	21,383	85,828	30.514,0	6,91	31,10	7,75	38,85	38,85
CON [7-8]	Ø1250	1,22718	1.250	10,000	11,175	20.261,2	4,59	1,92	1,72	3,64	42,49
CON [9-10]	Ø750	0,44179	750	8,418	67,929	11.107,2	6,98	46,83	5,80	52,64	95,13
CON [10-11]	Ø600	0,28274	600	2,000	43,476	5.980,8	5,88	28,74	1,32	30,06	125,18
CON [11-12]	Ø600	0,28274	600	2,500	0,432	5.126,4	5,04	0,22	1,25	1,46	126,65
CON [12-13]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	127,78
CON [13-14]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	128,60
CON [14-15]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	129,16
CON [15-16]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	129,53
CON [16-17]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	129,76
CON [10-18]	Ø600	0,28274	600	2,000	52,661	5.126,4	5,04	26,29	1,00	27,29	122,42
CON [18-19]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	123,55
CON [19-20]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	124,37
CON [20-21]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	124,93
CON [21-22]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	125,30
CON [22-23]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	125,53
CON [8-24]	Ø1250	1,22718	1.250	6,521	20,126	9.154,0	2,07	0,82	0,26	1,08	43,57
CON [25-26]	Ø750	0,44179	750	8,558	41,977	9.154,0	5,76	20,35	4,15	24,50	68,07
CON [26-27]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,51
CON [28-29]	Ø600	0,28274	600	1,010	84,621	4.577,0	4,50	34,37	0,41	34,78	179,53
CON [29-30]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	180,60
CON [30-31]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,32
CON [31-32]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	181,78
CON [32-33]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	182,06
CON [26-34]	Ø600	0,28274	600	0,640	44,753	4.577,0	4,50	18,18	0,26	18,44	86,51
CON [35-36]	Ø600	0,28274	600	1,010	84,621	4.577,0	4,50	34,37	0,41	34,78	179,53
CON [36-37]	Ø600	0,28274	600	3,000	0,950	3.661,6	3,60	0,26	0,81	1,07	180,60
CON [37-38]	Ø600	0,28274	600	3,000	1,503	2.746,2	2,70	0,24	0,48	0,72	181,32
CON [38-39]	Ø600	0,28274	600	3,000	2,981	1.830,8	1,80	0,23	0,23	0,46	181,78
CON [39-40]	Ø600	0,28274	600	3,000	9,867	915,4	0,90	0,21	0,07	0,28	182,06
CON [41-42]	Ø750	0,44179	750	8,418	96,577	10.252,8	6,45	57,56	5,02	62,58	101,42
CON [42-43]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	125,23
CON [43-44]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	126,36
CON [44-45]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	127,18
CON [45-46]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	127,74
CON [46-47]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	128,11
CON [47-48]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	128,34

CON [42-49]	Ø600	0,28274	600	2,000	45,675	5.126,4	5,04	22,81	1,00	23,80	125,23
CON [49-50]	Ø600	0,28274	600	2,500	0,651	4.272,0	4,20	0,23	0,90	1,13	126,36
CON [50-51]	Ø600	0,28274	600	2,500	0,938	3.417,6	3,36	0,22	0,60	0,82	127,18
CON [51-52]	Ø600	0,28274	600	2,500	1,484	2.563,2	2,52	0,21	0,35	0,56	127,74
CON [52-53]	Ø600	0,28274	600	2,500	2,944	1.708,8	1,68	0,20	0,17	0,37	128,11
CON [53-54]	Ø600	0,28274	600	2,500	9,745	854,4	0,84	0,19	0,05	0,23	128,34
CON [55-56]	1000x2000	2,00000	1.522	1,800	0,000	30.514,0	4,24	0,00	0,24	0,24	0,24
CON [57-58]	1000x2000	2,00000	1.522	2,580	0,000	30.514,0	4,24	0,00	0,35	0,35	0,35

DETALLE DEL CÁLCULO DE UNIDADES TERMINALES DEL SUBSISTEMA UTA 27										
Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q Nom. (m^3/h)	Q real (m^3/h)	Nivel s. (dBA)	S Sal. (m^2)	V Sal. (m/s)	DPs (Pa)	DPb (Pa)	DPe (Pa)	DPv (Pa)
BR [2]	210-TA-1000x2000 B (Toma)	30.514,0	30.514,0	70	1,21000	7,01	0,00	81,00	0,00	81,34
BI [11]	DF-49 12	854,4	854,4	33	0,01840	12,90	28,54	82,69	57,24	236,41
BI [12]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	62,34	231,32
BI [13]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	66,45	227,20
BI [14]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	68,37	225,28
BI [15]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	69,75	223,90
BI [16]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	69,38	224,27
BI [17]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	80,20	213,45
BI [18]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	66,57	227,08
BI [19]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	70,68	222,97
BI [20]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	72,60	221,05
BI [21]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	73,98	219,67
BI [22]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	73,61	220,04
BI [23]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	84,44	209,22
BI [29]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	293,65
BI [30]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,57
BI [31]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	290,07
BI [32]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,53
BI [33]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	278,11
BI [36]	DF-49 12	915,4	915,4	35	0,01840	13,82	19,21	94,92	0,00	293,65
BI [37]	DF-49 12	915,4	915,4	35	0,01840	13,82	16,06	94,92	2,08	291,57
BI [38]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,58	290,07
BI [39]	DF-49 12	915,4	915,4	35	0,01840	13,82	13,84	94,92	3,12	290,53
BI [40]	DF-49 12	915,4	915,4	35	0,01840	13,82	1,14	94,92	15,54	278,11
BI [43]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	63,76	229,89
BI [44]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	67,88	225,78
BI [45]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	69,79	223,86

BI [46]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	71,17	222,48
BI [47]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	70,80	222,85
BI [48]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	81,63	212,02
BI [49]	DF-49 12	854,4	854,4	33	0,01840	12,90	21,98	82,69	63,76	229,89
BI [50]	DF-49 12	854,4	854,4	33	0,01840	12,90	16,73	82,69	67,88	225,78
BI [51]	DF-49 12	854,4	854,4	33	0,01840	12,90	13,99	82,69	69,79	223,86
BI [52]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	71,17	222,48
BI [53]	DF-49 12	854,4	854,4	33	0,01840	12,90	12,05	82,69	70,80	222,85
BI [54]	DF-49 12	854,4	854,4	33	0,01840	12,90	1,00	82,69	81,63	212,02
BR [56]	22-5 2000x1000 B	30.514,0	30.514,0	57	1,78520	4,75	0,00	36,03	0,00	36,27
BI [58]	210-TA-1000x2000 B (Expulsion)	30.514,0	30.514,0	66	1,21000	7,01	0,00	97,81	0,00	98,16

DETALLE DEL CÁLCULO DE COMPUERTAS DEL SUBSISTEMA UTA 27

Ref.	Dimensiones (Horz.xVert.) ó Ø (mm)	Q real (m^3/h)	Nivel s. (dBA)	S Ent. (m^2)	V Ent. (m/s)	V Paso (m/s)	DPs (Pa)	DPp (Pa)	DPe (Pa)	DPv (Pa)
CMP [27-28]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	144,74
CMP [34-35]	RCCK 400	4.577,0	56	0,12441	10,22 m/s	10,12 m/s	8,23	50,00	0,00	144,74

Abreviaturas

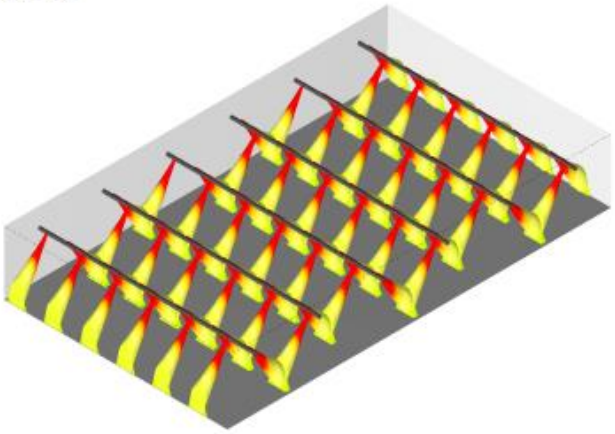
***Ø eqv.**: Diámetro equivalente*
***Long**: Longitud del conducto*
***Leqv**: Longitud equivalente de las transformaciones*
***Q Nom.**: Caudal nominal*
***Q real**: Caudal real*
***Nivel s.**: Nivel sonoro individual regenerado en el elemento*
***S Sal./S Ent.**: Área efectiva de salida/entrada*
***V Sal./V Ent.**: Velocidad de salida/entrada*

***DPf**: Pérdida de presión por fricción en conductos*
***DPs**: Pérdida de presión total en la transformación de entrada*
***DPc**: Pérdida de presión total en el tramo de conducto*
***DPb**: Pérdida de presión total en la unidad terminal o compuerta*
***DPe**: Pérdida de presión total en la compuerta de equilibrado*
***DPv**: Pérdida de presión total desde el ventilador*

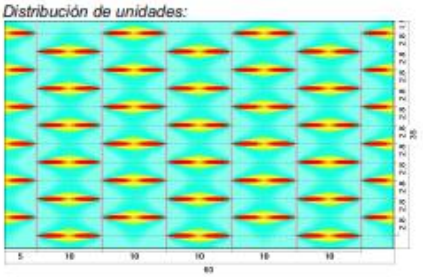
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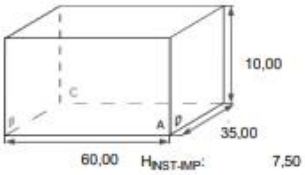
Planta alta – calor – Trat. Interior – DF – 49 – TR – 12 – INJ

Velocidad - 3D:

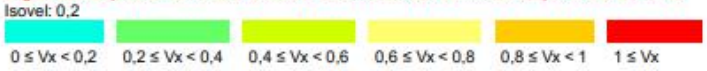


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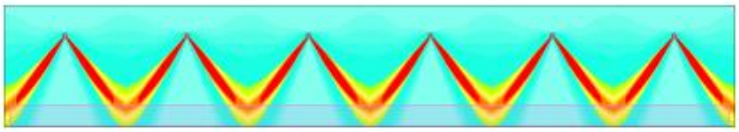




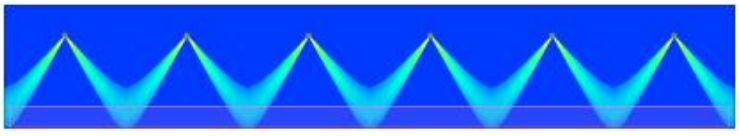
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Isovel: 0,2

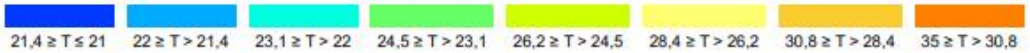


Velocidad - Alzado Sección A



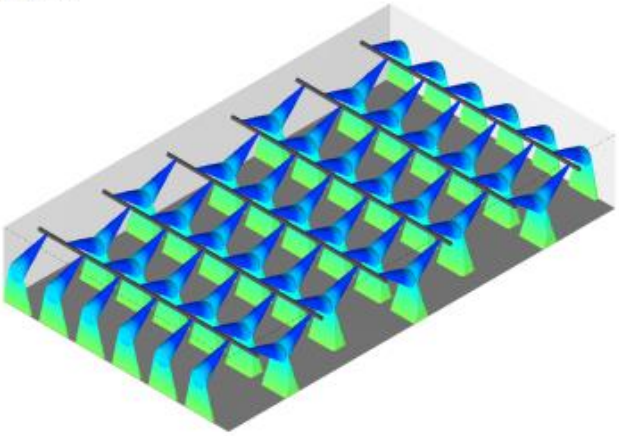
Temperatura - Alzado Sección A



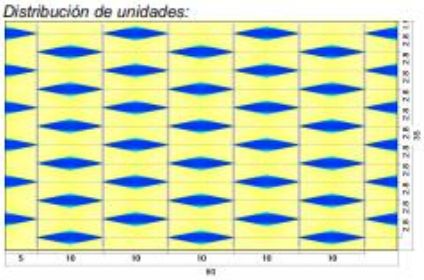


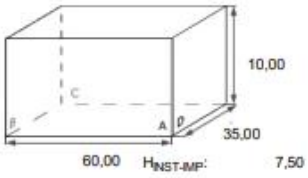
Planta alta – frio – Trat. Interior – DF – 49 – TR – 12 – INJ

Velocidad - 3D:

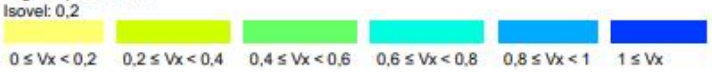


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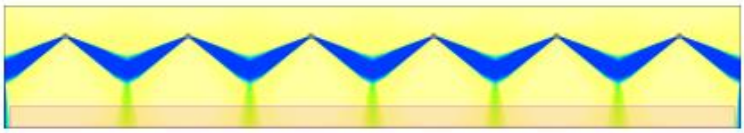




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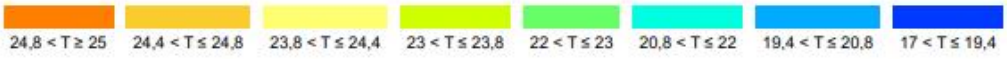


Velocidad - Alzado Sección A



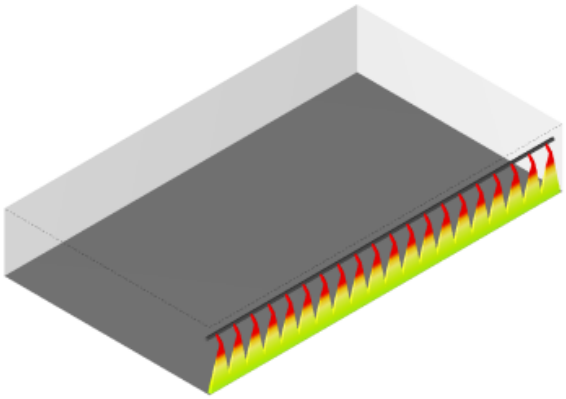
Temperatura - Alzado Sección A



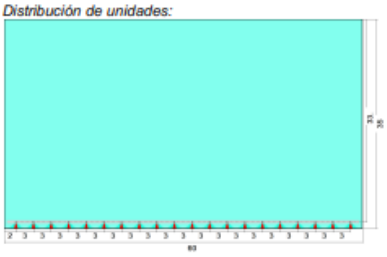


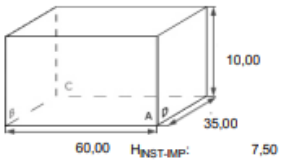
Planta alta – calor – Trat. Perimetral – DF – 49 – 12 – INJ

Velocidad - 3D:

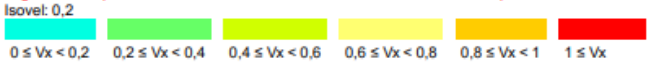


Distribución de unidades:

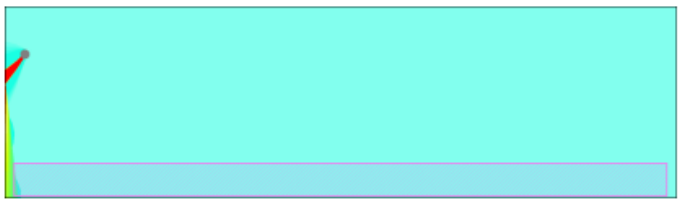




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Isovel: 0,2

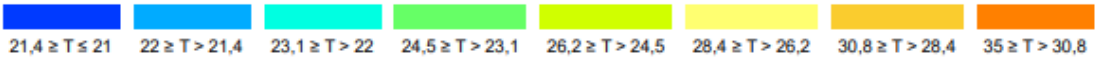


Velocidad - Alzado Sección D



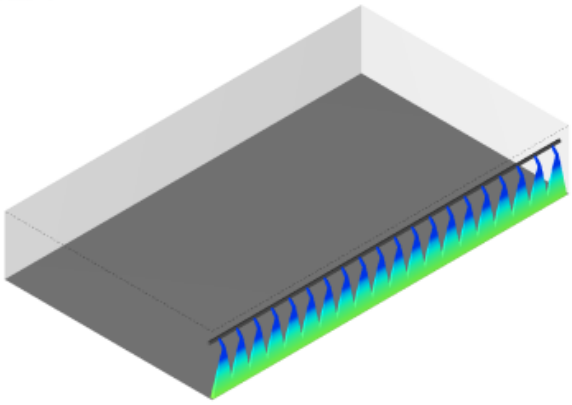
Temperatura - Alzado Sección D



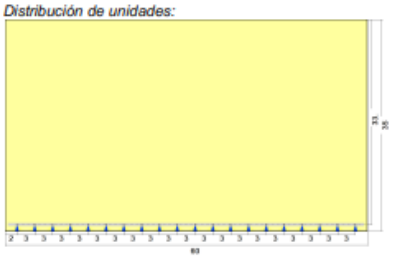


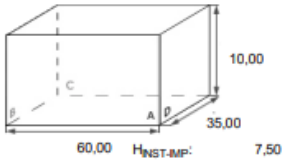
Planta alta – frio – Trat. Perimetral – DF – 49 – 12 – INJ

Velocidad - 3D:

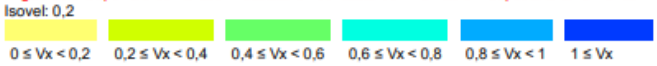


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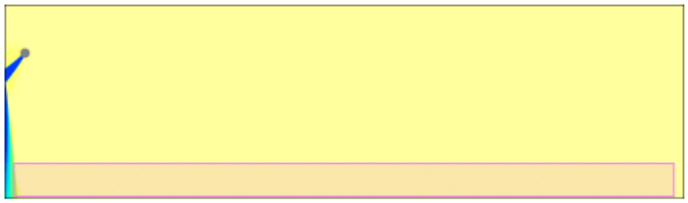




Ángulo apertura: -50
Ángulo sólo disponible con difusor instalado en conducto con inclinación respecto a la horizontal
Isovel: 0,2

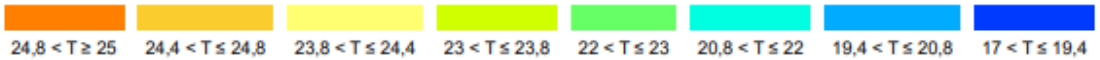


Velocidad - Alzado Sección D



Temperatura - Alzado Sección D





8.13.5. Dimensionado de los circuitos hidráulicos

A continuación, se describen los métodos de cálculo empleados para el dimensionado y la comprobación de los distintos tipos de dispositivos que componen los circuitos hidráulicos.

Método de cálculo para tuberías

El dimensionado de los tramos se hará de acuerdo con el procedimiento siguiente:

1. Determinación del caudal de cada tramo en función de la potencia y salto térmico de los emisores o baterías a las que alimenta:

$$Q = \frac{P}{C_e \cdot \gamma \cdot \Delta T}$$

Siendo:

- Q = Caudal, en dm^3/s;
- P = Potencia térmica en Kw;
- DT = Salto térmico entrada-salida, en K ó °C;
- g = Peso específico del fluido portador, en Kg/dm^3;
- C_e = Calor específico del fluido portador, en Kj/(Kg·K);
- Calor específico del agua a 15°C: 4,186 Kj/(Kg·K);

2. Elección de los parámetros para el dimensionado de los tramos:
   - Velocidad máxima del fluido 1,50 m/s.
   - Pérdida de carga lineal máxima admisible en las tuberías 20,0 mmca/m.
   - Diámetro inferior 10,00 mm.
3. Cálculo del diámetro interior necesario, en base a los parámetros de dimensionado definidos previamente, y selección del diámetro nominal correspondiente según el material utilizado en cada tramo.

Cálculo de pérdidas de presión

Las pérdidas de carga a lo largo de cada circuito hidráulico se calculan sumando las pérdidas individuales que se producen en cada uno de los dispositivos por dónde circula fluido portante, de acuerdo con las siguientes expresiones:

1. Pérdidas de carga por fricción según la fórmula de Prandtl-Colebrook.

$$V = -2 \cdot \sqrt{2 \cdot g \cdot D \cdot J} \cdot \log_{10}\left(\frac{k_a}{3'71 \cdot D} + \frac{2'51 \cdot \nu}{D \cdot \sqrt{2 \cdot g \cdot D \cdot J}}\right)$$

Siendo:

- J = Pérdida de carga, en m.c.a./m;
- D = Diámetro interior de la tubería, en m;
- V = Velocidad media del agua, en m/s;
- k_a = Rugosidad uniforme equivalente, en m.;
- □ = Viscosidad cinemática del fluido, (1,31x10-6 m^2/s para agua a 10°C);
- g = Aceleración de la gravedad, 9,8 m/s^2;

2. Pérdidas de carga en los accesorios, teniendo en cuenta un 25,0% de la longitud de cada tramo.
3. Las caídas de presión en las válvulas y en los restantes dispositivos de la instalación se calculan por medio de los gráficos del fabricante. En los casos en que es conocido el coeficiente Kvs se aplica de la siguiente forma:

$$J = \left(\frac{Q}{Kvs}\right)^2$$

Siendo:

- J = Pérdida de carga en válvulas, en bar;
- Q = Caudal, en m^3/h;

8.13.6. Aislamiento y pérdidas térmicas

El cálculo de los niveles de aislamiento térmico en tuberías se realiza por el procedimiento alternativo descrito en el RITE, IT 1.2.4.2.1.3. tomando como espesores mínimos los indicados en las tablas de la IT 1.2.4.2.1.2. Posteriormente se comprueba que las pérdidas térmicas no superen los niveles máximos admitidos en la IT 1.2.4.2.1.1.

Cuando se utilicen materiales de aislamiento térmico de conductividad distinta l_{ref} = 0,04 w/(m· K) a 10°C, se modificará el espesor mínimo d_{ref} obtenido en las tablas según la siguiente ecuación:

$$d = \frac{D}{2} \cdot \left[EXP\left(\frac{\lambda}{\lambda_{ref}} \cdot ln \frac{D + 2 \cdot d_{ref}}{D} \right) - 1 \right]$$

Donde

- *l* = Conductividad térmica del material aislante, en W/(m· K)
- D = Diámetro exterior de la tubería, en m

Las pérdidas térmicas en las tuberías se calculan según las indicaciones de la norma UNE-EN ISO 12241 tomando las condiciones de contorno expuestas en la publicación del IDAE "Comentarios al RITE 2007".

Cálculo de pérdidas térmicas en tuberías

El flujo de pérdidas de calor lineales *q* en una tubería viene dado por la expresión:

$$q = \frac{\theta_i - \theta_a}{R_T} \quad \mathrm{W/m}$$

$$R_T = R_{li} + R_l + R_{le} \quad \mathrm{m \cdot K/W}$$

Donde

- q_i = temperatura interior (temperatura del fluido), en °C
- q_a = temperatura ambiente, en °C
- R_{li}, R_{le} = resistencias térmicas lineales de las superficies interior y exterior, en m·K/W
- R_1 = resistencia térmica lineal del conjunto de capas, en m·K/W

En tuberías sin aislar tendremos una única capa constituida por el material de la tubería y de espesor igual a la pared del tubo, y para tuberías aisladas habrá una capa adicional formada por la coquilla del material aislante.

La resistencia térmica lineal de una capa cilíndrica se calcula según la expresión:

$$R_l = \frac{\ln \frac{D_e}{D_i}}{2 \cdot \pi \cdot \lambda} \quad \mathrm{m \cdot K/W}$$

Donde

- D_i = diámetro interior de la capa, en m
- D_e = diámetro exterior de la capa, en m
- λ = conductividad térmica del material, en W/(m·K)

Resistencia térmica superficial

La resistencia térmica lineal de la superficie interior R_{li} es prácticamente nula, ya que está en contacto directo con el fluido. Para el cálculo de la resistencia superficial exterior R_{le} utilizaremos los métodos descritos en el apartado 4.1.2 de la norma UNE-EN ISO 12241.

Para tuberías, la resistencia superficial térmica lineal viene dada por la expresión:

$$R_{le} = \frac{1}{h_{se} \cdot \pi \cdot D_e} \ \mathrm{m \cdot K / W}$$

Donde

- h_{se} = coeficiente superficial de transmisión de calor, en W/(m²·K)
- D_e = diámetro exterior total de la tubería, en m

El coeficiente superficial tiene una componente radiativa y otra convectiva:

$$h_{se} = h_r + h_{cv} \qquad \mathrm{W/(m^2 \cdot K)}$$

Coeficiente superficial debido a la radiación

La fracción radiactiva se puede calcular aproximadamente (hasta una diferencia de temperaturas de 200 K) por la expresión:

$$h_r = a_r \cdot C_r \quad \mathrm{W/(m^2 \cdot K)}$$

$$a_r \approx 4 \cdot (T_{av})^3 \quad \mathrm{K^3}$$

Donde

- T_{av} = 0,5·(temperatura superficial de la tubería + temperatura ambiente), K
- C_r = Coeficiente de radiación, en W/(m²·K⁴), tomándose los siguientes valores:

$0{,}74 \cdot 10^{-8}$ para tuberías metálicas no aisladas o para cualquier tipo de tubería aislada situada en el exterior de los edificios (se supone que la superficie exterior del aislamiento se cubrirá con una lámina metálica de protección).

$5{,}33 \cdot 10^{-8}$ para los restantes casos.

Coeficiente superficial debido a la convección

La norma UNE-EN ISO 12241 plantea varias ecuaciones para el cálculo de este coeficiente, de ellas utilizamos las siguientes:

Para tuberías situadas en el interior de los edificios, y dispuestas en posición vertical (su eje forma más de 60° con la horizontal):

$$h_{cv} = 1{,}32 \cdot \sqrt[4]{\frac{\Delta\theta}{D_e}} \qquad W/(m^2 \cdot K)$$

Para tuberías situadas en el interior de los edificios instaladas horizontalmente:

$$h_{cv} = 1{,}25 \cdot \sqrt[4]{\frac{\Delta\theta}{D_e}} \qquad W/(m^2 \cdot K)$$

Tuberías horizontales y verticales situadas en el exterior de los edificios:

Si el flujo de aire es laminar ($v \cdot D_e \leq 8{,}55 \cdot 10^{-3}$ m²/s)

$$h_{cv} = \frac{8{,}1 \times 10^{-3}}{D_e} + 3{,}14 \cdot \sqrt{\frac{v}{D_e}} \qquad W/(m^2 \cdot K)$$

Si el flujo de aire es turbulento ($v \cdot D_e > 8{,}55 \cdot 10^{-3}$ m²/s)

$$h_{cv} = 8{,}9 \cdot \frac{v^{0{,}9}}{D_e^{0{,}1}} \qquad W/(m^2 \cdot K)$$

Donde

- D_e = diámetro exterior total de la tubería (incluido el aislamiento térmico), en m
- Dq = diferencia entre la temperatura superficial de la tubería y la temperatura del ambiente que la rodea, en °C
- v = velocidad del viento, en m/s. Se toman los criterios expuestos en los "Comentarios al RITE 2007" editado por IDAE:

0,2 m/s en el interior de los edificios

4,0 m/s para fluidos calientes y tuberías situadas al exterior

1,0 m/s para fluidos fríos y tuberías situadas al exterior

Temperatura superficial

La temperatura que se alcanza en la superficie exterior de la tubería, o de su aislamiento térmico, se obtiene mediante la expresión:

$$\theta_{se} = \theta_a + \frac{(\theta_i - \theta_a)}{\frac{h_{se} \cdot D_e}{2 \cdot \lambda} \cdot \ln \frac{D_e}{D_i} + 1}$$

Cálculo para tuberías empotradas

Según norma UNE-EN ISO 12241 capítulo 8, considerando que la profundidad de empotramiento (desde la superficie del cerramiento al eje de la tubería) es igual a dos veces el diámetro exterior de la tubería, se obtendría una resistencia térmica del empotramiento igual a:

$$R_E = \frac{1}{2 \cdot \pi \cdot \lambda_E} \cdot \mathrm{In} \frac{4 \cdot H_E}{D_e} \qquad \mathrm{m \cdot K / W}$$

donde

- H_E = Distancia desde la superficie del cerramiento al eje de la tubería, se supone $H_E = 2 \cdot D_e$
- D_e = diámetro exterior total de la tubería (incluido el aislamiento térmico), en m
- l_E = conductividad térmica del material de empotramiento, se toma 0,55 W/(m·K) correspondiente a un mortero de cemento o a un enlucido de yeso.

8.13.7. Condiciones de contorno para el cálculo de las pérdidas térmicas

En el documento "Comentarios al RITE 2007" publicado por el IDAE se recomiendan las siguientes condiciones de contorno para el cálculo de las pérdidas térmicas en tuberías:

CONDICIONES DE CONTORNO PÉRDIDAS TÉRMICAS EN TUBERÍAS						
Fluido	**Tipo de ambiente**	**Temperatura seca (°C)**	**Humedad relativa (%)**	**Temperatura radiante media (°C)**	**Velocidad del aire (m/s)**	**Rad. solar (w/m²)**
Frío	Exterior	Percentil 1%+3°C	Percentil 1%	Percentil 1%+3°C	1,0	600,0 emitancia superf. 0,9
Frío	Interior climatizado	25	50	25	0,2	-
Frío	Interior no climatizado	28	40	28	0,2	-

CONDICIONES DE CONTORNO PÉRDIDAS TÉRMICAS EN TUBERÍAS						
Fluido	Tipo de ambiente	Temperatura seca (°C)	Humedad relativa (%)	Temperatura radiante media (°C)	Velocidad del aire (m/s)	Rad. solar (w/m²)
Frío	Aparcamientos y patinillos ventilados	32	40	32	0,2	-
Frío	Falsos techos y patinillos sin ventilar	27	40	27	0,2	-
Caliente	Exterior	Percentil 99%-3°C	Percentil 99%	Percentil 99%-3°C	4,0	0,0
Caliente	Interior climatizado	18	50	18	0,2	-
Caliente	Interior no climatizado	12	50	12	0,2	-
Caliente	Aparcamientos y patinillos ventilados	5	60	5	0,2	-
Caliente	Falsos techos y patinillos sin ventilar	18	50	18	0,2	-

8.13.8. Detalle de cálculo tuberías

Listado de resultados en las unidades terminales

A continuación, se relacionan los resultados del cálculo de las batería e intercambiadores térmicos de la instalación:

LISTADO DE BATERÍAS DEL CIRCUITO CIR CALOR PALTA (CALOR)							
Unidad	Potencia (kW)	Temperatura entrada/salida (°C)	Caudal agua (l/s)	Caída presión (bar)	Presión equilibrado (bar)	Potencia nominal (kW)	Marca/Modelo
UTA 16 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 17 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 18 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 19 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 20 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 21 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 22 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 23 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 24 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 25 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)

UTA 26 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)
UTA 27 C	32,130	60,0/50,0	0,768	0,00516	0,00000 (kv=0,000)	0,000	Conexión a batería de calor (horizontal)

LISTADO DE BATERÍAS DEL CIRCUITO CIR FRIO PALTA (FRÍO)							
Unidad	Potencia (kW)	Temperatura entrada/salida (°C)	Caudal agua (l/s)	Caída presión (bar)	Presión equilibrado (bar)	Potencia nominal (kW)	Marca/Modelo
UTA 16 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 17 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 18 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 19 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 20 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 21 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 22 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 23 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 24 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 25 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 26 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical
UTA 27 F	96,626	7,0/12,0	4,617	0,01764	0,00000 (kv=0,000)	0,000	Unidad de tratamiento de aire vertical

Camino crítico de presión

La selección de los equipos de propulsión de los fluidos portadores se ha realizado de forma que su rendimiento sea máximo en las condiciones calculadas de funcionamiento.

Las siguientes tablas detallan las pérdidas de presión hasta las unidades terminales más desfavorables (camino crítico) utilizadas para la selección del punto de trabajo de caudal y presión en los circuladores y grupos de bombeo:

CAMINO CRÍTICO DEL CIRCUITO CIR CALOR PALTA (CALOR)									
Tramo	Caudal (l/s)	Velocidad (m/s)	Diámetro Nominal	Tipo de Elemento	Pérdida unitaria (mmca/m)	Longitud (m)	Longitud equivalente (m), Ke ó Kv	Pérdidas tramo (bar)	Presión final (bar)
				CIR [138-1]				0,8627	3,3522
N1	9,211	1,12	ø125	TUB [1-2]	13,3	0,386	0,096 (Le)	0,00063	3,3515
N2	9,211	0,75	DN125	VCOR [2-3]	-	-	2,700 (Le)	0,00121	3,3503
N3	9,211	1,12	ø125	TUB [3-4]	13,3	0,957	0,239 (Le)	0,00155	3,3488
N4	9,211	1,12	ø125	TUB [4-5]	13,3	0,308	0,077 (Le)	0,00050	3,3483
N5	9,211	1,12	ø125	TUB [5-6]	13,3	3,823	0,956 (Le)	0,00621	3,3420
N6	9,211	1,12	ø125	TUB [6-7]	13,3	4,465	1,116 (Le)	0,00725	3,3348
N7	9,211	1,12	ø125	TUB [7-8]	13,3	1,086	0,272 (Le)	0,00176	3,3330
N8	9,211	1,12	ø125	TUB [8-9]	13,3	1,561	0,390 (Le)	0,00254	3,3305
N9	9,211	1,12	ø125	TUB [9-10]	13,3	16,850	4,212 (Le)	0,02737	3,3031
N10	9,211	1,12	ø125	TUB [10-11]	13,3	1,618	0,404 (Le)	0,00263	3,3005
N11	9,211	1,12	ø125	TUB [11-12]	13,3	0,329	0,082 (Le)	0,00054	3,3000
N12	9,211	1,12	ø125	TUB [12-13]	13,3	6,856	1,714 (Le)	0,01114	3,2888
N13	9,211	1,12	ø125	TUB [13-14]	13,3	18,954	4,739 (Le)	0,03079	3,2580
N14	9,211	1,12	ø125	TUB [14-15]	13,3	2,109	0,527 (Le)	0,00343	3,2546
N15	7,676	1,21	ø110	TUB [15-36]	17,6	3,339	0,835 (Le)	0,00721	3,2474
N36	4,605	1,08	ø90	TUB [36-37]	18,5	70,273	17,568 (Le)	0,15957	3,0878
N37	3,070	1,04	ø75	TUB [37-38]	21,4	14,321	3,580 (Le)	0,03761	3,0502
N38	2,303	0,78	ø75	TUB [38-39]	12,8	20,021	5,005 (Le)	0,03148	3,0188
N39	1,535	0,74	ø63	TUB [39-40]	14,6	20,014	5,004 (Le)	0,03589	2,9829
N40	0,768	0,59	ø50	TUB [40-41]	13,0	20,014	5,004 (Le)	0,03181	2,9510
N41	0,768	0,59	ø50	TUB [41-42]	13,0	2,281	0,570 (Le)	0,00363	2,9474
N42	0,768	0,39	DN50	VCOR [42-43]	-	-	1,800 (Le)	0,00079	2,9466
N43	0,768	0,59	ø50	TUB [43-44]	13,0	0,223	0,056 (Le)	0,00035	2,9463
N44	0,768	0,39	VCS2V DN50	VCTRL [44-45]	-	-	40,000 (Kv)	0,00477	2,9415
N45	0,768	0,59	ø50	TUB [45-46]	13,0	0,237	0,059 (Le)	0,00038	2,9411
N46	0,768	0,39	DN50	VCOR [46-47]	-	-	1,800 (Le)	0,00079	2,9403
N47	0,768	0,59	ø50	TUB [47-48]	13,0	0,200	0,050 (Le)	0,00032	2,9400
N48	0,768	0,59	ø50	TUB [48-49]	13,0	3,014	0,753 (Le)	0,00479	2,9352
N49	0,768	0,59	ø50	TUB [49-50]	13,0	0,762	0,190 (Le)	0,00121	2,9340
N50	0,768	-	-	UTA 27 C	-	-	-	0,00516	2,9289
N198	0,768	0,59	ø50	TUB [198-197]	13,0	0,260	0,065 (Le)	0,00041	2,9284
N197	0,768	0,59	ø50	TUB [197-196]	13,0	2,813	0,703 (Le)	0,00447	2,9240
N196	0,768	0,59	ø50	TUB [196-195]	13,0	0,200	0,050 (Le)	0,00032	2,9237
N195	0,768	0,39	DN50	VCOR [195-194]	-	-	1,800 (Le)	0,00079	2,9229
N194	0,768	0,59	ø50	TUB [194-193]	13,0	0,283	0,071 (Le)	0,00045	2,9224
N193	0,768	0,39	STAF-SG-50	VEQ [193-192]	-	-	33,000 (Kv)	0,00701	2,9154
N192	0,768	0,59	ø50	TUB [192-191]	13,0	2,066	0,517 (Le)	0,00328	2,9121
N191	0,768	0,59	ø50	TUB [191-190]	13,0	20,014	5,004 (Le)	0,03181	2,8803
N190	1,535	0,74	ø63	TUB [190-189]	14,6	20,014	5,004 (Le)	0,03589	2,8444
N189	2,303	0,78	ø75	TUB [189-188]	12,8	20,021	5,005 (Le)	0,03148	2,8129
N188	3,070	1,04	ø75	TUB [188-187]	21,4	14,026	3,507 (Le)	0,03683	2,7761
N187	4,605	1,08	ø90	TUB [187-186]	18,5	69,176	17,294 (Le)	0,15707	2,6190

N186	7,676	1,21	ø110	TUB [186-169]	17,6	3,627	0,907 (Le)	0,00783	2,6112
N169	9,211	1,12	ø125	TUB [169-168]	13,3	1,070	0,267 (Le)	0,00174	2,6095
N168	9,211	0,75	STAF-SG-125	VEQ [168-167]	-	-	294,000 (Kv)	0,01272	2,5967
N167	9,211	1,12	ø125	TUB [167-166]	13,3	1,150	0,288 (Le)	0,00187	2,5949
N166	9,211	1,12	ø125	TUB [166-165]	13,3	18,954	4,739 (Le)	0,03079	2,5641
N165	9,211	1,12	ø125	TUB [165-164]	13,3	6,626	1,657 (Le)	0,01076	2,5533
N164	9,211	1,12	ø125	TUB [164-163]	13,3	0,298	0,074 (Le)	0,00048	2,5528
N163	9,211	1,12	ø125	TUB [163-162]	13,3	2,123	0,531 (Le)	0,00345	2,5494
N162	9,211	1,12	ø125	TUB [162-161]	13,3	16,870	4,217 (Le)	0,02740	2,5220
N161	9,211	1,12	ø125	TUB [161-160]	13,3	1,536	0,384 (Le)	0,00250	2,5195
N160	9,211	1,12	ø125	TUB [160-159]	13,3	0,808	0,202 (Le)	0,00131	2,5182
N159	9,211	1,12	ø125	TUB [159-158]	13,3	1,793	0,448 (Le)	0,00291	2,5153
N158	9,211	1,12	ø125	TUB [158-157]	13,3	0,535	0,134 (Le)	0,00087	2,5144
N157	9,211	1,12	ø125	TUB [157-156]	13,3	4,465	1,116 (Le)	0,00725	2,5071
N156	9,211	1,12	ø125	TUB [156-155]	13,3	2,424	0,606 (Le)	0,00394	2,5032
N155	9,211	0,75	DN125	VCOR [155-154]	-	-	2,700 (Le)	0,00121	2,5020
N154	9,211	1,12	ø125	TUB [154-153]	13,3	0,600	0,150 (Le)	0,00097	2,5010
N153	9,211	0,69	ø160	TUB [153-152]	4,0	1,347	0,337 (Le)	0,00067	2,5004
N152	9,211	0,69	ø160	TUB [152-151]	4,0	0,924	0,231 (Le)	0,00046	2,4999
N151	9,211	0,52	DN150	VCOR [151-150]	-	-	3,000 (Le)	0,00056	2,4993
N150	9,211	0,69	ø160	TUB [150-149]	4,0	0,872	0,218 (Le)	0,00043	2,4989
N148	9,211	-	-	COL [149-148]	-	-	-	0,00235	2,4966
N148	9,211	0,69	ø160	TUB [148-147]	4,0	0,437	0,109 (Le)	0,00022	2,4963
N147	9,211	0,69	ø160	TUB [147-146]	4,0	1,231	0,308 (Le)	0,00061	2,4957
N146	9,211	0,69	ø160	TUB [146-145]	4,0	1,000	0,250 (Le)	0,00050	2,4952
N145	9,211	0,69	ø160	TUB [145-144]	4,0	0,724	0,181 (Le)	0,00036	2,4949
N144	9,211	0,52	DN150	VCOR [144-143]	-	-	3,000 (Le)	0,00056	2,4943
N143	9,211	0,69	ø160	TUB [143-142]	4,0	1,973	0,493 (Le)	0,00098	2,4933
N142	9,211	0,69	ø160	TUB [142-141]	4,0	1,851	0,463 (Le)	0,00092	2,4924
N141	9,211	1,12	ø125	TUB [141-140]	13,3	0,471	0,118 (Le)	0,00077	2,4917
N140	9,211	0,75	DN125	VCOR [140-139]	-	-	2,700 (Le)	0,00121	2,4904
N139	9,211	1,12	ø125	TUB [139-138]	13,3	0,623	0,156 (Le)	0,00101	2,4894
				CIR [138-1]				0,8627	3,3522

Condiciones de funcionamiento requeridas:

- Caudal requerido: 9,211 l/s
- Presión requerido: 0,8627 bar

CAMINO CRÍTICO DEL CIRCUITO CIR FRIO PALTA (FRÍO)									
Tramo	Caudal (l/s)	Velocidad (m/s)	Diámetro Nominal	Tipo de Elemento	Pérdida unitaria (mmca/m)	Longitud (m)	Longitud equivalente (m), Ke ó Kv	Pérdidas tramo (bar)	Presión final (bar)
				CIR [415-282]				0,7324	3,1717
N282	55,399	1,69	ø250	TUB [282-283]	12,0	0,386	0,096 (Le)	0,00057	3,1712
N283	55,399	1,13	DN250	VCOR [283-284]	-	-	5,800 (Le)	0,00235	3,1688
N284	55,399	1,69	ø250	TUB [284-285]	12,0	3,721	0,930 (Le)	0,00546	3,1634
N285	55,399	1,69	ø250	TUB [285-286]	12,0	1,111	0,278 (Le)	0,00163	3,1617
N286	55,399	1,69	ø250	TUB [286-287]	12,0	0,937	0,234 (Le)	0,00138	3,1604
N287	55,399	1,69	ø250	TUB [287-288]	12,0	4,465	1,116 (Le)	0,00655	3,1538
N288	55,399	1,69	ø250	TUB [288-289]	12,0	17,200	4,300 (Le)	0,02523	3,1286
N289	55,399	1,69	ø250	TUB [289-290]	12,0	6,826	1,707 (Le)	0,01001	3,1186
N290	55,399	1,69	ø250	TUB [290-291]	12,0	18,454	4,614 (Le)	0,02707	3,0915
N291	55,399	1,69	ø250	TUB [291-292]	12,0	2,109	0,527 (Le)	0,00309	3,0884
N292	46,166	1,40	ø250	TUB [292-313]	8,6	2,575	0,644 (Le)	0,00271	3,0857
N313	27,699	1,32	ø200	TUB [313-314]	10,0	70,273	17,568 (Le)	0,08624	2,9994
N314	18,466	1,37	ø160	TUB [314-335]	14,2	15,492	3,873 (Le)	0,02687	2,9726
N335	13,850	1,03	ø160	TUB [335-336]	8,4	20,021	5,005 (Le)	0,02066	2,9519
N336	9,233	1,13	ø125	TUB [336-337]	13,3	20,014	5,004 (Le)	0,03265	2,9193
N337	4,617	1,09	ø90	TUB [337-338]	18,6	20,014	5,004 (Le)	0,04564	2,8736
N338	4,617	1,09	ø90	TUB [338-339]	18,6	1,765	0,441 (Le)	0,00403	2,8696
N339	4,617	0,92	DN80	VCOR [339-340]	-	-	3,000 (Le)	0,00333	2,8662
N340	4,617	1,09	ø90	TUB [340-341]	18,6	0,223	0,056 (Le)	0,00051	2,8657
N341	4,617	0,92	VCS2V DN80	VCTRL [341-342]	-	-	100,000 (Kv)	0,02762	2,8381
N342	4,617	1,09	ø90	TUB [342-343]	18,6	0,184	0,046 (Le)	0,00042	2,8377
N343	4,617	0,92	DN80	VCOR [343-344]	-	-	3,000 (Le)	0,00333	2,8344
N344	4,617	1,09	ø90	TUB [344-345]	18,6	0,405	0,101 (Le)	0,00092	2,8334
N345	4,617	1,09	ø90	TUB [345-346]	18,6	2,514	0,629 (Le)	0,00573	2,8277
N346	4,617	1,09	ø90	TUB [346-347]	18,6	0,865	0,216 (Le)	0,00197	2,8257
N347	4,617	-	-	UTA 27 F	-	-	-	0,01764	2,8081
N485	4,617	1,09	ø90	TUB [485-484]	18,6	0,563	0,141 (Le)	0,00129	2,8068
N484	4,617	1,09	ø90	TUB [484-483]	18,6	2,314	0,578 (Le)	0,00528	2,8015
N483	4,617	1,09	ø90	TUB [483-482]	18,6	0,400	0,100 (Le)	0,00091	2,8006
N482	4,617	0,92	DN80	VCOR [482-481]	-	-	3,000 (Le)	0,00333	2,7973
N481	4,617	1,09	ø90	TUB [481-480]	18,6	0,210	0,053 (Le)	0,00048	2,7968
N480	4,617	0,92	STAF-SG-80	VEQ [480-479]	-	-	123,000 (Kv)	0,01826	2,7786
N479	4,617	1,09	ø90	TUB [479-478]	18,6	1,513	0,378 (Le)	0,00345	2,7751
N478	4,617	1,09	ø90	TUB [478-477]	18,6	20,014	5,004 (Le)	0,04564	2,7295
N477	9,233	1,13	ø125	TUB [477-476]	13,3	20,014	5,004 (Le)	0,03265	2,6968
N476	13,850	1,03	ø160	TUB [476-475]	8,4	20,021	5,005 (Le)	0,02066	2,6762
N475	18,466	1,37	ø160	TUB [475-458]	14,2	15,197	3,799 (Le)	0,02636	2,6498
N458	27,699	1,32	ø200	TUB [458-457]	10,0	69,176	17,294 (Le)	0,08489	2,5649
N457	46,166	1,40	ø250	TUB [457-440]	8,6	3,637	0,909 (Le)	0,00383	2,5611
N440	55,399	1,69	ø250	TUB [440-439]	12,0	0,711	0,178 (Le)	0,00104	2,5600
N439	55,399	1,13	STAF-SG-250	VEQ [439-438]	-	-	1185,000 (Kv)	0,02833	2,5317

N438	55,399	1,69	ø250	TUB [438-437]	12,0	1,150	0,288 (Le)	0,00169	2,5300
N437	55,399	1,69	ø250	TUB [437-436]	12,0	18,454	4,614 (Le)	0,02707	2,5029
N436	55,399	1,69	ø250	TUB [436-435]	12,0	6,415	1,604 (Le)	0,00941	2,4935
N435	55,399	1,69	ø250	TUB [435-434]	12,0	16,735	4,184 (Le)	0,02455	2,4690
N434	55,399	1,69	ø250	TUB [434-433]	12,0	4,465	1,116 (Le)	0,00655	2,4624
N433	55,399	1,69	ø250	TUB [433-432]	12,0	2,302	0,576 (Le)	0,00338	2,4591
N432	55,399	1,13	DN250	VCOR [432-431]	-	-	5,800 (Le)	0,00235	2,4567
N431	55,399	1,69	ø250	TUB [431-430]	12,0	0,600	0,150 (Le)	0,00088	2,4558
N430	55,399	1,06	ø315	TUB [430-429]	3,9	1,560	0,390 (Le)	0,00075	2,4551
N429	55,399	1,06	ø315	TUB [429-428]	3,9	0,800	0,200 (Le)	0,00038	2,4547
N428	55,399	0,78	DN300	VCOR [428-427]	-	-	6,400 (Le)	0,00108	2,4536
N427	55,399	1,06	ø315	TUB [427-426]	3,9	0,872	0,218 (Le)	0,00042	2,4532
N425	55,399	-	-	COL [426-425]	-	-	-	0,00562	2,4476
N425	55,399	1,06	ø315	TUB [425-424]	3,9	0,437	0,109 (Le)	0,00021	2,4474
N424	55,399	1,06	ø315	TUB [424-423]	3,9	1,231	0,308 (Le)	0,00059	2,4468
N423	55,399	1,06	ø315	TUB [423-422]	3,9	1,000	0,250 (Le)	0,00048	2,4463
N422	55,399	1,06	ø315	TUB [422-421]	3,9	0,600	0,150 (Le)	0,00029	2,4460
N421	55,399	0,78	DN300	VCOR [421-420]	-	-	6,400 (Le)	0,00108	2,4449
N420	55,399	1,06	ø315	TUB [420-419]	3,9	1,973	0,493 (Le)	0,00095	2,4440
N419	55,399	1,06	ø315	TUB [419-418]	3,9	1,851	0,463 (Le)	0,00089	2,4431
N418	55,399	1,69	ø250	TUB [418-417]	12,0	0,471	0,118 (Le)	0,00069	2,4424
N417	55,399	1,13	DN250	VCOR [417-416]	-	-	5,800 (Le)	0,00235	2,4401
N416	55,399	1,69	ø250	TUB [416-415]	12,0	0,520	0,130 (Le)	0,00076	2,4393
				CIR [415-282]				0,7324	3,1717

Condiciones de funcionamiento requeridas:

- Caudal requerido: 55,399 l/s
- Presión requerido: 0,7324 bar

Listado de pérdidas térmicas en tuberías

Se justifica el cumplimiento de la *IT 1.2.4.2.1. Aislamiento térmico de redes de tuberías* mediante el Procedimiento alternativo descrito en la *IT 1.2.4.2.1.3.*, tomando como mínimo los espesores de las tablas del procedimiento simplificado *IT 1.2.4.2.1.2.*

El método de cálculo está basado en la norma *UNE-EN-ISO 12241* y tiene en consideración los siguientes factores:

- El diámetro exterior de la tubería.
- La temperatura del fluido, máxima o mínima.
- Las condiciones del ambiente donde está instalada la tubería, como temperatura seca, mínima o máxima respectivamente, la velocidad media del aire y, en el caso de fluidos fríos, la temperatura de rocío y la radiación solar.

- La conductividad térmica del material aislante que se pretende emplear a la temperatura media de funcionamiento del fluido.
- El coeficiente superficial exterior, convectivo y radiante, de transmisión de calor, considerando la emitancia del acabado y la velocidad media del aire.
- La situación de las superficies, vertical u horizontal.
- la resistencia térmica del material de la tubería.

A continuación, se detallan los resultados del cálculo de las pérdidas térmicas en cada circuito cerrado de intercambio.

LISTADO DE PÉRDIDAS TÉRMICAS EN EL CIRCUITO CIR CALOR PALTA (CALOR)									
Referencia	Diámetro nominal	l aislamiento (W/m·°C)	Espesor aislamiento (mm)	Situación, instalación y posición	Temperatura fluido/ambiente (°C)	Coeficiente transmisión (W/m·°C)	Longitud del tramo (m)	Pérdida térmicas (W)	Temperatura superficial (°C)
TUB [1-2]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	0,386	6,7	27,3
TUB [10-11]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	1,618	28,3	27,3
TUB [100-101]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [102-103]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [104-105]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [105-106]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [106-107]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [108-109]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	1,942	18,6	25,6
TUB [108-118]	ø63	0,0400	35,00	FT/H	60,0 / 18,0	0,2631	20,014	221,2	25,9
TUB [11-12]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	0,329	5,8	27,3
TUB [110-111]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [112-113]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [114-115]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [115-116]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [116-117]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [118-119]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	1,942	18,6	25,6
TUB [118-128]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	20,014	191,8	25,6
TUB [12-13]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	6,856	119,8	27,3
TUB [120-121]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [122-123]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [124-125]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [125-126]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [126-127]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [128-129]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	1,942	18,6	25,6
TUB [13-14]	ø125	0,0400	35,00	FT/V	60,0 / 18,0	0,4199	18,954	334,3	26,9
TUB [130-131]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [132-133]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [134-135]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6

TUB [135-136]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [136-137]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [139-138]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	0,623	10,9	27,3
TUB [14-15]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	2,109	36,9	27,3
TUB [141-140]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	0,471	8,2	27,3
TUB [142-141]	ø160	0,0400	40,00	FT/H	60,0 / 18,0	0,4587	1,851	35,7	26,9
TUB [143-142]	ø160	0,0400	40,00	FT/H	60,0 / 18,0	0,4587	1,973	38,0	26,9
TUB [145-144]	ø160	0,0400	40,00	FT/H	60,0 / 18,0	0,4587	0,724	13,9	26,9
TUB [146-145]	ø160	0,0400	40,00	FT/V	60,0 / 18,0	0,4628	1,000	19,4	26,6
TUB [147-146]	ø160	0,0400	40,00	FT/H	60,0 / 18,0	0,4587	1,231	23,7	26,9
TUB [148-147]	ø160	0,0400	40,00	FT/H	60,0 / 18,0	0,4587	0,437	8,4	26,9
TUB [15-16]	ø63	0,0400	35,00	FT/H	60,0 / 18,0	0,2631	2,289	25,3	25,9
TUB [15-36]	ø110	0,0400	35,00	FT/H	60,0 / 18,0	0,3805	3,339	53,4	27,0
TUB [150-149]	ø160	0,0400	40,00	FT/H	50,0 / 18,0	0,4530	0,872	12,6	25,1
TUB [152-151]	ø160	0,0400	40,00	FT/H	50,0 / 18,0	0,4530	0,924	13,4	25,1
TUB [153-152]	ø160	0,0400	40,00	FT/H	50,0 / 18,0	0,4530	1,347	19,5	25,1
TUB [154-153]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	0,600	7,9	25,4
TUB [156-155]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	2,424	31,8	25,4
TUB [157-156]	ø125	0,0400	35,00	FT/V	50,0 / 18,0	0,4146	4,465	59,2	25,2
TUB [158-157]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	0,535	7,0	25,4
TUB [159-158]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	1,793	23,5	25,4
TUB [16-17]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	1,942	18,6	25,6
TUB [16-26]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	20,085	192,5	25,6
TUB [160-159]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	0,808	10,6	25,4
TUB [161-160]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	1,536	20,2	25,4
TUB [162-161]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	16,870	221,6	25,4
TUB [163-162]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	2,123	27,9	25,4
TUB [164-163]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	0,298	3,9	25,4
TUB [165-164]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	6,626	87,0	25,4
TUB [166-165]	ø125	0,0400	35,00	FT/V	50,0 / 18,0	0,4146	18,954	251,5	25,2
TUB [167-166]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	1,150	15,1	25,4
TUB [169-168]	ø125	0,0400	35,00	FT/H	50,0 / 18,0	0,4105	1,070	14,1	25,4
TUB [170-169]	ø63	0,0400	35,00	FT/H	50,0 / 18,0	0,2602	2,296	19,1	24,3
TUB [171-170]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	1,883	13,6	24,0
TUB [173-172]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [175-174]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [176-175]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [177-176]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [178-170]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	20,085	145,1	24,0
TUB [179-178]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	1,883	13,6	24,0
TUB [18-19]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [181-180]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [183-182]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [184-183]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [185-184]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [186-169]	ø110	0,0400	35,00	FT/H	50,0 / 18,0	0,3756	3,627	43,6	25,2
TUB [187-186]	ø90	0,0400	35,00	FT/H	50,0 / 18,0	0,3277	69,176	725,5	24,9
TUB [188-187]	ø75	0,0400	35,00	FT/H	50,0 / 18,0	0,2908	14,026	130,5	24,6
TUB [189-188]	ø75	0,0400	35,00	FT/H	50,0 / 18,0	0,2908	20,021	186,3	24,6
TUB [190-189]	ø63	0,0400	35,00	FT/H	50,0 / 18,0	0,2602	20,014	166,6	24,3

TUB [191-190]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	20,014	144,6	24,0
TUB [192-191]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	2,066	14,9	24,0
TUB [194-193]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [196-195]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [197-196]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [198-197]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [199-190]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	2,066	14,9	24,0
TUB [20-21]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [201-200]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [203-202]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [204-203]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [205-204]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [206-189]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	2,066	14,9	24,0
TUB [208-207]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [210-209]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [211-210]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [212-211]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [213-188]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	2,066	14,9	24,0
TUB [215-214]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [217-216]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [218-217]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [219-218]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [22-23]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [220-187]	ø63	0,0400	35,00	FT/H	50,0 / 18,0	0,2602	5,923	49,3	24,3
TUB [221-220]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	20,085	145,1	24,0
TUB [222-221]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	2,066	14,9	24,0
TUB [224-223]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [226-225]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [227-226]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [228-227]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [229-220]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	2,066	14,9	24,0
TUB [23-24]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [231-230]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [233-232]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [234-233]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [235-234]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [236-186]	ø75	0,0400	35,00	FT/H	50,0 / 18,0	0,2908	14,026	130,5	24,6
TUB [237-236]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	1,883	13,6	24,0
TUB [239-238]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [24-25]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [241-240]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [242-241]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [243-242]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [244-236]	ø75	0,0400	35,00	FT/H	50,0 / 18,0	0,2908	20,021	186,3	24,6
TUB [245-244]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	1,883	13,6	24,0
TUB [247-246]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [249-248]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [250-249]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [251-250]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [252-244]	ø63	0,0400	35,00	FT/H	50,0 / 18,0	0,2602	20,014	166,6	24,3

TUB [253-252]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	1,883	13,6	24,0
TUB [255-254]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [257-256]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [258-257]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [259-258]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [26-27]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	1,942	18,6	25,6
TUB [260-252]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	20,014	144,6	24,0
TUB [261-260]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	1,883	13,6	24,0
TUB [263-262]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,283	2,0	24,0
TUB [265-264]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,200	1,4	24,0
TUB [266-265]	ø50	0,0400	35,00	FT/V	50,0 / 18,0	0,2277	2,813	20,5	23,8
TUB [267-266]	ø50	0,0400	35,00	FT/H	50,0 / 18,0	0,2257	0,260	1,9	24,0
TUB [28-29]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [3-4]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	0,957	16,7	27,3
TUB [30-31]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [32-33]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [33-34]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [34-35]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [36-37]	ø90	0,0400	35,00	FT/H	60,0 / 18,0	0,3318	70,273	979,3	26,6
TUB [36-98]	ø75	0,0400	35,00	FT/H	60,0 / 18,0	0,2942	14,321	177,0	26,3
TUB [37-38]	ø75	0,0400	35,00	FT/H	60,0 / 18,0	0,2942	14,321	177,0	26,3
TUB [37-78]	ø63	0,0400	35,00	FT/H	60,0 / 18,0	0,2631	5,628	62,2	25,9
TUB [38-39]	ø75	0,0400	35,00	FT/H	60,0 / 18,0	0,2942	20,021	247,4	26,3
TUB [38-69]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	2,281	21,9	25,6
TUB [39-40]	ø63	0,0400	35,00	FT/H	60,0 / 18,0	0,2631	20,014	221,2	25,9
TUB [39-60]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	2,281	21,9	25,6
TUB [4-5]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	0,308	5,4	27,3
TUB [40-41]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	20,014	191,8	25,6
TUB [40-51]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	2,281	21,9	25,6
TUB [41-42]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	2,281	21,9	25,6
TUB [43-44]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [45-46]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [47-48]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [48-49]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [49-50]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [5-6]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	3,823	66,8	27,3
TUB [52-53]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [54-55]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [56-57]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [57-58]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [58-59]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [6-7]	ø125	0,0400	35,00	FT/V	60,0 / 18,0	0,4199	4,465	78,7	26,9
TUB [61-62]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [63-64]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [65-66]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [66-67]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [67-68]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [7-8]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	1,086	19,0	27,3
TUB [70-71]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [72-73]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6

TUB [74-75]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [75-76]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [76-77]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [78-79]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	20,085	192,5	25,6
TUB [78-89]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	2,281	21,9	25,6
TUB [79-80]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	2,281	21,9	25,6
TUB [8-9]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	1,561	27,3	27,3
TUB [81-82]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [83-84]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [85-86]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [86-87]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [87-88]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [9-10]	ø125	0,0400	35,00	FT/H	60,0 / 18,0	0,4160	16,850	294,4	27,3
TUB [90-91]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,223	2,1	25,6
TUB [92-93]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,237	2,3	25,6
TUB [94-95]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,200	1,9	25,6
TUB [95-96]	ø50	0,0400	35,00	FT/V	60,0 / 18,0	0,2300	3,014	29,1	25,3
TUB [96-97]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	0,762	7,3	25,6
TUB [98-108]	ø75	0,0400	35,00	FT/H	60,0 / 18,0	0,2942	20,021	247,4	26,3
TUB [98-99]	ø50	0,0400	35,00	FT/H	60,0 / 18,0	0,2282	1,942	18,6	25,6
Pérdidas totales (Pt)	Coeficiente de seguridad en pérdidas térmicas 5,0%							9.267,4	

Potencia térmica transportada en el circuito «CIR CALOR PALTA»:

$$Pv = \rho \cdot Cp \cdot Qn \cdot (Tr - Ti) = 385.560,0 \text{ W}$$

Porcentaje de pérdidas térmicas en el subsistema:

$$Pt / Pv \cdot 100,0 = 9.267,4 / 385.560,0 \cdot 100,0 = \mathbf{2,40\ \%} < 4\ \%$$

Dónde:

- *ρ = Densidad del agua 1000 Kg/m³*
- *Cp = Capacidad calorífica del agua 4184 J/(kg·K)*
- *Qn = Caudal de diseño del circulador 9,211 l/s*
- *Tr = Temperatura del agua en el retorno 50,0 °C*
- *Ti = Temperatura del agua en la ida 60,0 °C*

LISTADO DE PÉRDIDAS TÉRMICAS EN EL CIRCUITO CIR FRIO PALTA (FRÍO)									
Referencia	Diámetro nominal	l aislamiento (W/m·°C)	Espesor aislamiento (mm)	Situación, instalación y posición	Temperatura fluido/ambiente (°C)	Coeficiente transmisión (W/m·°C)	Longitud del tramo (m)	Pérdida térmicas (W)	Temperatura superficial (°C)
TUB [282-283]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	0,386	4,7	21,7
TUB [284-285]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	3,721	45,6	21,7
TUB [285-286]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	1,111	13,6	21,7
TUB [286-287]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	0,937	11,5	21,7
TUB [287-288]	ø250	0,0400	40,00	FT/V	7,0 / 27,0	0,6238	4,465	55,7	22,0

TUB [288-289]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	17,200	210,8	21,7
TUB [289-290]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	6,826	83,7	21,7
TUB [290-291]	ø250	0,0400	40,00	FT/V	7,0 / 27,0	0,6238	18,454	230,2	22,0
TUB [291-292]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	2,109	25,9	21,7
TUB [292-293]	ø125	0,0400	40,00	FT/H	7,0 / 27,0	0,3720	1,882	14,0	22,4
TUB [292-313]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	2,575	31,6	21,7
TUB [293-294]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	20,085	139,9	21,8
TUB [293-304]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,425	9,9	21,8
TUB [294-295]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,425	9,9	21,8
TUB [296-297]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [298-299]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [300-301]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [301-302]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [302-303]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [305-306]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [307-308]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [309-310]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [310-311]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [311-312]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [313-314]	ø200	0,0400	40,00	FT/H	7,0 / 27,0	0,5240	70,273	736,4	22,1
TUB [313-375]	ø160	0,0400	40,00	FT/H	7,0 / 27,0	0,4433	15,492	137,4	22,2
TUB [314-315]	ø125	0,0400	40,00	FT/H	7,0 / 27,0	0,3720	4,458	33,2	22,4
TUB [314-335]	ø160	0,0400	40,00	FT/H	7,0 / 27,0	0,4433	15,492	137,4	22,2
TUB [315-316]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	20,085	139,9	21,8
TUB [315-326]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,765	12,3	21,8
TUB [316-317]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,765	12,3	21,8
TUB [318-319]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [320-321]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [322-323]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [323-324]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [324-325]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [327-328]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [329-330]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [331-332]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [332-333]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [333-334]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [335-336]	ø160	0,0400	40,00	FT/H	7,0 / 27,0	0,4433	20,021	177,5	22,2
TUB [335-366]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,765	12,3	21,8
TUB [336-337]	ø125	0,0400	40,00	FT/H	7,0 / 27,0	0,3720	20,014	148,9	22,4
TUB [336-357]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,765	12,3	21,8
TUB [337-338]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	20,014	139,4	21,8
TUB [337-348]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,765	12,3	21,8
TUB [338-339]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,765	12,3	21,8
TUB [340-341]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [342-343]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [344-345]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [345-346]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [346-347]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [349-350]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [351-352]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8

TUB [353-354]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [354-355]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [355-356]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [358-359]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [360-361]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [362-363]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [363-364]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [364-365]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [367-368]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [369-370]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [371-372]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [372-373]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [373-374]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [375-376]	ø160	0,0400	40,00	FT/H	7,0 / 27,0	0,4433	20,021	177,5	22,2
TUB [375-406]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,425	9,9	21,8
TUB [376-377]	ø125	0,0400	40,00	FT/H	7,0 / 27,0	0,3720	20,014	148,9	22,4
TUB [376-397]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,425	9,9	21,8
TUB [377-378]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	20,014	139,4	21,8
TUB [377-388]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,425	9,9	21,8
TUB [378-379]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	1,425	9,9	21,8
TUB [380-381]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [382-383]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [384-385]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [385-386]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [386-387]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [389-390]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [391-392]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [393-394]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [394-395]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [395-396]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [398-399]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [400-401]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [402-403]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [403-404]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [404-405]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [407-408]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,223	1,6	21,8
TUB [409-410]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,184	1,3	21,8
TUB [411-412]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,405	2,8	21,8
TUB [412-413]	ø90	0,0400	30,00	FT/V	7,0 / 27,0	0,3535	2,514	17,8	22,1
TUB [413-414]	ø90	0,0400	30,00	FT/H	7,0 / 27,0	0,3482	0,865	6,0	21,8
TUB [416-415]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	0,520	6,4	21,7
TUB [418-417]	ø250	0,0400	40,00	FT/H	7,0 / 27,0	0,6129	0,471	5,8	21,7
TUB [419-418]	ø315	0,0400	40,00	FT/H	7,0 / 27,0	0,7282	1,851	27,0	21,5
TUB [420-419]	ø315	0,0400	40,00	FT/H	7,0 / 27,0	0,7282	1,973	28,7	21,5
TUB [422-421]	ø315	0,0400	40,00	FT/H	7,0 / 27,0	0,7282	0,600	8,7	21,5
TUB [423-422]	ø315	0,0400	40,00	FT/V	7,0 / 27,0	0,7375	1,000	14,7	21,7
TUB [424-423]	ø315	0,0400	40,00	FT/H	7,0 / 27,0	0,7282	1,231	17,9	21,5
TUB [425-424]	ø315	0,0400	40,00	FT/H	7,0 / 27,0	0,7282	0,437	6,4	21,5
TUB [427-426]	ø315	0,0400	40,00	FT/H	12,0 / 27,0	0,7176	0,872	9,4	22,7
TUB [429-428]	ø315	0,0400	40,00	FT/H	12,0 / 27,0	0,7176	0,800	8,6	22,7

TUB [430-429]	ø315	0,0400	40,00	FT/H	12,0 / 27,0	0,7176	1,560	16,8	22,7
TUB [431-430]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	0,600	5,4	22,9
TUB [433-432]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	2,302	20,9	22,9
TUB [434-433]	ø250	0,0400	40,00	FT/V	12,0 / 27,0	0,6111	4,465	40,9	23,0
TUB [435-434]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	16,735	151,7	22,9
TUB [436-435]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	6,415	58,2	22,9
TUB [437-436]	ø250	0,0400	40,00	FT/V	12,0 / 27,0	0,6111	18,454	169,2	23,0
TUB [438-437]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	1,150	10,4	22,9
TUB [440-439]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	0,711	6,4	22,9
TUB [441-440]	ø125	0,0400	40,00	FT/H	12,0 / 27,0	0,3675	1,116	6,2	23,4
TUB [442-441]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	20,085	103,1	22,9
TUB [443-442]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,330	6,8	22,9
TUB [445-444]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [447-446]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [448-447]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [449-448]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [450-441]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,330	6,8	22,9
TUB [452-451]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [454-453]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [455-454]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [456-455]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [457-440]	ø250	0,0400	40,00	FT/H	12,0 / 27,0	0,6043	3,637	33,0	22,9
TUB [458-457]	ø200	0,0400	40,00	FT/H	12,0 / 27,0	0,5130	69,176	532,3	23,1
TUB [459-458]	ø125	0,0400	40,00	FT/H	12,0 / 27,0	0,3675	4,753	26,2	23,4
TUB [460-459]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	20,085	103,1	22,9
TUB [461-460]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,513	7,8	22,9
TUB [463-462]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [465-464]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [466-465]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [467-466]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [468-459]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,513	7,8	22,9
TUB [470-469]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [472-471]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [473-472]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [474-473]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [475-458]	ø160	0,0400	40,00	FT/H	12,0 / 27,0	0,4368	15,197	99,6	23,2
TUB [476-475]	ø160	0,0400	40,00	FT/H	12,0 / 27,0	0,4368	20,021	131,2	23,2
TUB [477-476]	ø125	0,0400	40,00	FT/H	12,0 / 27,0	0,3675	20,014	110,3	23,4
TUB [478-477]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	20,014	102,7	22,9
TUB [479-478]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,513	7,8	22,9
TUB [481-480]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [483-482]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [484-483]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [485-484]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [486-477]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,513	7,8	22,9
TUB [488-487]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [490-489]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [491-490]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [492-491]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [493-476]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,513	7,8	22,9

TUB [495-494]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [497-496]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [498-497]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [499-498]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [500-475]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,513	7,8	22,9
TUB [502-501]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [504-503]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [505-504]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [506-505]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [507-457]	ø160	0,0400	40,00	FT/H	12,0 / 27,0	0,4368	15,197	99,6	23,2
TUB [508-507]	ø160	0,0400	40,00	FT/H	12,0 / 27,0	0,4368	20,021	131,2	23,2
TUB [509-508]	ø125	0,0400	40,00	FT/H	12,0 / 27,0	0,3675	20,014	110,3	23,4
TUB [510-509]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	20,014	102,7	22,9
TUB [511-510]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,330	6,8	22,9
TUB [513-512]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [515-514]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [516-515]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [517-516]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [518-509]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,330	6,8	22,9
TUB [520-519]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [522-521]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [523-522]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [524-523]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [525-508]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,330	6,8	22,9
TUB [527-526]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [529-528]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [530-529]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [531-530]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
TUB [532-507]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	1,330	6,8	22,9
TUB [534-533]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,210	1,1	22,9
TUB [536-535]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,400	2,1	22,9
TUB [537-536]	ø90	0,0400	30,00	FT/V	12,0 / 27,0	0,3462	2,314	12,0	23,1
TUB [538-537]	ø90	0,0400	30,00	FT/H	12,0 / 27,0	0,3422	0,563	2,9	22,9
Pérdidas totales (Pt)	Coeficiente de seguridad en pérdidas térmicas 5,0%							6.382,7	

Potencia térmica transportada en el circuito «CIR FRIO PALTA»:

$$Pv = \rho \cdot Cp \cdot Qn \cdot (Tr - Ti) = -1.159.512,0 \text{ W}$$

Porcentaje de pérdidas térmicas en el subsistema:

$$Pt / Pv \cdot 100,0 = 6.382,7 / -1.159.512,0 \cdot 100,0 = \mathbf{0,55\ \%} < 4\ \%$$

Dónde:

- *ρ = Densidad del agua 1000 Kg/m³*
- *Cp = Capacidad calorífica del agua 4184 J/(kg·K)*
- *Qn = Caudal de diseño del circulador 55,399 l/s*
- *Tr = Temperatura del agua en el retorno 12,0 °C*

- *Ti = Temperatura del agua en la ida 7,0 °C*

Abreviaturas	
• *EX = La tubería discurre por el exterior del edificio* • *AC = En el interior de locales acondicionados* • *NA = En el interior de locales no acondicionados* • *AP = En aparcamientos y patinillos ventilados* • *FT = En falsos techos y patinillos sin ventilar* • *DE = Directamente enterrada a profundidad 0,8 m en terreno 1,0 w/m·K* • *E = Tubería empotrada en tabiques y suelos o en canaletas interiores*	• *S = Tubería suspendida mediante soportes no aislados* • *R = Revestimiento metálico exterior* • *C = Tramos de conexión a la red general de longitud inferior a 5 m.* • *V = Tubería en posición vertical (más de 60° con la horizontal)* • *H = Tubería en instalación horizontal* • *Pérdidas de calor (valores positivos)* • *Ganancias de calor (valores negativos)*

Listado de resultados en tuberías

LISTADO DE RESULTADOS EN TUBERÍAS (CALOR)									
Referencia	Caudal recirculado (l/s)	Diámetro nominal interior (mm)	Coef. simult.	Velocidad (m/s)	Longitud (m)	Longitud equivalente (m), Accesorio (Ke) ó Coeficiente Kv	Pérdida accesorios (bar)	Pérdida unitaria (mmca/m)	Pérdidas totales (bar)
TUB [1-2]	9,211	ø125 (102,20)	1,000	1,12	0,386	0,096 (Le)	0,00000	13,3	0,00063
TUB [10-11]	9,211	ø125 (102,20)	1,000	1,12	1,618	0,404 (Le)	0,00000	13,3	0,00263
TUB [100-101]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [102-103]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [104-105]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [105-106]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [106-107]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [108-109]	0,768	ø50 (40,80)	1,000	0,59	1,942	0,485 (Le)	0,00000	13,0	0,00309
TUB [108-118]	1,535	ø63 (51,40)	1,000	0,74	20,014	5,004 (Le)	0,00000	14,6	0,03589
TUB [11-12]	9,211	ø125 (102,20)	1,000	1,12	0,329	0,082 (Le)	0,00000	13,3	0,00054
TUB [110-111]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [112-113]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [114-115]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [115-116]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [116-117]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [118-119]	0,768	ø50 (40,80)	1,000	0,59	1,942	0,485 (Le)	0,00000	13,0	0,00309
TUB [118-128]	0,768	ø50 (40,80)	1,000	0,59	20,014	5,004 (Le)	0,00000	13,0	0,03181
TUB [12-13]	9,211	ø125 (102,20)	1,000	1,12	6,856	1,714 (Le)	0,00000	13,3	0,01114

TUB [120-121]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [122-123]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [124-125]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [125-126]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [126-127]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [128-129]	0,768	ø50 (40,80)	1,000	0,59	1,942	0,485 (Le)	0,00000	13,0	0,00309
TUB [13-14]	9,211	ø125 (102,20)	1,000	1,12	18,954	4,739 (Le)	0,00000	13,3	0,03079
TUB [130-131]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [132-133]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [134-135]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [135-136]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [136-137]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [139-138]	9,211	ø125 (102,20)	1,000	1,12	0,623	0,156 (Le)	0,00000	13,3	0,00101
TUB [14-15]	9,211	ø125 (102,20)	1,000	1,12	2,109	0,527 (Le)	0,00000	13,3	0,00343
TUB [141-140]	9,211	ø125 (102,20)	1,000	1,12	0,471	0,118 (Le)	0,00000	13,3	0,00077
TUB [15-16]	1,535	ø63 (51,40)	1,000	0,74	2,289	0,572 (Le)	0,00000	14,6	0,00411
TUB [15-36]	7,676	ø110 (90,00)	1,000	1,21	3,339	0,835 (Le)	0,00000	17,6	0,00721
TUB [154-153]	9,211	ø125 (102,20)	1,000	1,12	0,600	0,150 (Le)	0,00000	13,3	0,00097
TUB [156-155]	9,211	ø125 (102,20)	1,000	1,12	2,424	0,606 (Le)	0,00000	13,3	0,00394
TUB [157-156]	9,211	ø125 (102,20)	1,000	1,12	4,465	1,116 (Le)	0,00000	13,3	0,00725
TUB [158-157]	9,211	ø125 (102,20)	1,000	1,12	0,535	0,134 (Le)	0,00000	13,3	0,00087
TUB [159-158]	9,211	ø125 (102,20)	1,000	1,12	1,793	0,448 (Le)	0,00000	13,3	0,00291
TUB [16-17]	0,768	ø50 (40,80)	1,000	0,59	1,942	0,485 (Le)	0,00000	13,0	0,00309
TUB [16-26]	0,768	ø50 (40,80)	1,000	0,59	20,085	5,021 (Le)	0,00000	13,0	0,03193
TUB [160-159]	9,211	ø125 (102,20)	1,000	1,12	0,808	0,202 (Le)	0,00000	13,3	0,00131
TUB [161-160]	9,211	ø125 (102,20)	1,000	1,12	1,536	0,384 (Le)	0,00000	13,3	0,00250
TUB [162-161]	9,211	ø125 (102,20)	1,000	1,12	16,870	4,217 (Le)	0,00000	13,3	0,02740
TUB [163-162]	9,211	ø125 (102,20)	1,000	1,12	2,123	0,531 (Le)	0,00000	13,3	0,00345
TUB [164-163]	9,211	ø125 (102,20)	1,000	1,12	0,298	0,074 (Le)	0,00000	13,3	0,00048
TUB [165-164]	9,211	ø125 (102,20)	1,000	1,12	6,626	1,657 (Le)	0,00000	13,3	0,01076
TUB [166-165]	9,211	ø125 (102,20)	1,000	1,12	18,954	4,739 (Le)	0,00000	13,3	0,03079
TUB [167-166]	9,211	ø125 (102,20)	1,000	1,12	1,150	0,288 (Le)	0,00000	13,3	0,00187
TUB [169-168]	9,211	ø125 (102,20)	1,000	1,12	1,070	0,267 (Le)	0,00000	13,3	0,00174

TUB [170-169]	1,535	ø63 (51,40)	1,000	0,74	2,296	0,574 (Le)	0,00000	14,6	0,00412
TUB [171-170]	0,768	ø50 (40,80)	1,000	0,59	1,883	0,471 (Le)	0,00000	13,0	0,00299
TUB [173-172]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [175-174]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [176-175]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [177-176]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [178-170]	0,768	ø50 (40,80)	1,000	0,59	20,085	5,021 (Le)	0,00000	13,0	0,03193
TUB [179-178]	0,768	ø50 (40,80)	1,000	0,59	1,883	0,471 (Le)	0,00000	13,0	0,00299
TUB [18-19]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [181-180]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [183-182]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [184-183]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [185-184]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [186-169]	7,676	ø110 (90,00)	1,000	1,21	3,627	0,907 (Le)	0,00000	17,6	0,00783
TUB [187-186]	4,605	ø90 (73,60)	1,000	1,08	69,176	17,294 (Le)	0,00000	18,5	0,15707
TUB [188-187]	3,070	ø75 (61,40)	1,000	1,04	14,026	3,507 (Le)	0,00000	21,4	0,03683
TUB [189-188]	2,303	ø75 (61,40)	1,000	0,78	20,021	5,005 (Le)	0,00000	12,8	0,03148
TUB [190-189]	1,535	ø63 (51,40)	1,000	0,74	20,014	5,004 (Le)	0,00000	14,6	0,03589
TUB [191-190]	0,768	ø50 (40,80)	1,000	0,59	20,014	5,004 (Le)	0,00000	13,0	0,03181
TUB [192-191]	0,768	ø50 (40,80)	1,000	0,59	2,066	0,517 (Le)	0,00000	13,0	0,00328
TUB [194-193]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [196-195]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [197-196]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [198-197]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [199-190]	0,768	ø50 (40,80)	1,000	0,59	2,066	0,517 (Le)	0,00000	13,0	0,00328
TUB [20-21]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [201-200]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [203-202]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [204-203]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [205-204]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [206-189]	0,768	ø50 (40,80)	1,000	0,59	2,066	0,517 (Le)	0,00000	13,0	0,00328
TUB [208-207]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [210-209]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [211-210]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [212-211]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [213-188]	0,768	ø50 (40,80)	1,000	0,59	2,066	0,517 (Le)	0,00000	13,0	0,00328
TUB [215-214]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [217-216]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [218-217]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [219-218]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [22-23]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [220-187]	1,535	ø63 (51,40)	1,000	0,74	5,923	1,481 (Le)	0,00000	14,6	0,01062
TUB [221-220]	0,768	ø50 (40,80)	1,000	0,59	20,085	5,021 (Le)	0,00000	13,0	0,03193
TUB [222-221]	0,768	ø50 (40,80)	1,000	0,59	2,066	0,517 (Le)	0,00000	13,0	0,00328
TUB [224-223]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [226-225]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [227-226]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [228-227]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [229-220]	0,768	ø50 (40,80)	1,000	0,59	2,066	0,517 (Le)	0,00000	13,0	0,00328
TUB [23-24]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479

TUB [231-230]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [233-232]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [234-233]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [235-234]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [236-186]	3,070	ø75 (61,40)	1,000	1,04	14,026	3,507 (Le)	0,00000	21,4	0,03683
TUB [237-236]	0,768	ø50 (40,80)	1,000	0,59	1,883	0,471 (Le)	0,00000	13,0	0,00299
TUB [239-238]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [24-25]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [241-240]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [242-241]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [243-242]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [244-236]	2,303	ø75 (61,40)	1,000	0,78	20,021	5,005 (Le)	0,00000	12,8	0,03148
TUB [245-244]	0,768	ø50 (40,80)	1,000	0,59	1,883	0,471 (Le)	0,00000	13,0	0,00299
TUB [247-246]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [249-248]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [250-249]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [251-250]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [252-244]	1,535	ø63 (51,40)	1,000	0,74	20,014	5,004 (Le)	0,00000	14,6	0,03589
TUB [253-252]	0,768	ø50 (40,80)	1,000	0,59	1,883	0,471 (Le)	0,00000	13,0	0,00299
TUB [255-254]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [257-256]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [258-257]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [259-258]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [26-27]	0,768	ø50 (40,80)	1,000	0,59	1,942	0,485 (Le)	0,00000	13,0	0,00309
TUB [260-252]	0,768	ø50 (40,80)	1,000	0,59	20,014	5,004 (Le)	0,00000	13,0	0,03181
TUB [261-260]	0,768	ø50 (40,80)	1,000	0,59	1,883	0,471 (Le)	0,00000	13,0	0,00299
TUB [263-262]	0,768	ø50 (40,80)	1,000	0,59	0,283	0,071 (Le)	0,00000	13,0	0,00045
TUB [265-264]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [266-265]	0,768	ø50 (40,80)	1,000	0,59	2,813	0,703 (Le)	0,00000	13,0	0,00447
TUB [267-266]	0,768	ø50 (40,80)	1,000	0,59	0,260	0,065 (Le)	0,00000	13,0	0,00041
TUB [28-29]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [3-4]	9,211	ø125 (102,20)	1,000	1,12	0,957	0,239 (Le)	0,00000	13,3	0,00155
TUB [30-31]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [32-33]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [33-34]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [34-35]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [36-37]	4,605	ø90 (73,60)	1,000	1,08	70,273	17,568 (Le)	0,00000	18,5	0,15957
TUB [36-98]	3,070	ø75 (61,40)	1,000	1,04	14,321	3,580 (Le)	0,00000	21,4	0,03761
TUB [37-38]	3,070	ø75 (61,40)	1,000	1,04	14,321	3,580 (Le)	0,00000	21,4	0,03761
TUB [37-78]	1,535	ø63 (51,40)	1,000	0,74	5,628	1,407 (Le)	0,00000	14,6	0,01009
TUB [38-39]	2,303	ø75 (61,40)	1,000	0,78	20,021	5,005 (Le)	0,00000	12,8	0,03148
TUB [38-69]	0,768	ø50 (40,80)	1,000	0,59	2,281	0,570 (Le)	0,00000	13,0	0,00363
TUB [39-40]	1,535	ø63 (51,40)	1,000	0,74	20,014	5,004 (Le)	0,00000	14,6	0,03589
TUB [39-60]	0,768	ø50 (40,80)	1,000	0,59	2,281	0,570 (Le)	0,00000	13,0	0,00363
TUB [4-5]	9,211	ø125 (102,20)	1,000	1,12	0,308	0,077 (Le)	0,00000	13,3	0,00050
TUB [40-41]	0,768	ø50 (40,80)	1,000	0,59	20,014	5,004 (Le)	0,00000	13,0	0,03181
TUB [40-51]	0,768	ø50 (40,80)	1,000	0,59	2,281	0,570 (Le)	0,00000	13,0	0,00363
TUB [41-42]	0,768	ø50 (40,80)	1,000	0,59	2,281	0,570 (Le)	0,00000	13,0	0,00363

TUB [43-44]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [45-46]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [47-48]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [48-49]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [49-50]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [5-6]	9,211	ø125 (102,20)	1,000	1,12	3,823	0,956 (Le)	0,00000	13,3	0,00621
TUB [52-53]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [54-55]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [56-57]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [57-58]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [58-59]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [6-7]	9,211	ø125 (102,20)	1,000	1,12	4,465	1,116 (Le)	0,00000	13,3	0,00725
TUB [61-62]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [63-64]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [65-66]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [66-67]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [67-68]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [7-8]	9,211	ø125 (102,20)	1,000	1,12	1,086	0,272 (Le)	0,00000	13,3	0,00176
TUB [70-71]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [72-73]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [74-75]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [75-76]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [76-77]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [78-79]	0,768	ø50 (40,80)	1,000	0,59	20,085	5,021 (Le)	0,00000	13,0	0,03193
TUB [78-89]	0,768	ø50 (40,80)	1,000	0,59	2,281	0,570 (Le)	0,00000	13,0	0,00363
TUB [79-80]	0,768	ø50 (40,80)	1,000	0,59	2,281	0,570 (Le)	0,00000	13,0	0,00363
TUB [8-9]	9,211	ø125 (102,20)	1,000	1,12	1,561	0,390 (Le)	0,00000	13,3	0,00254
TUB [81-82]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [83-84]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [85-86]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [86-87]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [87-88]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [9-10]	9,211	ø125 (102,20)	1,000	1,12	16,850	4,212 (Le)	0,00000	13,3	0,02737
TUB [90-91]	0,768	ø50 (40,80)	1,000	0,59	0,223	0,056 (Le)	0,00000	13,0	0,00035
TUB [92-93]	0,768	ø50 (40,80)	1,000	0,59	0,237	0,059 (Le)	0,00000	13,0	0,00038
TUB [94-95]	0,768	ø50 (40,80)	1,000	0,59	0,200	0,050 (Le)	0,00000	13,0	0,00032
TUB [95-96]	0,768	ø50 (40,80)	1,000	0,59	3,014	0,753 (Le)	0,00000	13,0	0,00479
TUB [96-97]	0,768	ø50 (40,80)	1,000	0,59	0,762	0,190 (Le)	0,00000	13,0	0,00121
TUB [98-108]	2,303	ø75 (61,40)	1,000	0,78	20,021	5,005 (Le)	0,00000	12,8	0,03148
TUB [98-99]	0,768	ø50 (40,80)	1,000	0,59	1,942	0,485 (Le)	0,00000	13,0	0,00309
VCOR [103-104]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [109-110]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [113-114]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [119-120]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [123-124]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079

VCOR [129-130]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [133-134]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [140-139]	9,211	DN125 (125,00)	1,000	0,75	-	2,700 (Le)	0,00000	-	0,00121
VCOR [155-154]	9,211	DN125 (125,00)	1,000	0,75	-	2,700 (Le)	0,00000	-	0,00121
VCOR [17-18]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [174-173]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [182-181]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [195-194]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [2-3]	9,211	DN125 (125,00)	1,000	0,75	-	2,700 (Le)	0,00000	-	0,00121
VCOR [202-201]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [209-208]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [21-22]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [216-215]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [225-224]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [232-231]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [240-239]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [248-247]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [256-255]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [264-263]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [27-28]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [31-32]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [42-43]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [46-47]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [51-52]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [55-56]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [60-61]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [64-65]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [69-70]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [73-74]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [80-81]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [84-85]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [89-90]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [93-94]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCOR [99-100]	0,768	DN50 (50,00)	1,000	0,39	-	1,800 (Le)	0,00000	-	0,00079
VCTRL [101-102]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [111-112]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [121-122]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [131-132]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [19-20]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [29-30]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [44-45]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477

VCTRL [53-54]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [62-63]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [71-72]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [82-83]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VCTRL [91-92]	0,768	VCS2V DN50 (50,00)	1,000	0,39	-	40,000 (Kv)	0,00000	-	0,00477
VEQ [168-167]	9,211	STAF-SG-125 (125,00)	1,000	0,75	-	294,000 (Kv)	0,00000	-	0,01272
VEQ [172-171]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	3,555 (Kv)	0,00000	-	0,60411
VEQ [180-179]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	3,759 (Kv)	0,00000	-	0,54025
VEQ [193-192]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	33,000 (Kv)	0,00000	-	0,00701
VEQ [200-199]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	10,396 (Kv)	0,00000	-	0,07064
VEQ [207-206]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	7,322 (Kv)	0,00000	-	0,14243
VEQ [214-213]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	6,097 (Kv)	0,00000	-	0,20539
VEQ [223-222]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	6,253 (Kv)	0,00000	-	0,19526
VEQ [230-229]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	5,428 (Kv)	0,00000	-	0,25911
VEQ [238-237]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	3,821 (Kv)	0,00000	-	0,52286
VEQ [246-245]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	4,075 (Kv)	0,00000	-	0,45990
VEQ [254-253]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	4,435 (Kv)	0,00000	-	0,38811
VEQ [262-261]	0,768	STAF-SG-50 (50,00)	1,000	0,39	-	4,851 (Kv)	0,00000	-	0,32448

LISTADO DE RESULTADOS EN TUBERÍAS (FRÍO)

Referencia	Caudal recirculado (l/s)	Diámetro nominal interior (mm)	Coef. simult.	Velocidad (m/s)	Longitud (m)	Longitud equivalente (m), Accesorio (Ke) ó Coeficiente Kv	Pérdida accesorios (bar)	Pérdida unitaria (mmca/m)	Pérdidas totales (bar)
TUB [282-283]	55,399	ø250 (204,60)	1,000	1,69	0,386	0,096 (Le)	0,00000	12,0	0,00057
TUB [284-285]	55,399	ø250 (204,60)	1,000	1,69	3,721	0,930 (Le)	0,00000	12,0	0,00546
TUB [285-286]	55,399	ø250 (204,60)	1,000	1,69	1,111	0,278 (Le)	0,00000	12,0	0,00163
TUB [286-287]	55,399	ø250 (204,60)	1,000	1,69	0,937	0,234 (Le)	0,00000	12,0	0,00138

TUB [287-288]	55,399	ø250 (204,60)	1,000	1,69	4,465	1,116 (Le)	0,00000	12,0	0,00655
TUB [288-289]	55,399	ø250 (204,60)	1,000	1,69	17,200	4,300 (Le)	0,00000	12,0	0,02523
TUB [289-290]	55,399	ø250 (204,60)	1,000	1,69	6,826	1,707 (Le)	0,00000	12,0	0,01001
TUB [290-291]	55,399	ø250 (204,60)	1,000	1,69	18,454	4,614 (Le)	0,00000	12,0	0,02707
TUB [291-292]	55,399	ø250 (204,60)	1,000	1,69	2,109	0,527 (Le)	0,00000	12,0	0,00309
TUB [292-293]	9,233	ø125 (102,20)	1,000	1,13	1,882	0,471 (Le)	0,00000	13,3	0,00307
TUB [292-313]	46,166	ø250 (204,60)	1,000	1,40	2,575	0,644 (Le)	0,00000	8,6	0,00271
TUB [293-294]	4,617	ø90 (73,60)	1,000	1,09	20,085	5,021 (Le)	0,00000	18,6	0,04581
TUB [293-304]	4,617	ø90 (73,60)	1,000	1,09	1,425	0,356 (Le)	0,00000	18,6	0,00325
TUB [294-295]	4,617	ø90 (73,60)	1,000	1,09	1,425	0,356 (Le)	0,00000	18,6	0,00325
TUB [296-297]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [298-299]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [300-301]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [301-302]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [302-303]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [305-306]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [307-308]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [309-310]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [310-311]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [311-312]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [313-314]	27,699	ø200 (163,60)	1,000	1,32	70,273	17,568 (Le)	0,00000	10,0	0,08624
TUB [313-375]	18,466	ø160 (130,80)	1,000	1,37	15,492	3,873 (Le)	0,00000	14,2	0,02687
TUB [314-315]	9,233	ø125 (102,20)	1,000	1,13	4,458	1,114 (Le)	0,00000	13,3	0,00727
TUB [314-335]	18,466	ø160 (130,80)	1,000	1,37	15,492	3,873 (Le)	0,00000	14,2	0,02687
TUB [315-316]	4,617	ø90 (73,60)	1,000	1,09	20,085	5,021 (Le)	0,00000	18,6	0,04581
TUB [315-326]	4,617	ø90 (73,60)	1,000	1,09	1,765	0,441 (Le)	0,00000	18,6	0,00403
TUB [316-317]	4,617	ø90 (73,60)	1,000	1,09	1,765	0,441 (Le)	0,00000	18,6	0,00403
TUB [318-319]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [320-321]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [322-323]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [323-324]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [324-325]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [327-328]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [329-330]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [331-332]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [332-333]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [333-334]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [335-336]	13,850	ø160 (130,80)	1,000	1,03	20,021	5,005 (Le)	0,00000	8,4	0,02066
TUB [335-366]	4,617	ø90 (73,60)	1,000	1,09	1,765	0,441 (Le)	0,00000	18,6	0,00403

TUB [336-337]	9,233	ø125 (102,20)	1,000	1,13	20,014	5,004 (Le)	0,00000	13,3	0,03265
TUB [336-357]	4,617	ø90 (73,60)	1,000	1,09	1,765	0,441 (Le)	0,00000	18,6	0,00403
TUB [337-338]	4,617	ø90 (73,60)	1,000	1,09	20,014	5,004 (Le)	0,00000	18,6	0,04564
TUB [337-348]	4,617	ø90 (73,60)	1,000	1,09	1,765	0,441 (Le)	0,00000	18,6	0,00403
TUB [338-339]	4,617	ø90 (73,60)	1,000	1,09	1,765	0,441 (Le)	0,00000	18,6	0,00403
TUB [340-341]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [342-343]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [344-345]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [345-346]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [346-347]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [349-350]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [351-352]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [353-354]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [354-355]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [355-356]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [358-359]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [360-361]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [362-363]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [363-364]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [364-365]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [367-368]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [369-370]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [371-372]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [372-373]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [373-374]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [375-376]	13,850	ø160 (130,80)	1,000	1,03	20,021	5,005 (Le)	0,00000	8,4	0,02066
TUB [375-406]	4,617	ø90 (73,60)	1,000	1,09	1,425	0,356 (Le)	0,00000	18,6	0,00325
TUB [376-377]	9,233	ø125 (102,20)	1,000	1,13	20,014	5,004 (Le)	0,00000	13,3	0,03265
TUB [376-397]	4,617	ø90 (73,60)	1,000	1,09	1,425	0,356 (Le)	0,00000	18,6	0,00325
TUB [377-378]	4,617	ø90 (73,60)	1,000	1,09	20,014	5,004 (Le)	0,00000	18,6	0,04564
TUB [377-388]	4,617	ø90 (73,60)	1,000	1,09	1,425	0,356 (Le)	0,00000	18,6	0,00325
TUB [378-379]	4,617	ø90 (73,60)	1,000	1,09	1,425	0,356 (Le)	0,00000	18,6	0,00325
TUB [380-381]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [382-383]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [384-385]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [385-386]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [386-387]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [389-390]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [391-392]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [393-394]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [394-395]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [395-396]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [398-399]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [400-401]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [402-403]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [403-404]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [404-405]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197

TUB [407-408]	4,617	ø90 (73,60)	1,000	1,09	0,223	0,056 (Le)	0,00000	18,6	0,00051
TUB [409-410]	4,617	ø90 (73,60)	1,000	1,09	0,184	0,046 (Le)	0,00000	18,6	0,00042
TUB [411-412]	4,617	ø90 (73,60)	1,000	1,09	0,405	0,101 (Le)	0,00000	18,6	0,00092
TUB [412-413]	4,617	ø90 (73,60)	1,000	1,09	2,514	0,629 (Le)	0,00000	18,6	0,00573
TUB [413-414]	4,617	ø90 (73,60)	1,000	1,09	0,865	0,216 (Le)	0,00000	18,6	0,00197
TUB [416-415]	55,399	ø250 (204,60)	1,000	1,69	0,520	0,130 (Le)	0,00000	12,0	0,00076
TUB [418-417]	55,399	ø250 (204,60)	1,000	1,69	0,471	0,118 (Le)	0,00000	12,0	0,00069
TUB [431-430]	55,399	ø250 (204,60)	1,000	1,69	0,600	0,150 (Le)	0,00000	12,0	0,00088
TUB [433-432]	55,399	ø250 (204,60)	1,000	1,69	2,302	0,576 (Le)	0,00000	12,0	0,00338
TUB [434-433]	55,399	ø250 (204,60)	1,000	1,69	4,465	1,116 (Le)	0,00000	12,0	0,00655
TUB [435-434]	55,399	ø250 (204,60)	1,000	1,69	16,735	4,184 (Le)	0,00000	12,0	0,02455
TUB [436-435]	55,399	ø250 (204,60)	1,000	1,69	6,415	1,604 (Le)	0,00000	12,0	0,00941
TUB [437-436]	55,399	ø250 (204,60)	1,000	1,69	18,454	4,614 (Le)	0,00000	12,0	0,02707
TUB [438-437]	55,399	ø250 (204,60)	1,000	1,69	1,150	0,288 (Le)	0,00000	12,0	0,00169
TUB [440-439]	55,399	ø250 (204,60)	1,000	1,69	0,711	0,178 (Le)	0,00000	12,0	0,00104
TUB [441-440]	9,233	ø125 (102,20)	1,000	1,13	1,116	0,279 (Le)	0,00000	13,3	0,00182
TUB [442-441]	4,617	ø90 (73,60)	1,000	1,09	20,085	5,021 (Le)	0,00000	18,6	0,04581
TUB [443-442]	4,617	ø90 (73,60)	1,000	1,09	1,330	0,332 (Le)	0,00000	18,6	0,00303
TUB [445-444]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [447-446]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [448-447]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [449-448]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [450-441]	4,617	ø90 (73,60)	1,000	1,09	1,330	0,332 (Le)	0,00000	18,6	0,00303
TUB [452-451]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [454-453]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [455-454]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [456-455]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [457-440]	46,166	ø250 (204,60)	1,000	1,40	3,637	0,909 (Le)	0,00000	8,6	0,00383
TUB [458-457]	27,699	ø200 (163,60)	1,000	1,32	69,176	17,294 (Le)	0,00000	10,0	0,08489
TUB [459-458]	9,233	ø125 (102,20)	1,000	1,13	4,753	1,188 (Le)	0,00000	13,3	0,00775
TUB [460-459]	4,617	ø90 (73,60)	1,000	1,09	20,085	5,021 (Le)	0,00000	18,6	0,04581
TUB [461-460]	4,617	ø90 (73,60)	1,000	1,09	1,513	0,378 (Le)	0,00000	18,6	0,00345
TUB [463-462]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [465-464]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [466-465]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [467-466]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [468-459]	4,617	ø90 (73,60)	1,000	1,09	1,513	0,378 (Le)	0,00000	18,6	0,00345

TUB [470-469]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [472-471]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [473-472]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [474-473]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [475-458]	18,466	ø160 (130,80)	1,000	1,37	15,197	3,799 (Le)	0,00000	14,2	0,02636
TUB [476-475]	13,850	ø160 (130,80)	1,000	1,03	20,021	5,005 (Le)	0,00000	8,4	0,02066
TUB [477-476]	9,233	ø125 (102,20)	1,000	1,13	20,014	5,004 (Le)	0,00000	13,3	0,03265
TUB [478-477]	4,617	ø90 (73,60)	1,000	1,09	20,014	5,004 (Le)	0,00000	18,6	0,04564
TUB [479-478]	4,617	ø90 (73,60)	1,000	1,09	1,513	0,378 (Le)	0,00000	18,6	0,00345
TUB [481-480]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [483-482]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [484-483]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [485-484]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [486-477]	4,617	ø90 (73,60)	1,000	1,09	1,513	0,378 (Le)	0,00000	18,6	0,00345
TUB [488-487]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [490-489]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [491-490]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [492-491]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [493-476]	4,617	ø90 (73,60)	1,000	1,09	1,513	0,378 (Le)	0,00000	18,6	0,00345
TUB [495-494]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [497-496]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [498-497]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [499-498]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [500-475]	4,617	ø90 (73,60)	1,000	1,09	1,513	0,378 (Le)	0,00000	18,6	0,00345
TUB [502-501]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [504-503]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [505-504]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [506-505]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [507-457]	18,466	ø160 (130,80)	1,000	1,37	15,197	3,799 (Le)	0,00000	14,2	0,02636
TUB [508-507]	13,850	ø160 (130,80)	1,000	1,03	20,021	5,005 (Le)	0,00000	8,4	0,02066
TUB [509-508]	9,233	ø125 (102,20)	1,000	1,13	20,014	5,004 (Le)	0,00000	13,3	0,03265
TUB [510-509]	4,617	ø90 (73,60)	1,000	1,09	20,014	5,004 (Le)	0,00000	18,6	0,04564
TUB [511-510]	4,617	ø90 (73,60)	1,000	1,09	1,330	0,332 (Le)	0,00000	18,6	0,00303
TUB [513-512]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [515-514]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [516-515]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [517-516]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [518-509]	4,617	ø90 (73,60)	1,000	1,09	1,330	0,332 (Le)	0,00000	18,6	0,00303
TUB [520-519]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [522-521]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [523-522]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [524-523]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [525-508]	4,617	ø90 (73,60)	1,000	1,09	1,330	0,332 (Le)	0,00000	18,6	0,00303
TUB [527-526]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048

TUB [529-528]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [530-529]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [531-530]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
TUB [532-507]	4,617	ø90 (73,60)	1,000	1,09	1,330	0,332 (Le)	0,00000	18,6	0,00303
TUB [534-533]	4,617	ø90 (73,60)	1,000	1,09	0,210	0,053 (Le)	0,00000	18,6	0,00048
TUB [536-535]	4,617	ø90 (73,60)	1,000	1,09	0,400	0,100 (Le)	0,00000	18,6	0,00091
TUB [537-536]	4,617	ø90 (73,60)	1,000	1,09	2,314	0,578 (Le)	0,00000	18,6	0,00528
TUB [538-537]	4,617	ø90 (73,60)	1,000	1,09	0,563	0,141 (Le)	0,00000	18,6	0,00129
VCOR [283-284]	55,399	DN250 (250,00)	1,000	1,13	-	5,800 (Le)	0,00000	-	0,00235
VCOR [295-296]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [299-300]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [304-305]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [308-309]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [317-318]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [321-322]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [326-327]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [330-331]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [339-340]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [343-344]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [348-349]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [352-353]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [357-358]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [361-362]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [366-367]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [370-371]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [379-380]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [383-384]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [388-389]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [392-393]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [397-398]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [401-402]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [406-407]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [410-411]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [417-416]	55,399	DN250 (250,00)	1,000	1,13	-	5,800 (Le)	0,00000	-	0,00235
VCOR [432-431]	55,399	DN250 (250,00)	1,000	1,13	-	5,800 (Le)	0,00000	-	0,00235
VCOR [446-445]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [453-452]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [464-463]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [471-470]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [482-481]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [489-488]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [496-495]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [503-502]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [514-513]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [521-520]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [528-527]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333
VCOR [535-534]	4,617	DN80 (80,00)	1,000	0,92	-	3,000 (Le)	0,00000	-	0,00333

VCTRL [297-298]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [306-307]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [319-320]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [328-329]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [341-342]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [350-351]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [359-360]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [368-369]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [381-382]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [390-391]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [399-400]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VCTRL [408-409]	4,617	VCS2V DN80 (80,00)	1,000	0,92	-	100,000 (Kv)	0,00000	-	0,02762
VEQ [439-438]	55,399	STAF-SG-250 (250,00)	1,000	1,13	-	1185,000 (Kv)	0,00000	-	0,02833
VEQ [444-443]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	28,022 (Kv)	0,00000	-	0,35176
VEQ [451-450]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	24,960 (Kv)	0,00000	-	0,44337
VEQ [462-461]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	41,195 (Kv)	0,00000	-	0,16276
VEQ [469-468]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	32,953 (Kv)	0,00000	-	0,25437
VEQ [480-479]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	123,000 (Kv)	0,00000	-	0,01826
VEQ [487-486]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	50,214 (Kv)	0,00000	-	0,10955
VEQ [494-493]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	39,746 (Kv)	0,00000	-	0,17485
VEQ [501-500]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	35,746 (Kv)	0,00000	-	0,21616
VEQ [512-511]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	38,070 (Kv)	0,00000	-	0,19058
VEQ [519-518]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	31,304 (Kv)	0,00000	-	0,28187
VEQ [526-525]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	28,206 (Kv)	0,00000	-	0,34718
VEQ [533-532]	4,617	STAF-SG-80 (80,00)	1,000	0,92	-	26,664 (Kv)	0,00000	-	0,38849

Listado de circuladores

LISTADO DE CIRCULADORES							
Unidad	Circuito	Marca/Modelo	Caudal (l/s)	Presión (bar)	Potencia eléctrica (kW)	SFP (W/(m³/s))	Nº bombas
CIR [138-1]	CIR CALOR PALTA	Bombas gemelas/Bombas gemelas	9,211	0,8627	1,340	145.484,6	1
CIR [415-282]	CIR FRIO PALTA	Bombas gemelas/Bombas gemelas	55,399	0,7324	6,160	111.193,5	1

9. ANEJO IX. CÁLCULO DE LA INSTALACIÓN ELÉCTRICA

9.1. INFORMACIÓN PREVIA: ANTECEDENTES Y CONDICIONANTES DE PARTIDA

9.1.1. ANTECEDENTES Y CONDICIONES DE PARTIDA.

Se recibe por parte de la propiedad el encargo de la redacción del Proyecto de Ejecución de Climatización del Pabellón de Cristal, y dentro de este la parte correspondiente a la instalación de electricidad, que servirá de alimentación a todas y cada una de las UTAs y bombas de impulsión de agua nuevas proyectadas dentro del propio Pabellón.

No se incluye instalación eléctrica de ningún otro elemento fuera de los señalados anteriormente.

9.1.2. DESCRIPCIÓN DE EDIFICIO

Emplazamiento y Descripción del inmueble.

El Pabellón de Cristal de la Casa de Campo se encuentra situado en la Avda. Principal, 16 en la Casa de Campo y Distrito Moncloa-Aravaca, de Madrid.

Es un edificio emblemático del sector ferial español. Disfruta además de unas espectaculares vistas del Palacio Real y la Catedral de La Almudena. Dispone de una amplia zona de exposición, distribuida en tres niveles unidos entre sí por ascensores y escaleras. Está conectado por un túnel con el Madrid Arena y es un recinto único para desarrollar grandes ferias temáticas.

El Pabellón de Cristal se distribuye en tres plantas, con una superficie construida aproximada de 25.000 m^2, conectadas entre sí por ascensores y escaleras mecánicas y convencionales. La Planta Baja tiene capacidad en feria para 3160 personas, la Entreplanta para 1640 personas y la Planta Alta puede acoger a 1600 personas.

En la parcela del Pabellón se sitúa la Central de Instalaciones bajo rasante y una galería subterránea que comunica dicha Central con el edificio existente. De esta Central se servirá las alimentaciones de agua fría y caliente a las nuevas UTAS previstas.

9.2. LEGISLACIÓN APLICABLE

La instalación cumplirá, tanto en lo referente a su diseño, dimensionado, equipos suministrados, así como a su montaje, toda la Normativa Legal vigente, y en particular la que se enumera a continuación:

En materia protección:

- Reglamento Electrotécnico de Baja Tensión e Instrucciones Complementarias, del Ministerio de Industria RD nº 842/2002 (en especial Instrucción ITC-BT-28 para instalaciones en locales de pública concurrencia). Normativa UNE en los conceptos que se consideren.
- Código Técnico de la Edificación DB SI
- Normas Municipales
- Normas UNE, donde no se definan las anteriores

En materia de Seguridad:

- Ley 31/1995, de 8 de noviembre, de Prevención de Riesgos Laborales.
- Real Decreto 1627/1997 de 24 de octubre de 1.997 sobre Disposiciones Mínimas de Seguridad y Salud en las Obras.
- Real Decreto 486/1997 de 14 de abril de 1.997, sobre Disposiciones Mínimas de Seguridad y Salud en los lugares de trabajo.
- Real Decreto 485/1997 de 14 de abril de 1.997, sobre Disposiciones Mínimas en materia de señalización de seguridad y salud en el trabajo.
- Real Decreto 1215/1997 de 18 de julio de 1997, sobre Disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo.
- Real Decreto 773/1997 de 30 de mayo de 1.997, sobre Disposiciones mínimas de seguridad y salud relativas a la utilización por los trabajadores de equipos de protección individual.
- Real Decreto 614/2001, de 8 de junio, sobre disposiciones mínimas para la protección de la salud y seguridad de los trabajadores frente al riesgo eléctrico.
- Ordenanza General de Seguridad e Higiene.

9.3. DESCRIPCIÓN DE LOS ESPACIOS

Localización

Como hemos señalado anteriormente, el Pabellón de Cristal se encuentra situado en la Avda. Principal,16, Casa de Campo y Distrito Moncloa-Aravaca, de Madrid.

Actividad y uso

La Actividad a desarrollar en el presente edificio será de Convenciones/Congresos/Exposiciones, tal como indica el Plan Especial Feria de Campo A.O.E.00.04 aprobado definitivamente el 27 de Septiembre de 2006.

Superficie acondicionada

Este proyecto solamente dotará de electricidad a las nuevas UTAs y bombas de impulsión de agua, proyectadas para la planta alta. Se estima una superficie acondicionada en lo que a la reforma se refiere de 9.205,68 m^2.

9.4. DESCRIPCIÓN DE LA INSTALACIÓN DE ELECTRICIDAD

Se realizará la instalación cumpliendo el vigente Reglamento Electrotécnico de Baja Tensión y sus Instrucciones Técnicas Complementarias, así y como lo indicado en el Código Técnico de la Edificación, Documento Básico HE" Ahorro de energía".

Se realizará una nueva instalación eléctrica completa en la planta alta que dé cumplimiento a la normativa vigente.

La instalación eléctrica se entregará conexionada, en funcionamiento y legalizada.

Se debe considerar como un edificio de Convenciones/Congresos/Exposiciones según REBT 2002.

La instalación eléctrica partirá de un nuevo cuadro eléctrico denominado C.E.CL-UTAS-PABELLÓN, que se ubicará en el lugar señalado en el plano de planta baja, justo al lado del recinto eléctrico existente en edificio anexo a la línea del edificio en esa planta.

Desde este recinto partirá la línea de alimentación al nuevo cuadro, siendo de 4x185 + TTx95 mm^2, tipo RZ1-K (AS), con código CPR Cca,s1b,d1,a1..

Desde el nuevo C.E. partirán las canalizaciones que soportarán las distintas líneas eléctricas de alimentación a cada UTA y bombas de impulsión de agua.

Estas canalizaciones serán de dos tipos bien definidos:

- Tipo Rejiband de acero tipo GC en las plantas, para alimentación a UTA y bombas de impulsión de agua.
- Tipo Pemsaband tipo GC en planta baja y en las verticales para la planta alta.

Existirán otras canalizaciones preferentemente rígidas y libres de halógenos, tipo LHR, que unirán la salida desde las bandejas a cada una de las unidades a alimentar.

Los conductores serán en todos los casos tipo RZ1-K (AS), libre de halógenos y con código CPR Cca,s1b,d1,a1. Estos conductores se conformarán en mangueras.

9.5. ACOMETIDA, CONJUNTO PROTECCIÓN Y MEDIDA Y DERIVACIÓN INDIVIDUAL

El edificio cuenta actualmente con las acometidas correspondientes de la Compañía suministradora, las cuales no son objeto de este proyecto, pues la alimentación actual dará el suministro necesario a los requerimientos de las actuaciones que se plantean.

De cualquier forma, el suministro eléctrico es trifásico, 230/400 V-50 Hz.

Igualmente, no se consideran en este proyecto ni líneas generales de alimentación, ni derivaciones individuales, ni líneas de alimentación a ninguno de los cuadros eléctricos que no sean los contemplados en este proyecto.

Así, desde el C.E. existente en el cuarto anexo a donde se sitúa el nuevo cuadro, se dispondrá una línea de alimentación adecuada del tipo RZ1-K (AS) de 4x185 + TTx95 mm2, con código CPR Cca,s1b,d1,a1. En el cuadro eléctrico origen se dispondrá la protección magnetotérmica y diferencial adecuada para la línea general de alimentación al C.E.CL-UTAS-PABELLÓN.

9.6. PUESTA A TIERRA DE LA INSTALACIÓN Y CONDUCTORES DE TIERRA Y PROTECCIÓN

La instalación objeto de este proyecto aprovecha la red de tierras existente, no existiendo problema alguno en la resistencia a tierra que el edificio tenga.

Así, toda la instalación nueva quedará unida a la red de tierras del edificio y los conductores de protección acompañarán a todos y cada uno de los circuitos o líneas que parten de los cuadros, y no se compartirán los

conductores entre circuitos. En todo caso, se debe verificar que el valor de la resistencia de la puesta a tierra sea inferior a 5 ohm.

Dentro de esta actuación, quedarán puestos a tierra:

- El nuevo cuadro eléctrico y su chasis.
- Todas las bandejas metálicas, mediante cable de cobre de 16 mm2, tendido a lo largo de todo su recorrido, y con conexiones a las mismas en origen y cada 2 m de tramo. Realmente, y considerando que las bandejas proyectadas disponen de un certificado de continuidad eléctrica, esta distribución se realizará solamente en unos 10 m del oigen de cada bandeja desde el nuevo C.E.
- Todas las cajas de registro metálicas.
- Todos los tubos de acero galvanizado y cajas asociadas a ellos (cada 10 m).
- Todos los chasis de máquinas.
- Todos los revestimientos metálicos de paramentos y pilares.
- Cualquier parte metálica del local.

9.7. POTENCIA PREVISTA

En primer lugar, señalamos que para esta intervención se prevé un cuadro eléctrico nuevo.

Así, teniendo en cuenta todos los elementos eléctricos previstos en las zonas de nuestra actuación, se determinan las siguientes potencias totales y simultáneas.

Denominación	P.Instalada (KW)	P.Cálculo (KW)
ALTA-UTA-1	18,81	23,5125
ALTA-UTA-2	18,81	23,5125
ALTA-UTA-3	18,81	23,5125
ALTA-UTA-4	18,81	23,5125
ALTA-UTA-5	18,81	23,5125
ALTA-UTA-6	18,81	23,5125
ALTA-UTA-7	18,81	23,5125
ALTA-UTA-8	18,81	23,5125
ALTA-UTA-9	18,81	23,5125
ALTA-UTA-10	18,81	23,5125
ALTA-UTA-11	18,81	23,5125
ALTA-UTA-12	18,81	23,5125
ALTA-BF5	7,5	9,375
ALTA-BF6	7,5	9,375
EXISTE-BF7	7,5	9,375
EXISTE-BF8	7,5	9,375
ALTA-BC5	5,5	6,875
ALTA-BC6	5,5	6,875
EXISTE-BC7	5,5	6,875
EXISTE-BC8	5,5	6,875
MANIOBRA	1	1
CONTROL	1	1
TOTAL	**279,72**	**349,15**
Coefi. Simultaneidad:	1	60%
	279,72	**209,49**

Consideramos no existe restricción de potencia eléctrica simultánea en el nuevo C.E. previsto.

9.8. DESCRIPCIÓN DE LA INSTALACIÓN INTERIOR

Clasificación y características de las instalaciones según riesgo de las dependencias de los locales

- Locales de pública concurrencia (espectáculos, reunión y sanitarios) (ITC- BT-28)

Dada la capacidad y la actividad para desarrollar, docente, se considera local de pública concurrencia.

- Locales con riesgo de incendio o explosión. Clase y zona (ITC-BT-29)

No procede

- Locales húmedos (ITC-BT-30)

No procede

- Locales mojados (ITC-BT-30)

No procede.

- Locales con riesgos de corrosión (ITC-BT-30)

No procede.

- Locales polvorientos sin riesgo de incendio o explosión (ITC-BT-30)

No procede.

- Locales a temperatura elevada (ITC-BT-30)

No procede.

- Locales a muy baja temperatura (ITC-BT-30)

No procede.

- Locales en los que existan baterías de acumuladores (ITC-BT-30)

No procede.

- Estaciones de servicio o garajes (ITC-BT-29)

No procede.

- Locales de características especiales (ITC-BT-30)

No procede.

-Locales para fines especiales (ITC-BT-31, 32, 33, 34, 35, 38, 39)

No procede.

- Instalaciones a muy baja tensión (ITC-BT-36)

No procede.

-Instalaciones a tensiones especiales (ITC-BT-37)

No procede.

- Instalaciones generadoras de baja tensión (ITC-BT-40)

No procede.

9.9. CUADRO ELÉCTRICO NUEVO

Como ya se ha señalado anteriormente, existirá un cuadro general de red para dar servicio a los nuevos servicios de climatización que se proyectan, y la ubicación de dicho cuadro queda representada en los planos que acompañan a la presente memoria.

Este cuadro es de la marca Schneider, y se tendrán en cuenta las siguientes características:

- El armario y cuadro de protección estará compuesto por envolvente de chapa de acero, y por envolvente de material auto extinguible en el caso de cuadros pequeños, en color blanco RAL 9001.
- El cuadro de protección se instalará en recinto cerrado donde el público no tenga acceso (solo los servicios técnicos especializados). En el caso que se instale el cuadro de protección en zonas accesibles, éste estará dotado de cerradura.
- El cuadro de protección tendrá todo el cableado de la aparamenta realizado con cables libres de halógenos y estarán perfectamente rotulados y legibles, incluyendo una placa en la puerta con su identificación y el triángulo de riesgo eléctrico. En su interior se incluirá una bolsa porta planos para los esquemas unifilares.
- La concepción deberá permitir un mantenimiento fácil por lo que tanto el fondo como el techo y las paredes laterales se podrán extraer como elementos separados. Permitiendo, además, la ampliación por extensión de sus armaduras, sin perder continuidad al poder suprimir la pared lateral de que se trate y atornillar una nueva armadura cuando sea necesario.
- La disposición interior deberá ser funcional, de forma que a cada aparato o conjunto de aparatos le corresponderá una pletina o perfil-DIN de fijación y una tapa protectora que impida el acceso a las partes en tensión.
- El cuadro tendrá como mínimo una reserva mínima del 20%.
- Tensión asignada de aislamiento del juego de barras principal 1.000V
- Intensidad asignada de empleo (In) 1.000 A
- Corriente asignada de corta duración admisible (Icw)85 kA eff/1 seg
- Corriente asignada de cresta admisible (Ipk) 187 kA
- Frecuencia 50/60 Hz
- Índice de protección IP30-IK08/ 1 P55-IK1O
- Ejecución con puerta plena o transparente
- El cuadro será realizado y cableado en taller, al objeto de asegurar su calidad.

- La distribución de cableado de entrada se hará con sistema multiclip o cableado directamente, no se aceptarán peines. El cableado de salida irá sujeto con abrazaderas de MG y protector, no con canaletas.
- Las protecciones vendrán con fase protegida y neutro protegido (2P, 4P), calibre y número de polos, según el esquema unifilar.
- Todos los automáticos serán omnipolares de la gama terciario, con un poder de corte mínimo de 10 KA. En el esquema unifilar figura que el pdc del automático general será de 22 KA, y de 15 KA la de aquellos automáticos generales de protección a cuadros secundarios dentro del CGBT (si fuera el caso).
- Dispondrá de un bornero en el cuadro para la salida de todo el cableado, así como para la entrada de las señales al cuadro que sean necesarias. Estará etiquetado con correspondencia a los circuitos o servicios que le acometan, en texto corto y texto descriptivo largo, quedando lo más identificable posible.
- El cuadro dispondrá de una borna de tierra para la unión de todos los conductores de protección de las líneas que parten y vienen al cuadro y del chasis del cuadro.
- La aparamenta irá etiquetada indicando descripción del servicio dado según esquema unifilar. La descripción y nominación de los circuitos en el cuadro se hará con etiquetas de baquelita o decorit, no con cinta dimo, letras negras con fondo blanco.
- Se dispondrá una luminaria de emergencia de al menos 210 Lm a menos de 2 m del cuadro. Si fuera necesario, se dispondrá una emergencia nueva alimentada desde la emergencia más cercana.
- En el cuadro se instalará limitador de sobretensiones transitorias. El limitador de sobretensiones instalado, estará verificado según las normas CEI 61643.11 clase II test, NF C 61740/95 y tendrá una Up <1,2kV.

Conformidad con las normas

IEC 60.439-1
IEC 529
IEC 50.298
NF C63-410
c 15-1oo
UNE 20.451
UNE-EN 60.439-1
UNE-EN 60.439-3
UNE-EN 50.298
UNE 20.098-1 (IP55)

9.10. DESCRIPCIÓN: LONGITUD, SECCIÓN Y DIÁMETRO DEL TUBO

Los diámetros interiores nominales mínimos, en milímetros, para los tubos protectores en función del número clase y sección de los conductores que han de alojar, se indican en las tablas 2, 5, 7, 9 de la ITC-BT-21.

- En la tabla 2, para más de 5 conductores por tubo o para conductores aislados o cables de secciones diferentes a instalar por el mismo tubo, la sección interior será como mínimo igual a 2,5 veces la sección ocupada por los conductores.

Tabla 2. Diámetros exteriores mínimos de los tubos en función del número y la sección de los conductores o cables a conducir.

Sección nominal de los conductores unipolares (mm^2)	Diámetro exterior de los tubos (mm)				
	Número de conductores				
	1	2	3	4	5
1,5	12	12	16	16	16
2,5	12	12	16	16	20
4	12	16	20	20	20
6	12	16	20	20	25
10	16	20	25	32	32
16	16	25	32	32	32
25	20	32	32	40	40
35	25	32	40	40	50
50	25	40	50	50	50
70	32	40	50	63	63
95	32	50	63	63	75
120	40	50	63	75	75
150	40	63	75	75	--
185	50	63	75	--	--
240	50	75	--	--	--

- En la tabla 5, para más de 5 conductores por tubo o para conductores aislados o cables de secciones diferentes a instalar por el mismo tubo, la sección interior será como mínimo igual a 3 veces la sección ocupada por los conductores.

Tabla 5. Diámetros exteriores mínimos de los tubos en función del número y la sección de los conductores o cables a conducir

Sección nominal de los conductores unipolares (mm^2)	Diámetro exterior de los tubos (mm)				
	Número de conductores				
	1	2	3	4	5
1,5	12	12	16	16	20
2,5	12	16	20	20	20
4	12	16	20	20	25
6	12	16	25	25	25
10	16	25	25	32	32
16	20	25	32	32	40
25	25	32	40	40	50
35	25	40	40	50	50
50	32	40	50	50	63
70	32	50	63	63	63
95	40	50	63	75	75
120	40	63	75	75	--
150	50	63	75	--	--
185	50	75	--	--	--
240	63	75	--	--	--

- En la tabla 7, para más de 5 conductores por tubo o para conductores aislados o cables de secciones diferentes a instalar por el mismo tubo, la sección interior será como mínimo igual a 4 veces la sección ocupada por los conductores.

Tabla 7. Diámetros exteriores mínimos de los tubos en función del número y la sección de los conductores o cables a conducir.

Sección nominal de los conductores (mm^2)	Diámetro exterior de los tubos (mm)				
	Número de conductores				
	1	2	3	4	5
1,5	12	12	16	16	20
2,5	12	16	20	20	20
4	12	16	20	20	25
6	12	16	25	25	25
10	16	25	25	32	32
16	20	25	32	32	40

Para las bandejas se definen unas secciones motivadas por los siguientes cálculos de capacidad portante de las mismas:

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Baja1 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	16

Con el factor de ampliación utilizado

Peso total de los cables: 7,39 kg/m
Sección total requerida: 3.907,38 mm2
Diámetro mayor: 14,90 mm

Bandeja seleccionada

60232150 - Rejiband 60x150 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 150 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 6.976,00 mm2
Carga máxima bandeja: 29,90 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 44,70mm

Cargas totales

Carga total en vano: 1.361,96 kg
Carga total en cada soporte: 907,98 kg

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Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	3
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	16

Con el factor de ampliación utilizado

Peso total de los cables: 10,48 kg/m
Sección total requerida: 5.253,91 mm2
Diámetro mayor: 20,20 mm

Bandeja seleccionada

60232200 - Rejiband 60x200 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 200 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 9.586,00 mm2
Carga máxima bandeja: 32,00 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 34,34mm

Cargas totales

Carga total en vano: 17,50 kg
Carga total en cada soporte: 11,67 kg

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Baja3 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	4
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G25	24,80	1,42	2
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	16

Con el factor de ampliación utilizado

Peso total de los cables: 14,63 kg/m
Sección total requerida: 7.055,84 mm2
Diámetro mayor: 24,80 mm

Bandeja seleccionada

60232300 - Rejiband 60x300 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 300 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 14.420,00 mm2
Carga máxima bandeja: 53,80 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 36,97mm

Cargas totales

Carga total en vano: 24,81 kg
Carga total en cada soporte: 16,54 kg

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Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	6
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G10	17,50	0,65	1
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	3

Con el factor de ampliación utilizado

Peso total de los cables: 6,57 kg/m
Sección total requerida: 3.148,67 mm2
Diámetro mayor: 20,20 mm

Bandeja seleccionada

60232150 - Rejiband 60x150 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 150 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 6.976,00 mm2
Carga máxima bandeja: 29,90 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 36,77mm

Cargas totales

Carga total en vano: 1.360,73 kg
Carga total en cada soporte: 907,16 kg

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Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	4
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G10	17,50	0,65	1
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	3

Con el factor de ampliación utilizado

Peso total de los cables: 5,65 kg/m
Sección total requerida: 2.660,25 mm2
Diámetro mayor: 20,20 mm

Bandeja seleccionada

60232100 - Rejiband 60x100 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 100 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 4.442,00 mm2
Carga máxima bandeja: 40,50 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 37,59mm

Cargas totales

Carga total en vano: 1.260,16 kg
Carga total en cada soporte: 840,11 kg

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Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	8
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G10	17,50	0,65	1
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	3

Con el factor de ampliación utilizado

Peso total de los cables: 7,50 kg/m
Sección total requerida: 3.637,09 mm2
Diámetro mayor: 20,20 mm

Bandeja seleccionada

60232150 - Rejiband 60x150 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 150 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 6.976,00 mm2
Carga máxima bandeja: 29,90 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 36,10mm

Cargas totales

Carga total en vano: 1.362,12 kg
Carga total en cada soporte: 908,08 kg

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En4 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Pemsaband One. Bandejas de Chapa Perforada
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G6	14,90	0,42	17
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G10	17,50	0,65	2
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	4

Con el factor de ampliación utilizado

Peso total de los cables: 13,40 kg/m
Sección total requerida: 6.620,71 mm2
Diámetro mayor: 20,20 mm

Bandeja seleccionada

75832150 - Pemsaband One perf click 60x150 GC - 3 m

Bandeja de chapa perforada y embutida de acero de 35, 60 y 100 mm de altura, con Sistema de protección GC, PG, AZ+, INOX 304 y 316L con borde de seguridad. Ala de alto 60 mm, Ancho 150 mm, Con Sistema de Protección GC. La bandeja Pemsaband® One Perforada esta indicada para soporte y conducción de cables eléctricos en cargas medias y ligeras. La facilidad de montaje gracias a su sistema click de unión rápida enchufable entre tramos, permiten ahorrar en material y mano de obra. Dispone de una amplia variedad de tamaños para una elección acorde a las necesidades de cada instalación.



Sección útil: 8.522,00 mm2
Carga máxima bandeja: 60,00 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 52,41 mm

Cargas totales

Carga total en vano: 22,21 kg
Carga total en cada soporte: 14,81 kg

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REJIBAND-ALTA 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	Nºx Sección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G25	24,80	1,42	2
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G35	28,40	1,99	2

Con el factor de ampliación utilizado

Peso total de los cables: 7,50 kg/m
Sección total requerida: 3.127,52 mm2
Diámetro mayor: 28,40 mm

Bandeja seleccionada

60232150 - Rejiband 60x150 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 150 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 6.976,00 mm2
Carga máxima bandeja: 29,90 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 28,40mm

Cargas totales

Carga total en vano: 1.362,13 kg
Carga total en cada soporte: 908,09 kg

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Alta1 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	NºxSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G35	28,40	1,99	2

Con el factor de ampliación utilizado

Peso total de los cables: 4,38 kg/m
Sección total requerida: 1.774,43 mm2
Diámetro mayor: 28,40 mm

Bandeja seleccionada

60232100 - Rejiband 60x100 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 100 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 4.442,00 mm2
Carga máxima bandeja: 40,50 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 28,40mm

Cargas totales

Carga total en vano: 1.258,25 kg
Carga total en cada soporte: 838,84 kg

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Alta2 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	NºxSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	1
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G25	24,80	1,42	3
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G35	28,40	1,99	2

Con el factor de ampliación utilizado

Peso total de los cables: 10,09 kg/m
Sección total requerida: 4.252,91 mm2
Diámetro mayor: 28,40 mm

Bandeja seleccionada

60232200 - Rejiband 60x200 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 200 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 9.586,00 mm2
Carga máxima bandeja: 32,00 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 28,40mm

Cargas totales

Carga total en vano: 16,93 kg
Carga total en cada soporte: 11,28 kg

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Alta3 2/2

Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Rejiband. Bandejas de Rejilla
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G10	17,50	0,65	1
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	2
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G25	24,80	1,42	1

Con el factor de ampliación utilizado

Peso total de los cables: 4,33 kg/m
Sección total requerida: 1.911,11 mm2
Diámetro mayor: 24,80 mm

Bandeja seleccionada

60232100 - Rejiband 60x100 GC - 3 m

Bandeja de rejilla de acero de 60 mm de altura, con protección superficial, o inoxidable AISI 304 o 316L con borde de seguridad para soporte y conducción de cables. Ala de alto 60 mm, Ancho 100 mm, Con Sistema de Protección GC, Acabado HDG. La bandeja portacables Rejiband® esta compuesta de varillas electrosoldadas en malla que proporcionan una gran resistencia y elasticidad. La facilidad en el montaje, gracias a su flexibilidad, permite ahorrar material y coste de mano de obra. Fabricada según normativa internacional IEC 61537. Su amplia variedad de tamaños y Sistemas de protección facilita la elección mas adecuada según las necesidades de cada instalación.



Sección útil: 4.442,00 mm2
Carga máxima bandeja: 40,50 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 44,89mm

Cargas totales

Carga total en vano: 1.258,19 kg
Carga total en cada soporte: 838,79 kg

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Tramo 1

Parámetros de cálculo

Longitud del tramo: 3,00 m
Distancia entre soportes: 1,50 m
Sistema de bandejas: Pemsaband One. Bandejas de Chapa Perforada
Sistema de protección: Galvanizado en Caliente
Factor de ampliación (%): 10,00

Cables seleccionados

Fabricante	Designación	Marca comercial	N°xSección (mm2)	Diámetro (mm)	Peso (kg / m)	Unidades
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G10	17,50	0,65	3
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G16	20,20	0,94	3
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G25	24,80	1,42	4
General Cable	RZ1-K (AS)	EXZHELLENT XXI 1000V	5G35	28,40	1,99	2

Con el factor de ampliación utilizado

Peso total de los cables: 15,86 kg/m
Sección total requerida: 6.837,77 mm2
Diámetro mayor: 28,40 mm

Bandeja seleccionada

75832200 - Pemsaband One perf click 60x200 GC - 3 m

Bandeja de chapa perforada y embutida de acero de 35, 60 y 100 mm de altura, con Sistema de protección GC, PG, AZ+, INOX 304 y 316L con borde de seguridad. Ala de alto 60 mm, Ancho 200 mm, Con Sistema de Protección GC. La bandeja Pemsaband® One Perforada esta indicada para soporte y conducción de cables eléctricos en cargas medias y ligeras. La facilidad de montaje gracias a su sistema click de unión rápida enchufable entre tramos, permiten ahorrar en material y mano de obra. Dispone de una amplia variedad de tamaños para una elección acorde a las necesidades de cada instalación.



Sección útil: 11.472,00 mm2
Carga máxima bandeja: 80,00 kg/m
Disposición de los cables: Cables en varias capas
Altura aprox. de los cables: 48,83mm

Cargas totales

Carga total en vano: 26,26 kg
Carga total en cada soporte: 17,51 kg

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Por otra parte, las canalizaciones previstas de tubo tipo LHR serán como mínimo de Ø50 mm.

9.11. NÚMERO DE CIRCUITOS, DESTINOS Y PUNTOS DE UTILIZACIÓN DE CADA CIRCUITO

El número de circuitos, potencia, denominación, así como los destinos y puntos de utilización vienen reflejados en los correspondientes esquemas unifilares y plantas del edificio.

9.12. LÍNEAS DE DISTRIBUCIÓN Y CANALIZACIÓN

Sistema de instalación elegido.

El cableado desde el cuadro nuevo a cada uno de los receptores se realizará con cable 0,6/1 kV de tensión de trabajo, aislamiento de polietileno reticulado y cubierta de poliolefina ignífuga, designación RZ1-K (AS), no propagadores del incendio y con emisión de humos y opacidad reducida, cuyas características vienen especificadas en la UNE-EN 21123-4,5 y UNE EN 50200, así como del tipo H07V-K.

Como regla general, el cableado que discurra por las bandejas previstas serán del tipo RZ1-K y del mismo tipo desde las cajas de derivación situadas en el ala de dichas bandejas a cada uno de los puntos de consumo.

Los cables RZ1-K tienen el aislamiento o cubierta de color verde (AS) ó naranja (AS+), todos iguales.

Los conductores se marcarán con la letra de fase y circuito, tanto a la entrada, como a la salida de los interruptores automáticos de cualquier aparato de corte, y en las cajas de conexión.

La distribución se efectuará en el interior de tubos protectores dispuestos superficialmente, empotrados o en bandeja, tal y como se indica en los planos que acompañan a la presente memoria.

Para canalizaciones empotradas o en superficie se empleará el tubo rígido LHR libre de halógenos, cuyas características vienen especificadas en la UNE EN 50086-2-2.

La bandeja empleada en canalizaciones vistas que discurre por el interior de los recintos se realizará con bandeja tipo Rejiband o Pemsaband.

9.13. CONDUCTOR DE PROTECCIÓN

Los conductores de protección serán de cobre y presentarán el mismo aislamiento que los conductores activos.

La sección mínima de estos conductores será igual a la fijada por la tabla 11 en función de la sección de los conductores de fase de la instalación (ITC-BT-19).

Secciones de los conductores de fase o polares de la instalación (mm^2)	Secciones mínimas de los conductores de protección (mm^2)
$S \leq 16$	S (*)
$16 < S \leq 35$	16
$S > 35$	S/2
(*) Con un mínimo de: 2,5 mm^2 si los conductores de protección no forman parte de la canalización de alimentación y tienen una protección mecánica 4 mm^2 si los conductores de protección no forman parte de la canalización de alimentación y no tienen una protección mecánica	

Los conductores dispondrán de la sección especificada en los esquemas unifilares.

Todos los circuitos llevarán el correspondiente circuito de toma de tierra. En caso de ser Clase II no se hace necesario dicho conductor.

9.14. CARACTERÍSTICAS DE LA INSTALACIÓN INTERIOR

La instalación interior se realizará con:

Cables:

Potencia: Se realizará con conductores de cobre con aislamiento de polietileno reticulado y cubierta de poliolefinas para 1.000 V con designación RZ1 0,6/1Kv según UNE 21123 parte 4 ó 5.

Control y mando: Se realizará con conductores de cobre con aislamiento de PVC para 750 V designación H07Z-F.

La totalidad de los conductores que se encuentren en la instalación serán de baja emisión de humos de opacidad reducida, libre de halógenos.

Los que alimenten servicios de seguridad serán AS+, SZ1 0,6/1kV o 07S1 según su tipo de instalación.

Para la colocación de los conductores se seguirá lo señalado en la Instrucción ITC-BT-20.

En ningún caso se permitirá la unión de conductores, como empalmes o derivaciones por simple, retorcimiento entre sí de los conductores, sino que deberá realizarse siempre utilizando bornes de conexión montados individualmente o constituyendo bloques o regletas de conexión, puede permitirse, asimismo, la utilización de bridas de conexión.

Las líneas sobre bandejas que discurran por el interior de suelos técnicos o de atarjeas registrables estarán constituidas por conductores de cobre con aislamiento de polietileno reticulado para 1.000 V de servicio, designación RZ1 0,6/1 kV.

Los conductores se marcarán con la letra de fase y circuito, tanto a la entrada, como a la salida de los interruptores automáticos de cualquier aparato de corte, y en las cajas de conexión.

Tubos:

Ejecución superficie: Serán aislantes rígidos de PVC o de acero enchufable, cumplirán con normativa UNE-EN 50086 o de acero en cubiertas y cuartos húmedos.

Ejecución empotrada: Serán de PVC doble capa grado de protección 7.

Los diámetros exteriores nominales mínimos para los tubos protectores en función del número, clase y sección de los conductores que han de alojar, según el sistema de instalación y clase de tubo, serán los fijados en la instrucción ITC-BT-21.

Bandejas:

Estarán fabricadas de acero galvanizada, serán del tipo Rejiband y Pemsaband.

Cajas:

Superficie: Serán material aislante de gran resistencia mecánica y autoextinguibles dotada de racores.

Empotrada: Serán de baquelita, con gran resistencia dieléctrica dotada de racores. Como norma general todas las cajas deberán estar marcadas con los números de circuitos de distribución.

Las cajas de derivaciones estarán dotadas de elementos de ajuste para la entrada de tubos. Las dimensiones de estas cajas serán tales que permitan alojar holgadamente todos los conductores que deban contener. Su profundidad equivaldrá, cuando menos, al diámetro del tubo mayor más un 50 % del mismo, con un mínimo de 40 mm para su profundidad y 80 mm para el diámetro o lado inferior. Cuando se quiera hacer estancas las entradas de los tubos en las cajas de conexión, deberán emplearse prensaestopas adecuados.

9.15. CÁLCULOS JUSTIFICATIVOS

9.15.1. CÁLCULO DE SISTEMA DE PROTECCIÓN CONTRA CONTACTOS INDIRECTOS

Cálculo de la puesta a tierra general de los locales

Dado que se trata de una ampliación de la instalación existente, la red de tierra ya se encuentra ejecutada, por lo que no es objeto del presente proyecto, debiendo tener un valor tal que cualquier masa no pueda dar lugar a tensiones de contacto superiores a 24V. La resistividad del terreno se estima en 150 ohmios · metro.

Conocido este valor y dado que la protección adoptada contra contactos indirectos es de la clase B, según la instrucción ITC-BT-24, apartado 4.1.2 (puesta a tierra de las masas y dispositivos de corte por intensidad de defecto) y que dicho dispositivo es el interruptor diferencial; dado que la mínima sensibilidad de los interruptores adoptados es de 500 mA, nos impone una resistencia a tierra, de valor:

$$\frac{24}{Is} \leq R \longrightarrow R \leq \frac{24}{500\ 10^{-3}} = 48 \text{ Ohmnios}$$

A esta red de puesta a tierra se conectarán las masas de todos los equipos eléctricos.

9.15.2. CÁLCULO DE LA INSTALACIÓN DE PROTECCIÓN CONTRA EL RAYO

El edificio ya cuenta con una instalación de protección contra el rayo, por lo que no es objeto del presente proyecto, cabe indicar que la misma deberá cumplir con lo indicado en la sección SUA8 del DBSUA del Código Técnico de la Edificación.

FÓRMULAS UTILIZADAS

INTENSIDAD MÁXIMA ADMISIBLE

En el cálculo de las instalaciones se comprobará que las intensidades máximas de las líneas son inferiores a las admitidas por el Reglamento de Baja Tensión, teniendo en cuenta los factores de corrección según el tipo de instalación y sus condiciones particulares.

1. Intensidad nominal en servicio monofásico:

$$I_n = \frac{P}{U_f \cdot \cos\varphi}$$

2. Intensidad nominal en servicio trifásico:

$$I_n = \frac{P}{\sqrt{3} \cdot U_l \cdot \cos\varphi}$$

En las fórmulas se han empleado los siguientes términos:

In: Intensidad nominal del circuito en A
P: Potencia en W
Uf: Tensión simple en V
Ul: Tensión compuesta en V
cos(ϕ): Factor de potencia

CAÍDA DE TENSIÓN

En circuitos interiores de la instalación, la caída de tensión no superará un porcentaje del 3% de la tensión nominal para circuitos de alumbrado y del 5% para el resto de los circuitos, siendo admisible la compensación de caída de tensión junto con las correspondientes derivaciones individuales, de manera que conjuntamente no se supere un porcentaje del 4,5% de la tensión nominal para los circuitos de alumbrado y del 6,5% para el resto de los circuitos.

Las fórmulas empleadas serán las siguientes:

1. C.d.t. en servicio monofásico

Despreciando el término de reactancia, dado el elevado valor de R/X, la caída de tensión viene dada por:

$$\Delta U = 2 \cdot R \cdot I_n \cdot \cos\varphi$$

Siendo:

$$R = \rho \cdot \frac{L}{S}$$

2. C.d.t en servicio trifásico

Despreciando también en este caso el término de reactancia, la caída de tensión viene dada por:

$$\Delta U = \sqrt{3} \cdot R \cdot I_n \cdot \cos\varphi$$

Siendo:

$$R = \rho \cdot \frac{L}{S}$$

Los valores conocidos de resistencia de los conductores están referidos a una temperatura de 20°C.

Los conductores empleados serán de cobre o aluminio, siendo los coeficientes de variación con la temperatura y las resistividades a 20ºc los siguientes:

Cobre

$$\alpha = 0.00393^{\circ} C^{-1} \qquad \rho_{20^{\circ}C} = \frac{1}{56} \Omega \cdot mm^2 / m$$

Aluminio

$$\alpha = 0.00403^{\circ} C^{-1} \qquad \rho_{20^{\circ}C} = \frac{1}{35} \Omega \cdot mm^2 / m$$

Se establecen tres criterios para la corrección de la resistencia de los conductores y por tanto del cálculo de la caída de tensión, en función de la temperatura a considerar.

Los tres criterios son los siguientes:

a) Considerando la máxima temperatura que soporta el conductor en condiciones de régimen permanente.

En este caso, para calcular la resistencia real del cable se considerará la máxima temperatura que soporta el conductor en condiciones de régimen permanente.

Se aplicará la fórmula siguiente:

$$R_{T\max} = R_{20^{\circ}C} \cdot \left[1 + \alpha \left(T_{\max} - 20\right)\right]$$

La temperatura 'Tmax' depende de los materiales aislantes y corresponderá con un valor de 90ºC para conductores con aislamiento XLPE y EPR y de 70°C para

conductores de PVC según tabla 2 de la ITC BT-07 (Reglamento electrotécnico de baja tensión).

b) Considerando la temperatura máxima prevista de servicio del cable.

Para calcular la temperatura máxima prevista de servicio se considerará que su incremento de temperatura (T) respecto a la temperatura ambiente To (25ºC para cables enterrados y 40°C para cables al aire) es proporcional al cuadrado del valor eficaz de la intensidad, por lo que:

$$T = T_0 + \left[(T_{max} - T_0) \cdot \left(\frac{I_n}{I_z} \right)^2 \right]$$

En este caso la resistencia corregida a la temperatura máxima prevista de servicio será:

$$R_T = R_{20°C} \cdot \left[1 + \alpha (T - 20) \right]$$

c) Considerando la temperatura ambiente según el tipo de instalación.

En este caso, para calcular la resistencia del cable se considerará la temperatura ambiente Te, que corresponderá con 25°C para cables enterrados y 40°C para cables al aire, de acuerdo con la fórmula:

$$R_{T_0} = R_{20°C} \cdot \left[1 + \alpha (T_0 - 20) \right]$$

En las tablas de resultados de cálculo se especifica el criterio empleado para las diferentes líneas.

En las fórmulas se han empleado los siguientes términos:

- In: Intensidad nominal del circuito en A -Iz: Intensidad admisible del cable en A

- P: Potencia en W

- cos(ϕ): Factor de potencia

- S: Sección en mm2

- L: Longitud en m

- ρ: Resistividad del conductor en ohm·mm2/m

- α: Coeficiente de variación con la temperatura

INTENSIDAD DE CORTOCIRCUITO

Entre Fases:

$$I_{cc} = \frac{U_l}{\sqrt{3} \cdot Z_t}$$

Fase y Neutro:

$$I_{cc} = \frac{U_f}{2 \cdot Z_t}$$

En las fórmulas se han empleado los siguientes términos:

Ul: Tensión compuesta en V

Uf: Tensión simple en V

Zt: Impedancia total en el punto de cortocircuito en mohm

Icc: Intensidad de cortocircuito en kA

La impedancia total en el punto de cortocircuito se obtendrá a partir de la resistencia total y de la reactancia total de los elementos de la red hasta el punto de cortocircuito:

$$Z_t = \sqrt{R_t^2 + X_t^2}$$

Siendo:

Rt = R1 + R2 + ... + Rn: Resistencia total en el punto de cortocircuito.

Xt = X1 + X2 + ... + Xn: Reactancia total en el punto de cortocircuito.

Los dispositivos de protección deberán tener un poder de corte mayor o igual a la intensidad de cortocircuito prevista en el punto de su instalación, y deberán actuar en un tiempo tal que la temperatura alcanzada por los cables no supere la máxima permitida por el conductor.

R = L · 1000 · CR / K · S · n (mohm)

X = Xu · L / n (mohm)

R: Resistencia de la línea en mohm.

X: Reactancia de la línea en mohm.

L: Longitud de la línea en m.

CR: Coeficiente de resistividad.

K: Conductividad del metal.

S: Sección de la línea en mm².

Xu: Reactancia de la línea, en mohm por metro.

n: nº de conductores por fase.

* tmcicc = Cc · S² / IpccF²

Siendo,

tmcicc: Tiempo máximo en sg que un conductor soporta una Ipcc.

Cc= Constante que depende de la naturaleza del conductor y de su aislamiento.

S: Sección de la línea en mm².

IpccF: Intensidad permanente de c.c. en fin de línea en A.

* tficc = cte. fusible / IpccF²

Siendo,

tficc: tiempo de fusión de un fusible para una determinada intensidad de cortocircuito.

IpccF: Intensidad permanente de c.c. en fin de línea en A.

* Lmax = 0,8 UF / 2 · IF5 · √(1,5 / K· S · n)² + (Xu / n · 1000)²

Siendo,

Lmax: Longitud máxima de conductor protegido a c.c. (m) (para protección por fusibles)

UF: Tensión de fase (V)

K: Conductividad

S: Sección del conductor (mm²)

Xu: Reactancia por unidad de longitud (mohm/m). En conductores aislados suele ser 0,1.

n: nº de conductores por fase

Ct= 0,8: Es el coeficiente de tensión.

CR = 1,5: Es el coeficiente de resistencia.

IF5 = Intensidad de fusión en amperios de fusibles en 5 sg.

* Curvas válidas.(Para protección de Interruptores automáticos dotados de Relé electromagnético).

CURVA B IMAG = 5 In

CURVA C IMAG = 10 In

CURVA D Y MA IMAG = 20 In

FÓRMULAS SOBRECARGA

Ib ≤In ≤Iz
I2 ≤1,45 Iz

Donde:
Ib: intensidad utilizada en el circuito.
Iz: intensidad admisible de la canalización según la norma UNE 20-460/5-523.
In: intensidad nominal del dispositivo de protección. Para los dispositivos de protección regulables, In es la intensidad de regulación escogida.
I2: intensidad que asegura efectivamente el funcionamiento del dispositivo de protección. En la práctica I2 se toma igual:

- a la intensidad de funcionamiento en el tiempo convencional, para los interruptores automáticos (1,45 In como máximo).
- a la intensidad de fusión en el tiempo convencional, para los fusibles (1,6 In).

FÓRMULAS COMPENSACIÓN ENERGÍA REACTIVA

cosØ = P/√(P²+ Q²).

tgØ = Q/P.

Qc = Px(tgØ1-tgØ2).

C = Qcx1000/U²x□; (Monofásico - Trifásico conexión estrella).

C = Qcx1000/3xU²x□; (Trifásico conexión triángulo).

Siendo:

P = Potencia activa instalación (kW).

Q = Potencia reactiva instalación (kVAr).

Qc = Potencia reactiva a compensar (kVAr).

Ø1 = Angulo de desfase de la instalación sin compensar.

Ø2 = Angulo de desfase que se quiere conseguir.

U = Tensión compuesta (V).

ω = 2xPixf ; f = 50 Hz.

C = Capacidad condensadores (F); cx1000000(µF).

FÓRMULAS EMBARRADOS

Cálculo electrodinámico

$$\sigma max = Ipcc^2 \cdot L^2 / (60 \cdot d \cdot Wy \cdot n)$$

Siendo,

σmax: Tensión máxima en las pletinas (kg/cm²)

Ipcc: Intensidad permanente de c.c. (kA)

L: Separación entre apoyos (cm)

d: Separación entre pletinas (cm)

n: nº de pletinas por fase

Wy: Módulo resistente por pletina eje y-y (cm³)

σadm: Tensión admisible material (kg/cm²)

Comprobación por solicitación térmica en cortocircuito

$$Icccs = Kc \cdot S / (1000 \cdot \sqrt{tcc})$$

Siendo,

Ipcc: Intensidad permanente de c.c. (kA)

Icccs: Intensidad de c.c. soportada por el conductor durante el tiempo de duración del c.c. (kA)

S: Sección total de las pletinas (mm²)

tcc: Tiempo de duración del cortocircuito (s)

Kc: Constante del conductor: Cu = 164, Al = 107

9.15.3. CÁLCULOS DE LAS LÍNEAS

CUADRO GENERAL DE MANDO Y PROTECCIÓN CL-UTAS-PABELLÓN

DEMANDA DE POTENCIAS

- Potencia total instalada:

ALTA-UTA-1	18810 W
ALTA-UTA-2	18810 W
ALTA-UTA-3	18810 W
ALTA-UTA-4	18810 W
ALTA-UTA-5	18810 W
ALTA-UTA-6	18810 W
ALTA-UTA-7	18810 W
ALTA-UTA-8	18810 W

ALTA-UTA-9	18810 W
ALTA-UTA-10	18810 W
ALTA-UTA-11	18810 W
ALTA-UTA-12	18810 W
ALTA-BF5	7500 W
ALTA-BF6	7500 W
EXISTE-BF7	7500 W
EXISTE-BF8	7500 W
ALTA-BC5	5500 W
ALTA-BC6	5500 W
EXISTE-BC7	5500 W
EXISTE-BC8	5500 W
MANIOBRA	1000 W
CONTROL	1000 W
TOTAL....	608170 W

- Potencia Instalada Fuerza (W): 279720
- Potencia Máxima Admisible (W): 219479.03

Cálculo de la DERIVACION INDIVIDUAL

- Tensión de servicio: 400 V.
- Canalización: C-Unip.o Mult.sobre Pared
- Longitud: 40 m; Cos j: 0.9; Xu(mW/m): 0;
- Potencia de cálculo: 209490 W.

I=209490/1,732x400x0.9=335.98 A.
Se eligen conductores Unipolares 4x185+TTx95mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 368 A. según ITC-BT-19

Caída de tensión:
Temperatura cable (ºC): 81.68
e(parcial)=40x209490/44.74x400x185=2.53 V.=0.63 %
e(total)=0.63% ADMIS (3% MAX.)

Prot. Térmica:
I. Aut./Tet. In.: 400 A. Térmico reg. Int.Reg.: 352 A.
Protección diferencial:
Relé y Transfor. Diferencial Sens.: 500 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-1

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 40 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.

- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x10+TTx10mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 52 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 76.39
e(parcial)=40x23512.5/45.5x400x10x0.85=6.08 V.=1.52 %
e(total)=2.15% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-2

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 22 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x10+TTx10mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 52 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 76.39
e(parcial)=22x23512.5/45.5x400x10x0.85=3.34 V.=0.84 %
e(total)=1.47% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-3

- Tensión de servicio: 400 V.

- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 42 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x10+TTx10mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 52 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 76.39
e(parcial)=42x23512.5/45.5x400x10x0.85=6.38 V.=1.6 %
e(total)=2.23% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-4

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 62 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x16+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 70 A. según ITC-BT-19
Dimensiones canal: 60x30 mm. Sección útil: 980 mm².

Caída de tensión:
Temperatura cable (ºC): 60.08
e(parcial)=62x23512.5/48.01x400x16x0.85=5.58 V.=1.4 %
e(total)=2.03% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-5

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 82 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x16+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 70 A. según ITC-BT-19
Dimensiones canal: 60x30 mm. Sección útil: 980 mm².

Caída de tensión:
Temperatura cable (ºC): 60.08
e(parcial)=82x23512.5/48.01x400x16x0.85=7.38 V.=1.85 %
e(total)=2.48% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-6

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 102 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x25+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 88 A. según ITC-BT-19
Dimensiones canal: 60x40 mm. Sección útil: 1530 mm².

Caída de tensión:
Temperatura cable (ºC): 52.71
e(parcial)=102x23512.5/49.24x400x25x0.85=5.73 V.=1.43 %
e(total)=2.07% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.

Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-7

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 103 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x25+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 88 A. según ITC-BT-19
Dimensiones canal: 60x40 mm. Sección útil: 1530 mm².

Caída de tensión:
Temperatura cable (ºC): 52.71
e(parcial)=103x23512.5/49.24x400x25x0.85=5.79 V.=1.45 %
e(total)=2.08% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-8

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 85 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x16+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 70 A. según ITC-BT-19
Dimensiones canal: 60x30 mm. Sección útil: 980 mm².

Caída de tensión:
Temperatura cable (ºC): 60.08
e(parcial)=85x23512.5/48.01x400x16x0.85=7.65 V.=1.91 %
e(total)=2.55% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-9

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 102 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x25+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 88 A. según ITC-BT-19
Dimensiones canal: 60x40 mm. Sección útil: 1530 mm².

Caída de tensión:
Temperatura cable (ºC): 52.71
e(parcial)=102x23512.5/49.24x400x25x0.85=5.73 V.=1.43 %
e(total)=2.07% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-10

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 122 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x25+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 88 A. según ITC-BT-19
Dimensiones canal: 60x40 mm. Sección útil: 1530 mm².

Caída de tensión:

Temperatura cable (ºC): 52.71
e(parcial)=122x23512.5/49.24x400x25x0.85=6.85 V.=1.71 %
e(total)=2.35% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-11

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 143 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x35+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 110 A. según ITC-BT-19
Dimensiones canal: 90x40 mm. Sección útil: 2315 mm².

Caída de tensión:
Temperatura cable (ºC): 48.13
e(parcial)=143x23512.5/50.04x400x35x0.85=5.65 V.=1.41 %
e(total)=2.04% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-UTA-12

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 165 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 18810 W.
- Potencia de cálculo: (Según ITC-BT-47):
  18810x1.25=23512.5 W.

I=23512.5/1,732x400x0.9x0.85=44.36 A.
Se eligen conductores Tetrapolares 4x35+TTx16mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 110 A. según ITC-BT-19

Dimensiones canal: 90x40 mm. Sección útil: 2315 mm².

Caída de tensión:
Temperatura cable (ºC): 48.13
e(parcial)=165x23512.5/50.04x400x35x0.85=6.52 V.=1.63 %
e(total)=2.26% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 50 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 63 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-BF5

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 7500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  7500x1.25=9375 W.

I=9375/1,732x400x0.9x0.85=17.69 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 57.38
e(parcial)=55x9375/48.45x400x4x0.85=7.82 V.=1.96 %
e(total)=2.59% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 20 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-BF6

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 7500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  7500x1.25=9375 W.

I=9375/1,732x400x0.9x0.85=17.69 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu

Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 57.38
e(parcial)=55x9375/48.45x400x4x0.85=7.82 V.=1.96 %
e(total)=2.59% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 20 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: EXISTE-BF7

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 7500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  7500x1.25=9375 W.

I=9375/1,732x400x0.9x0.85=17.69 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 57.38
e(parcial)=55x9375/48.45x400x4x0.85=7.82 V.=1.96 %
e(total)=2.59% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 20 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: EXISTE-BF8

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 7500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  7500x1.25=9375 W.

I=9375/1,732x400x0.9x0.85=17.69 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 57.38
e(parcial)=55x9375/48.45x400x4x0.85=7.82 V.=1.96 %
e(total)=2.59% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 20 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-BC5

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 5500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  5500x1.25=6875 W.

I=6875/1,732x400x0.9x0.85=12.97 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 49.35
e(parcial)=55x6875/49.82x400x4x0.85=5.58 V.=1.4 %
e(total)=2.03% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 16 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: ALTA-BC6

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85

- Potencia a instalar: 5500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  5500x1.25=6875 W.

I=6875/1,732x400x0.9x0.85=12.97 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 49.35
e(parcial)=55x6875/49.82x400x4x0.85=5.58 V.=1.4 %
e(total)=2.03% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 16 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: EXISTE-BC7

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 5500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  5500x1.25=6875 W.

I=6875/1,732x400x0.9x0.85=12.97 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 49.35
e(parcial)=55x6875/49.82x400x4x0.85=5.58 V.=1.4 %
e(total)=2.03% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 16 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: EXISTE-BC8

- Tensión de servicio: 400 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 55 m; Cos j: 0.9; Xu(mW/m): 0; R: 0.85
- Potencia a instalar: 5500 W.
- Potencia de cálculo: (Según ITC-BT-47):
  5500x1.25=6875 W.

I=6875/1,732x400x0.9x0.85=12.97 A.
Se eligen conductores Tetrapolares 4x4+TTx4mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 30 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 49.35
e(parcial)=55x6875/49.82x400x4x0.85=5.58 V.=1.4 %
e(total)=2.03% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Tetrapolar Int. 16 A.
Protección diferencial:
Inter. Dif. Tetrapolar Int.: 25 A. Sens. Int.: 300 mA. Clase AC.

Cálculo de la Línea: MANIOBRA

- Tensión de servicio: 230 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 50 m; Cos j: 0.9; Xu(mW/m): 0;
- Potencia a instalar: 1000 W.
- Potencia de cálculo: 1000 W.

I=1000/230x0.9=4.83 A.
Se eligen conductores Bipolares 2x2.5+TTx2.5mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 23 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 42.21
e(parcial)=2x50x1000/51.11x230x2.5=3.4 V.=1.48 %
e(total)=2.11% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Bipolar Int. 16 A.
Protección diferencial:
Inter. Dif. Bipolar Int.: 25 A. Sens. Int.: 30 mA. Clase AC.

Cálculo de la Línea: CONTROL

- Tensión de servicio: 230 V.
- Canalización: B2-Mult.Canal.Superf.o Emp.Obra
- Longitud: 50 m; Cos j: 0.9; Xu(mW/m): 0;
- Potencia a instalar: 1000 W.
- Potencia de cálculo: 1000 W.

I=1000/230x0.9=4.83 A.
Se eligen conductores Bipolares 2x2.5+TTx2.5mm²Cu
Nivel Aislamiento, Aislamiento: 0.6/1 kV, XLPE+Pol - No propagador incendio y emisión humos y opacidad reducida -.
Desig. UNE: RZ1-K(AS)
I.ad. a 40°C (Fc=1) 23 A. según ITC-BT-19
Dimensiones canal: 40x30 mm. Sección útil: 670 mm².

Caída de tensión:
Temperatura cable (ºC): 42.21
e(parcial)=2x50x1000/51.11x230x2.5=3.4 V.=1.48 %
e(total)=2.11% ADMIS (5% MAX.)

Prot. Térmica:
I. Mag. Bipolar Int. 16 A.
Protección diferencial:
Inter. Dif. Bipolar Int.: 25 A. Sens. Int.: 30 mA. Clase AC.

CALCULO DE EMBARRADO CUADRO GENERAL DE MANDO Y PROTECCION

Datos

- Metal: Cu
- Estado pletinas: desnudas
- nº pletinas por fase: 1
- Separación entre pletinas, d(cm): 10
- Separación entre apoyos, L(cm): 25
- Tiempo duración c.c. (s): 0.5

Pletina adoptada

- Sección (mm²): 125
- Ancho (mm): 25
- Espesor (mm): 5
- Wx, Ix, Wy, Iy (cm^3,cm^4) : 0.521, 0.651, 0.104, 0.026
- I. admisible del embarrado (A): 350

a) Cálculo electrodinámico

$$smax = Ipcc^2 \cdot L^2 / (60 \cdot d \cdot Wy \cdot n) = 9.33^2 \cdot 25^2 / (60 \cdot 10 \cdot 0.104 \cdot 1) = 872.36 <= 1200 \text{ kg/cm}^2 \text{ Cu}$$

b) Cálculo térmico, por intensidad admisible

Ical = 335.98 A
Iadm = 350 A

c) Comprobación por solicitación térmica en cortocircuito

Ipcc = 9.33 kA
Icccs = Kc · S / (1000 · Ötcc) = 164 · 125 · 1 / (1000 · Ö0.5) = 28.99 kA

Los resultados obtenidos se reflejan en las siguientes tablas:

Cuadro General de Mando y Protección

Denominación	P.Cálculo (W)	Dist.Cálc (m)	Sección (mm²)	I.Cálculo (A)	I.Adm.. (A)	C.T.Parc. (%)	C.T.Total (%)	Dimensiones(mm) Tubo,Canal,Band.
DERIVACION IND.	209490	40	4x185+TTx95Cu	335.98	368	0.63	0.63	
ALTA-UTA-1	23512.5	40	4x10+TTx10Cu	44.36	52	1.52	2.15	40x30
ALTA-UTA-2	23512.5	22	4x10+TTx10Cu	44.36	52	0.84	1.47	40x30
ALTA-UTA-3	23512.5	42	4x10+TTx10Cu	44.36	52	1.6	2.23	40x30
ALTA-UTA-4	23512.5	62	4x16+TTx16Cu	44.36	70	1.4	2.03	60x30
ALTA-UTA-5	23512.5	82	4x16+TTx16Cu	44.36	70	1.85	2.48	60x30
ALTA-UTA-6	23512.5	102	4x25+TTx16Cu	44.36	88	1.43	2.07	60x40
ALTA-UTA-7	23512.5	103	4x25+TTx16Cu	44.36	88	1.45	2.08	60x40
ALTA-UTA-8	23512.5	85	4x16+TTx16Cu	44.36	70	1.91	2.55	60x30
ALTA-UTA-9	23512.5	102	4x25+TTx16Cu	44.36	88	1.43	2.07	60x40
ALTA-UTA-10	23512.5	122	4x25+TTx16Cu	44.36	88	1.71	2.35	60x40
ALTA-UTA-11	23512.5	143	4x35+TTx16Cu	44.36	110	1.41	2.04	90x40
ALTA-UTA-12	23512.5	165	4x35+TTx16Cu	44.36	110	1.63	2.26	90x40
ALTA-BF5	9375	55	4x4+TTx4Cu	17.69	30	1.96	2.59	40x30
ALTA-BF6	9375	55	4x4+TTx4Cu	17.69	30	1.96	2.59	40x30
EXISTE-BF7	9375	55	4x4+TTx4Cu	17.69	30	1.96	2.59	40x30
EXISTE-BF8	9375	55	4x4+TTx4Cu	17.69	30	1.96	2.59	40x30
ALTA-BC5	6875	55	4x4+TTx4Cu	12.97	30	1.4	2.03	40x30
ALTA-BC6	6875	55	4x4+TTx4Cu	12.97	30	1.4	2.03	40x30
EXISTE-BC7	6875	55	4x4+TTx4Cu	12.97	30	1.4	2.03	40x30
EXISTE-BC8	6875	55	4x4+TTx4Cu	12.97	30	1.4	2.03	40x30
MANIOBRA	1000	50	2x2.5+TTx2.5Cu	4.83	23	1.48	2.11	40x30
CONTROL	1000	50	2x2.5+TTx2.5Cu	4.83	23	1.48	2.11	40x30

Cortocircuito

Denominación	Longitud (m)	Sección (mm²)	IpccI (kA)	P de C (kA)	IpccF (A)	tmcicc (sg)	tficc (sg)	Lmáx (m)	Curvas válidas
DERIVACION IND.	40	4x185+TTx95Cu	12	15	4666.27	32.14			400;B,C
ALTA-UTA-1	40	4x10+TTx10Cu	9.37	10	879.64	2.64			50;B,C
ALTA-UTA-2	22	4x10+TTx10Cu	9.37	10	1391.26	1.06			50;B,C,D
ALTA-UTA-3	42	4x10+TTx10Cu	9.37	10	845.07	2.86			50;B,C
ALTA-UTA-4	62	4x16+TTx16Cu	9.37	10	902.72	6.42			50;B,C
ALTA-UTA-5	82	4x16+TTx16Cu	9.37	10	715.07	10.24			50;B,C
ALTA-UTA-6	102	4x25+TTx16Cu	9.37	10	865.48	17.06			50;B,C
ALTA-UTA-7	103	4x25+TTx16Cu	9.37	10	858.57	17.34			50;B,C
ALTA-UTA-8	85	4x16+TTx16Cu	9.37	10	693.44	10.89			50;B,C
ALTA-UTA-9	102	4x25+TTx16Cu	9.37	10	865.48	17.06			50;B,C

ALTA-UTA-10	122	4x25+TTx16Cu	9.37	10	745.45	23	50;B,C
ALTA-UTA-11	143	4x35+TTx16Cu	9.37	10	864.49	33.52	50;B,C
ALTA-UTA-12	165	4x35+TTx16Cu	9.37	10	767.5	42.53	50;B,C
ALTA-BF5	55	4x4+TTx4Cu	9.37	10	293.56	3.8	20;B,C
ALTA-BF6	55	4x4+TTx4Cu	9.37	10	293.56	3.8	20;B,C
EXISTE-BF7	55	4x4+TTx4Cu	9.37	10	293.56	3.8	20;B,C
EXISTE-BF8	55	4x4+TTx4Cu	9.37	10	293.56	3.8	20;B,C
ALTA-BC5	55	4x4+TTx4Cu	9.37	10	293.56	3.8	16;B,C
ALTA-BC6	55	4x4+TTx4Cu	9.37	10	293.56	3.8	16;B,C
EXISTE-BC7	55	4x4+TTx4Cu	9.37	10	293.56	3.8	16;B,C
EXISTE-BC8	55	4x4+TTx4Cu	9.37	10	293.56	3.8	16;B,C
MANIOBRA	50	2x2.5+TTx2.5Cu	9.37	10	205.68	3.02	16;B,C
CONTROL	50	2x2.5+TTx2.5Cu	9.37	10	205.68	3.02	16;B,C

10. ANEJO X. CEE DEL ESTADO INICIAL

CERTIFICADO DE EFICIENCIA ENERGÉTICA DE EDIFICIOS

IDENTIFICACIÓN DEL EDIFICIO O DE LA PARTE QUE SE CERTIFICA:

Nombre del edificio	Pabellón de Cristal		
Dirección	Avenida Principal, 16, Moncloa - Aravaca, 28011 Madrid		
Municipio	Madrid	**Código Postal**	28011
Provincia	Madrid	**Comunidad Autónoma**	Comunidad de Madrid
Zona climática	D3	**Año construcción**	1960
Plantas sobre rasante	B+2	**Plantas bajo rasante**	0
Normativa vigente (construcción / rehabilitación)		Anterior a NBE-CT-79	
Referencia/s catastral/es		7541208VK3774B0001QY	

Tipo de edificio o parte del edificio que se certifica:	
☐ Edificio de nueva construcción	☑ Edificio Existente
☐ Vivienda ☐ Unifamiliar ☐ Bloque ☐ Bloque completo ☐ Vivienda individual	☑ Terciario ☑ Edificio completo ☐ Local

DATOS DEL TÉCNICO CERTIFICADOR:

Nombre y Apellidos	JOSE MORIANA PERICET	**NIF/NIE**	48866714V
Razón social	CEMOSA	**NIF**	A29021334
Domicilio	Pol Ind. Los Olivos C/ Innovación, 11 28906 Getafe – Madrid		
Municipio	Getafe	**Código Postal**	28906
Provincia	Madrid	**Comunidad Autónoma**	Madrid
e-mail:	jose.moriana@cemosa.es	**Teléfono**	916828727
Titulación habilitante según normativa vigente		Arquitecto	
Procedimiento reconocido de calificación energética utilizado y versión:		TeKton3D TK-CEEP Versión: 1.1.8.0, de fecha 1-abr-2024	

CALIFICACIÓN ENERGÉTICA OBTENIDA:

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m^2·año]	EMISIONES DE DIÓXIDO DE CARBONO [kgCO_2/m^2·año]
< 52,61 A 52,61-85,49 B 85,49-131,53 C 131,53-170,99 D 170,99-210,45 E 210,45-263,06 F ≥ 263,06 G **180,54 E**	< 10,91 A 10,91-17,73 B 17,73-27,28 C 27,28-35,46 D 35,46-43,65 E 43,65-54,56 F ≥ 54,56 G **42,14 E**

El técnico abajo firmante declara responsablemente que ha realizado la certificación energética del edificio o de la parte que se certifica de acuerdo con el procedimiento establecido por la normativa vigente y que son ciertos los datos que figuran en el presente documento, y sus anexos:

Fecha: 27/11/2024

Firma del técnico certificador: JOSE MORIANA PERICET

Anexo I. Descripción de las características energéticas del edificio.
Anexo II. Calificación energética del edificio.
Anexo III. Recomendaciones para la mejora de la eficiencia energética.
Anexo IV. Pruebas, comprobaciones e inspecciones realizadas por el técnico certificador.

Registro del Órgano Territorial Competente:

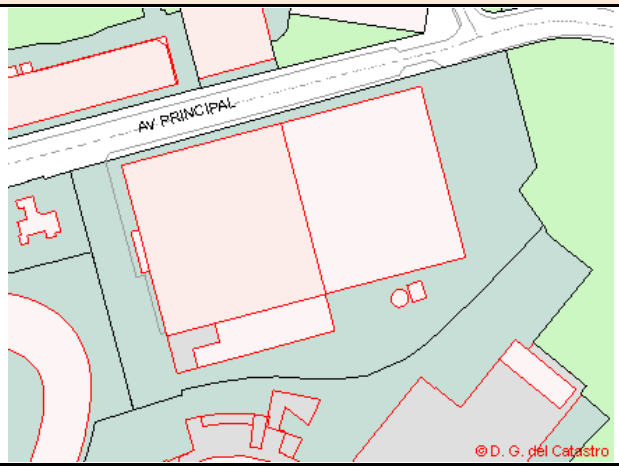
ANEXO I

DESCRIPCIÓN DE LAS CARACTERÍSTICAS ENERGÉTICAS DEL EDIFICIO

En este apartado se describen las características energéticas del edificio, envolvente térmica, instalaciones, condiciones de funcionamiento y ocupación y demás datos utilizados para obtener la calificación energética del edificio.

1. SUPERFICIE, IMAGEN Y SITUACIÓN

Superficie habitable [m^2]	27.930,84

Imagen del edificio	Plano de situación
	

2. ENVOLVENTE TÉRMICA

Cerramientos opacos

Nombre	Tipo	Superficie [m^2]	Transmitancia [$W/m^2 \cdot K$]	Modo de obtención
ANTERIOR1979.PI	ParticionInteriorVertical	700,35	1,87	Usuario
ANTERIOR1979.PI	Suelo	670,32	2,25	Usuario
CUBIERTA losa	Cubierta	470,48	2,28	Usuario
CUBIERTA8	Cubierta	9.217,26	0,21	Usuario
FORJ-LOAL-03	ParticionInteriorHorizontal	663,23	0,67	Usuario
Losa hormigón 20 cm	Suelo	9.025,02	3,37	Usuario
MUR-SOT-02	Suelo	677,16	2,70	Usuario
Muro Hormigón	Fachada	1.373,22	3,45	Usuario

Huecos y lucernarios

Nombre	Tipo	Superficie [m2]	Transmitancia [W/m2·K]	Factor solar	Modo de obtención. Transmitancia	Modo de obtención. Factor solar
Carpintería original	Hueco	5.873,56	5,70	0,47	Usuario	Usuario
Exutorios	Hueco	863,04	3,36	0,62	Usuario	Usuario

3. INSTALACIONES TÉRMICAS

Generadores de calefacción

Nombre	Tipo	Potencia nominal [kW]	Rendimiento Estacional [%]	Tipo de Energía	Modo de obtención
Calderas Gasóleo	Caldera_A.C.S. Convencional	1.000,00	93,31	GasoleoC	Usuario
Caldera Gasóleo 2	Caldera_A.C.S. Convencional	1.000,00	93,19	GasoleoC	Usuario
Caldera Gasóleo 3	Caldera_A.C.S. Convencional	1.000,00	93,55	GasoleoC	Usuario
Caldera Gasóleo 4	Caldera_A.C.S. Convencional	1.000,00	93,42	GasoleoC	Usuario
Sistema de sustitución para calefacción	Caldera_Estandar o convencional	-	70,00	GasoleoC	PorDefecto
TOTALES		**4.000,00**			

Generadores de refrigeración

Nombre	Tipo	Potencia nominal [kW]	Rendimiento Estacional [%]	Tipo de Energía	Modo de obtención
Enfriadoras	Unidad exterior expansión directa aire-aire partido	886,00	275,43	ElectricidadPeninsular	Usuario
Enfriadoras 2	Unidad exterior expansión directa aire-aire partido	886,00	266,40	ElectricidadPeninsular	Usuario
Enfriadoras 3	Unidad exterior expansión directa aire-aire partido	886,00	297,17	ElectricidadPeninsular	Usuario
Enfriadoras 4	Unidad exterior expansión directa aire-aire partido	886,00	299,16	ElectricidadPeninsular	Usuario
Sistema de sustitución para refrigeración	Equipo ideal refrigeración rendimiento constante	-	170,00	ElectricidadPeninsular	PorDefecto
TOTALES		**3.544,00**			

Instalaciones de Agua Caliente Sanitaria

Demanda diaria de ACS a 60ºC (litros/día)	300,00

Nombre	Tipo	Potencia nominal [kW]	Rendimiento Estacional [%]	Tipo de Energía	Modo de obtención
Calderas Gasóleo	Caldera_A.C.S. Convencional	1.000,00	93,31	GasoleoC	Usuario
Caldera Gasóleo 2	Caldera_A.C.S. Convencional	1.000,00	93,19	GasoleoC	Usuario
Caldera Gasóleo 3	Caldera_A.C.S. Convencional	1.000,00	93,55	GasoleoC	Usuario
Caldera Gasóleo 4	Caldera_A.C.S. Convencional	1.000,00	93,42	GasoleoC	Usuario

Sistemas secundarios de calefacción y/o refrigeración (sólo edificios terciarios)

Nombre			
Tipo			
Zona asociada			
Potencia calor [kW]	**Potencia frío [kW]**	**Rendimiento estacional calor [%]**	**Rendimiento estacional frío [%]**
Enfriamiento gratuito	**Enfriamiento evaporativo**	**Recuperación de energía**	**Control**

Torres de refrigeración (sólo edificios terciarios)

Nombre	Tipo	Servicio asociado	Consumo de energía [kWh/año]
TOTALES			

Ventilación y bombeo (sólo edificios terciarios)

Nombre	Tipo	Servicio asociado	Consumo de energía [kWh/año]
UTAs P1	Ventilador	Ventilación	76.293,76
UTAs ENT	Ventilador	Ventilación	39.700,32
PB 1 altura	Ventilador	Ventilación	37.481,12
UTA PB 2 alturas	Ventilador	Ventilación	35.621,08
TOTALES			189.096,28

4. INSTALACIÓN DE ILUMINACIÓN (sólo edificios terciarios)

Espacio	Potencia instalada [W/m ^{2}]	VEEI [W/m ^{2} ·100lux]	Iluminancia media [lux]	Modo de obtención
PB NORESTE	7,50	3,00	250,00	Usuario
PB SUROESTE	7,50	3,00	250,00	Usuario
PB ASEOS NORTE	4,40	4,00	110,00	Usuario
PB ASEOS SUR	4,50	9,00	50,00	Usuario
PB SURESTE	7,50	3,00	250,00	Usuario
PB NOROESTE	7,50	3,00	250,00	Usuario
ENT SURESTE	7,50	3,00	250,00	Usuario
ENT DESPACHOS	4,50	3,00	150,00	Usuario
ENT NOROESTE	7,50	3,00	250,00	Usuario
ENT PASILLO	1,50	8,00	18,75	Usuario
ENT NORESTE	7,50	3,00	250,00	Usuario
ENT OFICINAS	4,50	3,00	150,00	Usuario
ENT ASEOS	4,40	4,00	110,00	Usuario
ENT CAFETERIA	4,50	8,00	56,25	Usuario
ENTSUROESTE	7,50	3,00	250,00	Usuario
P1 EXT NORESTE	7,50	3,00	250,00	Usuario
P1 CENTRO SUROESTE	7,50	3,00	250,00	Usuario
P1 EXT OESTE-NORTE	7,50	3,00	250,00	Usuario
P1 EXT ESTE-SUR	7,50	3,00	250,00	Usuario
P1 CENTRO NOROESTE	7,50	3,00	250,00	Usuario
P1 EXT SURESTE	7,50	3,00	250,00	Usuario
P1 CENTRO SURESTE	7,50	3,00	250,00	Usuario
P1 EXT OESTE-SUR	7,50	3,00	250,00	Usuario
P1 EXT ESTE-NORTE	7,50	3,00	250,00	Usuario
P1 ASEOS	4,40	4,00	110,00	Usuario
P1 EXT SUR-OESTE	7,50	3,00	250,00	Usuario
P1 EXT NOROESTE	7,50	3,00	250,00	Usuario
P1 CENTRO NORESTE	7,50	3,00	250,00	Usuario
TOTALES	182,70			

5. CONDICIONES DE FUNCIONAMIENTO Y OCUPACIÓN (sólo edificios terciarios)

Espacio	Superficie [m^2]	Perfil de uso
PB NORESTE	2.150,28	noresidencial-8h-baja
PB SUROESTE	2.198,39	noresidencial-8h-baja
PB ASEOS NORTE	157,99	noresidencial-8h-baja
PB ASEOS SUR	158,85	noresidencial-8h-baja
PB SURESTE	2.162,16	noresidencial-8h-baja
PB NOROESTE	2.190,11	noresidencial-8h-baja
ENT SURESTE	2.162,16	noresidencial-8h-baja
ENT DESPACHOS	121,89	noresidencial-8h-baja
ENT NOROESTE	2.247,79	noresidencial-8h-baja
ENT PASILLO	17,76	noresidencial-8h-baja
ENT NORESTE	2.150,28	noresidencial-8h-baja
ENT OFICINAS	118,79	noresidencial-8h-baja
ENT ASEOS	187,91	noresidencial-8h-baja
ENT CAFETERIA	226,35	noresidencial-8h-baja
ENTSUROESTE	2.451,91	noresidencial-8h-baja
P1 EXT NORESTE	249,48	noresidencial-8h-baja
P1 CENTRO SUROESTE	2.086,40	noresidencial-8h-baja
P1 EXT OESTE-NORTE	107,47	noresidencial-8h-baja
P1 EXT ESTE-SUR	91,28	noresidencial-8h-baja
P1 CENTRO NOROESTE	1.917,31	noresidencial-8h-baja
P1 EXT SURESTE	225,72	noresidencial-8h-baja
P1 CENTRO SURESTE	1.845,16	noresidencial-8h-baja
P1 EXT OESTE-SUR	110,84	noresidencial-8h-baja
P1 EXT ESTE-NORTE	89,60	noresidencial-8h-baja
P1 ASEOS	125,50	noresidencial-8h-baja
P1 EXT SUR-OESTE	256,12	noresidencial-8h-baja
P1 EXT NOROESTE	282,68	noresidencial-8h-baja
P1 CENTRO NORESTE	1.811,20	noresidencial-8h-baja

6. ENERGÍAS RENOVABLES

Térmica

Nombre	Consumo de Energía Final cubierto, en función del servicio asociado [%]			Demanda de ACS cubierta [%]
	Calefacción	Refrigeración	ACS	
TOTAL	**0,00**	**0,00**	**0,00**	**0,00**

Eléctrica

Nombre	Energía eléctrica generada y autoconsumida [kWh/año]
Panel fotovoltaico	0,00
TOTAL	**0,00**

ANEXO II
CALIFICACIÓN ENERGÉTICA DEL EDIFICIO

Zona climática	D3	Uso	EdificioUsoTerciario

1. CALIFICACIÓN ENERGÉTICA DEL EDIFICIO EN EMISIONES

INDICADOR GLOBAL	INDICADORES PARCIALES			
	CALEFACCIÓN		ACS	
< 10,91 A 10,91-17,73 B 17,73-27,28 C 27,28-35,46 D 35,46-43,65 E 43,65-54,56 F ≥ 54,56 G **42,14 E**	*Emisiones calefacción [kgCO2/m2·año]*	*G*	*Emisiones ACS [kgCO2/m2·año]*	*F*
	32,27		*0,05*	
	REFRIGERACIÓN		ILUMINACIÓN	
	Emisiones refrigeración [kgCO2/m2·año]	*A*	*Emisiones iluminación [kgCO2/m2·año]*	*C*
Emisiones globales [kgCO2/m2·año] [1]	*1,47*		*6,11*	

La calificación global del edificio se expresa en términos de dióxido de carbono liberado a la atmósfera como consecuencia del consumo energético del mismo.

	[kgCO2/m2·año]	[kgCO2/año]
Emisiones CO2 por consumo eléctrico	9,82	274.281,21
Emisiones CO2 por otros combustibles	32,32	902.724,39

2. CALIFICACIÓN ENERGÉTICA DEL EDIFICIO EN CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE

Por energía primaria no renovable se entiende la energía consumida por el edificio procedente de fuentes no renovables que no ha sufrido ningún proceso de conversión o transformación.

INDICADOR GLOBAL	INDICADORES PARCIALES			
	CALEFACCIÓN		ACS	
< 52,61 A 52,61-85,49 B 85,49-131,53 C 131,53-170,99 D 170,99-210,45 E 210,45-263,06 F ≥ 263,06 G **180,54 E**	*Energía primaria calefacción [kWh/m2·año]*	*G*	*Energía primaria ACS [kWh/m2·año]*	*E*
	122,33		*0,20*	
	REFRIGERACIÓN		ILUMINACIÓN	
	Energía primaria refrigeración [kWh/m2·año]	*A*	*Energía primaria iluminación [kWh/m2·año]*	*C*
Consumo global de energía primaria no renovable [kWh/m2·año] [1]	*8,70*		*36,08*	

3. CALIFICACIÓN PARCIAL DE LA DEMANDA ENERGÉTICA DE CALEFACCIÓN Y REFRIGERACIÓN

La demanda energética de calefacción y refrigeración es la energía necesaria para mantener las condiciones internas de confort del edificio.

DEMANDA DE CALEFACCIÓN [kWh/m2·año]	DEMANDA DE REFRIGERACIÓN [kWh/m2·año]
< 12,56 A 12,56-20,41 B 20,41-31,41 C 31,41-40,83 D 40,83-50,25 E 50,25-62,81 F ≥ 62,81 G **92,66 G**	< 10,16 A 10,16-16,50 B 16,50-25,39 C 25,39-33,01 D 33,01-40,63 E 40,63-50,78 F ≥ 50,78 G **12,25 B**
Demanda de calefacción [kWh/m2·año]	*Demanda de refrigeración [kWh/m2·año]*

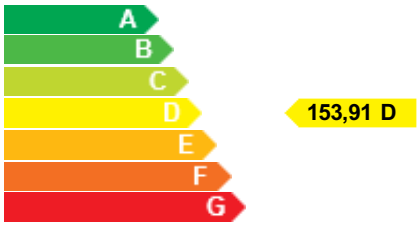
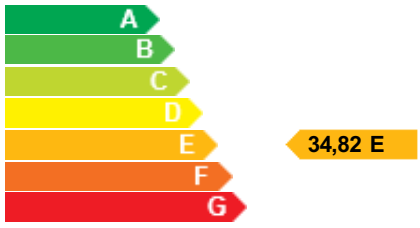
[1] El indicador global es resultado de la suma de los indicadores parciales más el valor del indicador para consumos auxiliares, si los hubiera (sólo ed. terciarios, ventilación, bombeo, etc...). La energía eléctrica autoconsumida se descuenta únicamente del indicador global, no así de los valores parciales.

ANEXO III
RECOMENDACIONES PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA

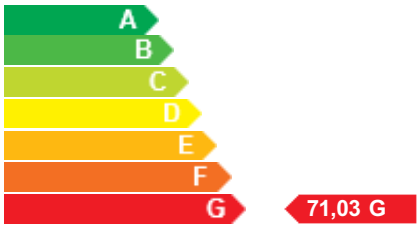
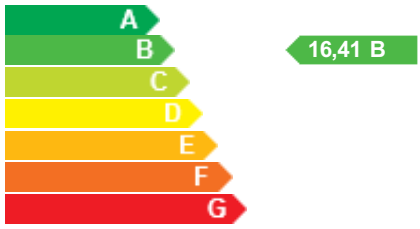
MEDIDA DE LA MEJORA DE LA EFICIENCIA ENERGÉTICA

Denominación	MAE1. FACHADAS

CALIFICACIÓN ENERGÉTICA GLOBAL

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m²·año]	EMISIONES DE DIÓXIDO DE CARBONO [kgCO₂/m²·año]
	

CALIFICACIONES ENERGÉTICAS PARCIALES

DEMANDA DE CALEFACCIÓN [kWh/m²·año]	DEMANDA DE REFRIGERACIÓN [kWh/m²·año]
	

ANÁLISIS TÉCNICO

Indicador	Calefacción			Refrigeración			ACS			Iluminación			Total		
	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a La situación original
Consumo Energía final [kWh/m2·año]	78,54		25,22 (24,3%)	6,04		-1,59 (-35,7%)	0,17		0,00 (0,0%)	18,47		0,00 (0,0%)	103,21		5,35 (4,9%)
Consumo Energía primaria no renovable [kWh/m2·año]	92,59	F	29,74 (24,3%)	11,81	A	-3,11 (-35,7%)	0,20	E	0,00 (0,0%)	36,08	C	0,00 (0,0%)	153,91	D	26,63 (14,8%)
Emisiones de CO2 [kgCO2/m2·año]	24,42	F	7,85 (24,3%)	2,00	A	-0,53 (-36,1%)	0,05	F	0,00 (0,0%)	6,11	C	0,00 (0,0%)	34,82	E	7,32 (17,4%)
Demanda [kWh/m2·año]	71,03	G	21,63 (23,3%)	16,41	B	-4,16 (-34,0%)									

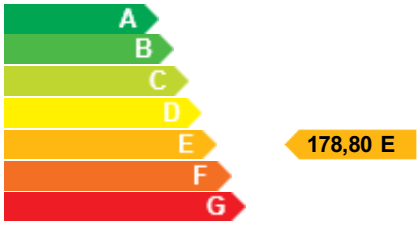
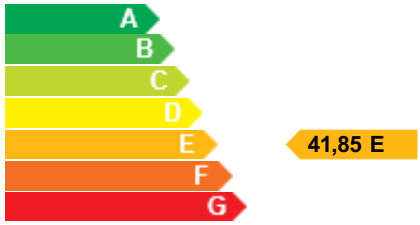
Nota: Los indicadores energéticos anteriores están calculados en base a coeficientes estándar de operación y funcionamiento del edificio, por lo que solo son válidos a efectos de su calificación energética. Para el análisis económico de las medidas de ahorro y eficiencia energética, el técnico certificador deberá utilizar las condiciones reales y datos históricos de consumo del edificio.

DESCRIPCIÓN DE LA MEDIDA DE MEJORA
Características técnicas de la medida (modelo de equipos, materiales, parámetros característicos) Según proyecto
Coste estimado de la medida Según proyecto
Otros datos de interés

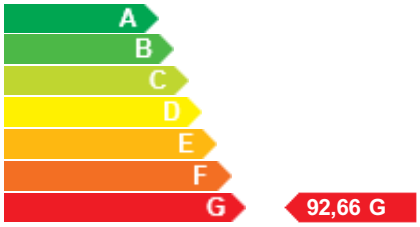
MEDIDA DE LA MEJORA DE LA EFICIENCIA ENERGÉTICA

Denominación	MAE2. Nuevas UTAS en P1

CALIFICACIÓN ENERGÉTICA GLOBAL

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m^2·año]	EMISIONES DE DIÓXIDO DE CARBONO [kgCO_2/m^2·año]
	

CALIFICACIONES ENERGÉTICAS PARCIALES

DEMANDA DE CALEFACCIÓN [kWh/m^2·año]	DEMANDA DE REFRIGERACIÓN [kWh/m^2·año]
	

ANÁLISIS TÉCNICO

Indicador	Calefacción			Refrigeración			ACS			Iluminación			Total		
	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a La situación original
Consumo Energía final [kWh/m2·año]	103,76		0,00 (0,0%)	4,45		0,00 (0,0%)	0,17		0,00 (0,0%)	18,47		0,00 (0,0%)	126,84		-18,28 (-16,8%)
Consumo Energía primaria no renovable [kWh/m2·año]	122,33	G	0,00 (0,0%)	8,70	A	0,00 (0,0%)	0,20	E	0,00 (0,0%)	36,08	C	0,00 (0,0%)	178,80	E	1,74 (1,0%)
Emisiones de CO2 [kgCO2/m2·año]	32,27	G	0,00 (0,0%)	1,47	A	0,00 (0,0%)	0,05	F	0,00 (0,0%)	6,11	C	0,00 (0,0%)	41,85	E	0,29 (0,7%)
Demanda [kWh/m2·año]	92,66	G	0,00 (0,0%)	12,25	B	0,00 (0,0%)									

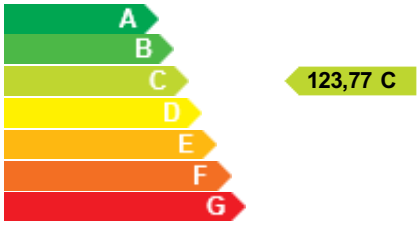
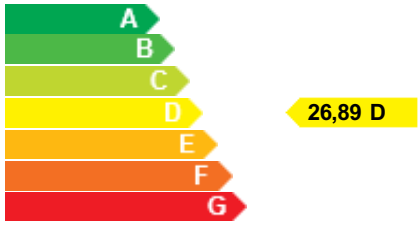
Nota: Los indicadores energéticos anteriores están calculados en base a coeficientes estándar de operación y funcionamiento del edificio, por lo que solo son válidos a efectos de su calificación energética. Para el análisis económico de las medidas de ahorro y eficiencia energética, el técnico certificador deberá utilizar las condiciones reales y datos históricos de consumo del edificio.

DESCRIPCIÓN DE LA MEDIDA DE MEJORA
Características técnicas de la medida (modelo de equipos, materiales, parámetros característicos) Según proyecto
Coste estimado de la medida Según proyecto
Otros datos de interés

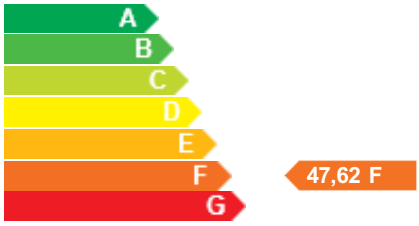
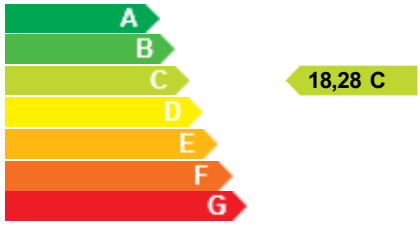
MEDIDA DE LA MEJORA DE LA EFICIENCIA ENERGÉTICA

Denominación	MAE3. Mejora de Fachada y UTAs en P1

CALIFICACIÓN ENERGÉTICA GLOBAL

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m^2·año]	EMISIONES DE DIÓXIDO DE CARBONO [kgCO_2/m^2·año]
	

CALIFICACIONES ENERGÉTICAS PARCIALES

DEMANDA DE CALEFACCIÓN [kWh/m^2·año]	DEMANDA DE REFRIGERACIÓN [kWh/m^2·año]
	

ANÁLISIS TÉCNICO

Indicador	Calefacción			Refrigeración			ACS			Iluminación			Total		
	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a la situación original	Valor		Ahorro respecto a La situación original
Consumo Energía final [kWh/m2·año]	53,05		50,71 (48,9%)	6,88		-2,43 (-54,6%)	0,17		0,00 (0,0%)	18,47		0,00 (0,0%)	78,57		29,99 (27,6%)
Consumo Energía primaria no renovable [kWh/m2·año]	62,55	E	59,78 (48,9%)	13,45	B	-4,75 (-54,6%)	0,20	E	0,00 (0,0%)	36,08	C	0,00 (0,0%)	123,77	C	56,77 (31,4%)
Emisiones de CO2 [kgCO2/m2·año]	16,50	E	15,77 (48,9%)	2,28	B	-0,81 (-55,1%)	0,05	F	0,00 (0,0%)	6,11	C	0,00 (0,0%)	26,89	D	15,25 (36,2%)
Demanda [kWh/m2·año]	47,62	F	45,04 (48,6%)	18,28	C	-6,03 (-49,2%)									

Nota: Los indicadores energéticos anteriores están calculados en base a coeficientes estándar de operación y funcionamiento del edificio, por lo que solo son válidos a efectos de su calificación energética. Para el análisis económico de las medidas de ahorro y eficiencia energética, el técnico certificador deberá utilizar las condiciones reales y datos históricos de consumo del edificio.

DESCRIPCIÓN DE LA MEDIDA DE MEJORA
Características técnicas de la medida (modelo de equipos, materiales, parámetros característicos) Según Proyecto
Coste estimado de la medida Según Proyecto
Otros datos de interés

ANEXO IV
PRUEBAS, COMPROBACIONES E INSPECCIONES REALIZADAS POR EL TÉCNICO CERTIFICADOR

Se describen a continuación las pruebas, comprobaciones e inspecciones llevadas a cabo por el técnico certificador durante el proceso de toma de datos y de calificación de la eficiencia energética del edificio, con la finalidad de establecer la conformidad de la información de partida contenida en el certificado de eficiencia energética.

Fecha de realización de la visita del técnico certificador	

11. ANEJO XI. CEE DEL ESTADO RESULTANTE (MAE 1 + MAE 2)

CERTIFICADO DE EFICIENCIA ENERGÉTICA DE EDIFICIOS

IDENTIFICACIÓN DEL EDIFICIO O DE LA PARTE QUE SE CERTIFICA:

Nombre del edificio	Pabellón de Cristal		
Dirección	Avenida Principal, 16, Moncloa - Aravaca, 28011 Madrid		
Municipio	Madrid	**Código Postal**	28011
Provincia	Madrid	**Comunidad Autónoma**	Comunidad de Madrid
Zona climática	D3	**Año construcción**	1960
Plantas sobre rasante	B+2	**Plantas bajo rasante**	0
Normativa vigente (construcción / rehabilitación)		Anterior a NBE-CT-79	
Referencia/s catastral/es		7541208VK3774B0001QY	

Tipo de edificio o parte del edificio que se certifica:	
☐ Edificio de nueva construcción	☑ Edificio Existente
☐ Vivienda ☐ Unifamiliar ☐ Bloque ☐ Bloque completo ☐ Vivienda individual	☑ Terciario ☑ Edificio completo ☐ Local

DATOS DEL TÉCNICO CERTIFICADOR:

Nombre y Apellidos	JOSE MORIANA PERICET	**NIF/NIE**	48866714V
Razón social	CEMOSA	**NIF**	A29021334
Domicilio	Pol Ind. Los Olivos C/ Innovación, 11 28906 Getafe – Madrid		
Municipio	Getafe	**Código Postal**	28906
Provincia	Madrid	**Comunidad Autónoma**	Madrid
e-mail:	jose.moriana@cemosa.es	**Teléfono**	916828727
Titulación habilitante según normativa vigente		Arquitecto	
Procedimiento reconocido de calificación energética utilizado y versión:		TeKton3D TK-CEEP Versión: 1.1.8.0, de fecha 1-abr-2024	

CALIFICACIÓN ENERGÉTICA OBTENIDA:

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m²·año]	**EMISIONES DE DIÓXIDO DE CARBONO [kgCO_2/m²·año]**
< 50,75 A 50,75-82,48 B 82,48-126,89 C **123,77 C** 126,89-164,95 D 164,95-203,02 E 203,02-253,77 F ≥ 253,77 G	< 10,38 A 10,38-16,86 B 16,86-25,95 C 25,95-33,73 D **26,89 D** 33,73-41,51 E 41,51-51,89 F ≥ 51,89 G

El técnico abajo firmante declara responsablemente que ha realizado la certificación energética del edificio o de la parte que se certifica de acuerdo con el procedimiento establecido por la normativa vigente y que son ciertos los datos que figuran en el presente documento, y sus anexos:

Fecha: 26/11/2024

Firma del técnico certificador: JOSE MORIANA PERICET

Anexo I. Descripción de las características energéticas del edificio.
Anexo II. Calificación energética del edificio.
Anexo III. Recomendaciones para la mejora de la eficiencia energética.
Anexo IV. Pruebas, comprobaciones e inspecciones realizadas por el técnico certificador.

Registro del Órgano Territorial Competente:

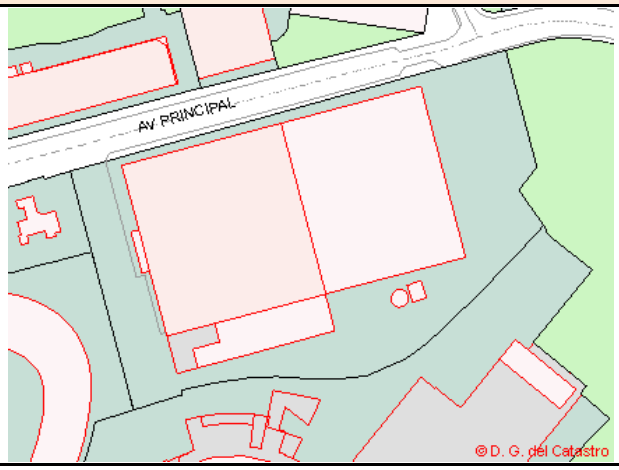
ANEXO I

DESCRIPCIÓN DE LAS CARACTERÍSTICAS ENERGÉTICAS DEL EDIFICIO

En este apartado se describen las características energéticas del edificio, envolvente térmica, instalaciones, condiciones de funcionamiento y ocupación y demás datos utilizados para obtener la calificación energética del edificio.

1. SUPERFICIE, IMAGEN Y SITUACIÓN

Superficie habitable [m^2]	27.930,84

Imagen del edificio	Plano de situación
	

2. ENVOLVENTE TÉRMICA

Cerramientos opacos

Nombre	Tipo	Superficie [m^2]	Transmitancia [$W/m^2 \cdot K$]	Modo de obtención
ANTERIOR1979.PI	ParticionInteriorVertical	700,35	1,87	Usuario
ANTERIOR1979.PI	Suelo	670,32	2,25	Usuario
CUBIERTA losa	Cubierta	470,48	2,28	Usuario
CUBIERTA8	Cubierta	9.217,26	0,21	Usuario
FORJ-LOAL-03	ParticionInteriorHorizontal	663,23	0,67	Usuario
Losa hormigón 20 cm	Suelo	9.025,02	3,37	Usuario
MUR-SOT-02	Suelo	677,16	2,70	Usuario
Muro Hormigón	Fachada	1.373,22	3,45	Usuario

Huecos y lucernarios

Nombre	Tipo	Superficie [m2]	Transmitancia [W/m2·K]	Factor solar	Modo de obtención. Transmitancia	Modo de obtención. Factor solar
MAE Cortizo	Hueco	5.873,56	1,60	0,42	Usuario	Usuario
Exutorios	Hueco	863,04	3,36	0,62	Usuario	Usuario

3. INSTALACIONES TÉRMICAS

Generadores de calefacción

Nombre	Tipo	Potencia nominal [kW]	Rendimiento Estacional [%]	Tipo de Energía	Modo de obtención
Calderas Gasóleo	Caldera_A.C.S. Convencional	1.000,00	93,16	GasoleoC	Usuario
Caldera Gasóleo 2	Caldera_A.C.S. Convencional	1.000,00	92,97	GasoleoC	Usuario
Caldera Gasóleo 3	Caldera_A.C.S. Convencional	1.000,00	92,95	GasoleoC	Usuario
Caldera Gasóleo 4	Caldera_A.C.S. Convencional	1.000,00	92,33	GasoleoC	Usuario
Sistema de sustitución para calefacción	Caldera_Estandar o convencional	-	70,00	GasoleoC	PorDefecto
TOTALES		**4.000,00**			

Generadores de refrigeración

Nombre	Tipo	Potencia nominal [kW]	Rendimiento Estacional [%]	Tipo de Energía	Modo de obtención
Enfriadoras	Unidad exterior expansión directa aire-aire partido	886,00	275,81	ElectricidadPeninsular	Usuario
Enfriadoras 2	Unidad exterior expansión directa aire-aire partido	886,00	271,57	ElectricidadPeninsular	Usuario
Enfriadoras 3	Unidad exterior expansión directa aire-aire partido	886,00	286,49	ElectricidadPeninsular	Usuario
Enfriadoras 4	Unidad exterior expansión directa aire-aire partido	886,00	282,51	ElectricidadPeninsular	Usuario
Sistema de sustitución para refrigeración	Equipo ideal refrigeración rendimiento constante	-	170,00	ElectricidadPeninsular	PorDefecto
TOTALES		**3.544,00**			

Instalaciones de Agua Caliente Sanitaria

Demanda diaria de ACS a 60ºC (litros/día)	300,00

Nombre	Tipo	Potencia nominal [kW]	Rendimiento Estacional [%]	Tipo de Energía	Modo de obtención
Calderas Gasóleo	Caldera_A.C.S. Convencional	1.000,00	93,16	GasoleoC	Usuario
Caldera Gasóleo 2	Caldera_A.C.S. Convencional	1.000,00	92,97	GasoleoC	Usuario
Caldera Gasóleo 3	Caldera_A.C.S. Convencional	1.000,00	92,95	GasoleoC	Usuario
Caldera Gasóleo 4	Caldera_A.C.S. Convencional	1.000,00	92,33	GasoleoC	Usuario

Sistemas secundarios de calefacción y/o refrigeración (sólo edificios terciarios)

Nombre			
Tipo			
Zona asociada			
Potencia calor [kW]	**Potencia frío [kW]**	**Rendimiento estacional calor [%]**	**Rendimiento estacional frío [%]**
Enfriamiento gratuito	**Enfriamiento evaporativo**	**Recuperación de energía**	**Control**

Torres de refrigeración (sólo edificios terciarios)

Nombre	Tipo	Servicio asociado	Consumo de energía [kWh/año]
TOTALES			

Ventilación y bombeo (sólo edificios terciarios)

Nombre	Tipo	Servicio asociado	Consumo de energía [kWh/año]
Nuevas UTAs P1	Ventilador/Recuperador de calor	Ventilación	51.497,12
Nuevas UTAs ENT	Ventilador	Ventilación	39.700,32
Nuevas UTAs PB 1 altura	Ventilador	Ventilación	37.481,12
Nuevas UTA PB 2 alturas	Ventilador	Ventilación	35.621,08
TOTALES			164.299,64

4. INSTALACIÓN DE ILUMINACIÓN (sólo edificios terciarios)

Espacio	Potencia instalada [W/m ^{2}]	VEEI [W/m ^{2} ·100lux]	Iluminancia media [lux]	Modo de obtención
PB NORESTE	7,50	3,00	250,00	Usuario
PB SUROESTE	7,50	3,00	250,00	Usuario
PB ASEOS NORTE	4,40	4,00	110,00	Usuario
PB ASEOS SUR	4,50	9,00	50,00	Usuario
PB SURESTE	7,50	3,00	250,00	Usuario
PB NOROESTE	7,50	3,00	250,00	Usuario
ENT SURESTE	7,50	3,00	250,00	Usuario
ENT DESPACHOS	4,50	3,00	150,00	Usuario
ENT NOROESTE	7,50	3,00	250,00	Usuario
ENT PASILLO	1,50	8,00	18,75	Usuario
ENT NORESTE	7,50	3,00	250,00	Usuario
ENT OFICINAS	4,50	3,00	150,00	Usuario
ENT ASEOS	4,40	4,00	110,00	Usuario
ENT CAFETERIA	4,50	8,00	56,25	Usuario
ENTSUROESTE	7,50	3,00	250,00	Usuario
P1 EXT NORESTE	7,50	3,00	250,00	Usuario
P1 CENTRO SUROESTE	7,50	3,00	250,00	Usuario
P1 EXT OESTE-NORTE	7,50	3,00	250,00	Usuario
P1 EXT ESTE-SUR	7,50	3,00	250,00	Usuario
P1 CENTRO NOROESTE	7,50	3,00	250,00	Usuario
P1 EXT SURESTE	7,50	3,00	250,00	Usuario
P1 CENTRO SURESTE	7,50	3,00	250,00	Usuario
P1 EXT OESTE-SUR	7,50	3,00	250,00	Usuario
P1 EXT ESTE-NORTE	7,50	3,00	250,00	Usuario
P1 ASEOS	4,40	4,00	110,00	Usuario
P1 EXT SUR-OESTE	7,50	3,00	250,00	Usuario
P1 EXT NOROESTE	7,50	3,00	250,00	Usuario
P1 CENTRO NORESTE	7,50	3,00	250,00	Usuario
TOTALES	182,70			

5. CONDICIONES DE FUNCIONAMIENTO Y OCUPACIÓN (sólo edificios terciarios)

Espacio	Superficie [m^2]	Perfil de uso
PB NORESTE	2.150,28	noresidencial-8h-baja
PB SUROESTE	2.198,39	noresidencial-8h-baja
PB ASEOS NORTE	157,99	noresidencial-8h-baja
PB ASEOS SUR	158,85	noresidencial-8h-baja
PB SURESTE	2.162,16	noresidencial-8h-baja
PB NOROESTE	2.190,11	noresidencial-8h-baja
ENT SURESTE	2.162,16	noresidencial-8h-baja
ENT DESPACHOS	121,89	noresidencial-8h-baja
ENT NOROESTE	2.247,79	noresidencial-8h-baja
ENT PASILLO	17,76	noresidencial-8h-baja
ENT NORESTE	2.150,28	noresidencial-8h-baja
ENT OFICINAS	118,79	noresidencial-8h-baja
ENT ASEOS	187,91	noresidencial-8h-baja
ENT CAFETERIA	226,35	noresidencial-8h-baja
ENTSUROESTE	2.451,91	noresidencial-8h-baja
P1 EXT NORESTE	249,48	noresidencial-8h-baja
P1 CENTRO SUROESTE	2.086,40	noresidencial-8h-baja
P1 EXT OESTE-NORTE	107,47	noresidencial-8h-baja
P1 EXT ESTE-SUR	91,28	noresidencial-8h-baja
P1 CENTRO NOROESTE	1.917,31	noresidencial-8h-baja
P1 EXT SURESTE	225,72	noresidencial-8h-baja
P1 CENTRO SURESTE	1.845,16	noresidencial-8h-baja
P1 EXT OESTE-SUR	110,84	noresidencial-8h-baja
P1 EXT ESTE-NORTE	89,60	noresidencial-8h-baja
P1 ASEOS	125,50	noresidencial-8h-baja
P1 EXT SUR-OESTE	256,12	noresidencial-8h-baja
P1 EXT NOROESTE	282,68	noresidencial-8h-baja
P1 CENTRO NORESTE	1.811,20	noresidencial-8h-baja

6. ENERGÍAS RENOVABLES

Térmica

Nombre	Consumo de Energía Final cubierto, en función del servicio asociado [%]			Demanda de ACS cubierta [%]
	Calefacción	Refrigeración	ACS	
TOTAL	**0,00**	**0,00**	**0,00**	**0,00**

Eléctrica

Nombre	Energía eléctrica generada y autoconsumida [kWh/año]
Panel fotovoltaico	0,00
TOTAL	**0,00**

ANEXO II
CALIFICACIÓN ENERGÉTICA DEL EDIFICIO

Zona climática	D3	Uso	EdificioUsoTerciario

1. CALIFICACIÓN ENERGÉTICA DEL EDIFICIO EN EMISIONES

INDICADOR GLOBAL	INDICADORES PARCIALES			
	CALEFACCIÓN		ACS	
< 10,38 A 10,38-16,86 B 16,86-25,95 C 25,95-33,73 D 33,73-41,51 E 41,51-51,89 F ≥ 51,89 G **26,89 D**	*Emisiones calefacción [kgCO$_2$/m^2·año]*	*E*	*Emisiones ACS [kgCO$_2$/m^2·año]*	*F*
	16,50		*0,05*	
	REFRIGERACIÓN		ILUMINACIÓN	
	Emisiones refrigeración [kgCO$_2$/m^2·año]	*B*	*Emisiones iluminación [kgCO$_2$/m^2·año]*	*C*
Emisiones globales [kgCO$_2$/m^2·año] [1]	*2,28*		*6,11*	

La calificación global del edificio se expresa en términos de dióxido de carbono liberado a la atmósfera como consecuencia del consumo energético del mismo.

	[kgCO$_2$/m^2·año]	[kgCO$_2$/año]
Emisiones CO2 por consumo eléctrico	10,34	288.774,21
Emisiones CO2 por otros combustibles	16,55	462.286,08

2. CALIFICACIÓN ENERGÉTICA DEL EDIFICIO EN CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE

Por energía primaria no renovable se entiende la energía consumida por el edificio procedente de fuentes no renovables que no ha sufrido ningún proceso de conversión o transformación.

INDICADOR GLOBAL	INDICADORES PARCIALES			
	CALEFACCIÓN		ACS	
< 50,75 A 50,75-82,48 B 82,48-126,89 C 126,89-164,95 D 164,95-203,02 E 203,02-253,77 F ≥ 253,77 G **123,77 C**	*Energía primaria calefacción [kWh/m^2·año]*	*E*	*Energía primaria ACS [kWh/m^2·año]*	*E*
	62,55		*0,20*	
	REFRIGERACIÓN		ILUMINACIÓN	
	Energía primaria refrigeración [kWh/m^2·año]	*B*	*Energía primaria iluminación [kWh/m^2·año]*	*C*
Consumo global de energía primaria no renovable [kWh/m^2·año] [1]	*13,45*		*36,08*	

3. CALIFICACIÓN PARCIAL DE LA DEMANDA ENERGÉTICA DE CALEFACCIÓN Y REFRIGERACIÓN

La demanda energética de calefacción y refrigeración es la energía necesaria para mantener las condiciones internas de confort del edificio.

DEMANDA DE CALEFACCIÓN [kWh/m^2·año]	DEMANDA DE REFRIGERACIÓN [kWh/m^2·año]
< 11,19 A 11,19-18,18 B 18,18-27,97 C 27,97-36,36 D 36,36-44,75 E 44,75-55,94 F ≥ 55,94 G **47,62 F**	< 11,16 A 11,16-18,14 B 18,14-27,90 C 27,90-36,27 D 36,27-44,65 E 44,65-55,81 F ≥ 55,81 G **18,28 C**
Demanda de calefacción [kWh/m^2·año]	*Demanda de refrigeración [kWh/m^2·año]*

[1] El indicador global es resultado de la suma de los indicadores parciales más el valor del indicador para consumos auxiliares, si los hubiera (sólo ed. terciarios, ventilación, bombeo, etc...). La energía eléctrica autoconsumida se descuenta únicamente del indicador global, no así de los valores parciales.

ANEXO III
RECOMENDACIONES PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA

No se han definido medidas de mejora de la eficiencia energética

ANEXO IV
PRUEBAS, COMPROBACIONES E INSPECCIONES REALIZADAS POR EL TÉCNICO CERTIFICADOR

Se describen a continuación las pruebas, comprobaciones e inspecciones llevadas a cabo por el técnico certificador durante el proceso de toma de datos y de calificación de la eficiencia energética del edificio, con la finalidad de establecer la conformidad de la información de partida contenida en el certificado de eficiencia energética.

Fecha de realización de la visita del técnico certificador	

12. ANEJO XII. ESTUDIO DE SEGURIDAD Y SALUD

12.1. MEMORIA

12.1.1. OBJETO Y JUSTIFICACIÓN DEL ESTUDIO DE SEGURIDAD Y SALUD

El equipo proyectista, al afrontar la tarea de redactar el presente Estudio de Seguridad y Salud para la obra: PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO DE MADRID, se enfrenta con el problema de definir los riesgos que en su día se puedan presentar en la realización de la obra.

El presente Estudio de Seguridad y Salud se redacta en cumplimiento de lo dispuesto en el Real Decreto 1627/1997, de 24 de octubre, sobre disposiciones mínimas de seguridad y salud en las obras de construcción, teniendo como objetivo la prevención de accidentes laborales, enfermedades profesionales y daños a terceros que las actividades y medios materiales previstos puedan ocasionar durante la ejecución de la obra anteriormente citada.

De acuerdo con ello, este estudio debe ser complementado, antes del inicio de la obra, por el plan de seguridad y salud elaborado por el contratista. Dicho plan desarrollará las medidas preventivas previstas en el estudio, adaptando éstas a las técnicas y soluciones que han de ponerse finalmente en obra. Eventualmente, el plan de seguridad y salud podrá proponer alternativas preventivas a las medidas planificadas aquí, en las condiciones establecidas en el artículo 7 del ya citado Real Decreto 1627/1997. En su conjunto, el plan de seguridad y salud constituirá el conjunto de medidas y actuaciones preventivas derivadas de este estudio, que el contratista se compromete a disponer en las distintas actividades y fases de la obra, sin perjuicio de las modificaciones y actualizaciones que pueda haber lugar, en las condiciones reglamentariamente establecidas.

Además, sirve para dar las directrices básicas a la Empresa Contratista para llevar a cabo su obligación de redacción de un Plan de Seguridad y Salud en el que se analicen, estudien, desarrollen y complementen en función de su propio sistema de ejecución de obra, las previsiones contenidas en este estudio; en dicho Plan se incluirán las propuestas de medidas alternativas de prevención que el contratista proponga previa justificación técnica, que no podrán implicar disminución ni de los niveles de protección previstos ni de la valoración económica de los mismos dentro del presente estudio, por ello los errores u omisiones que pudieran existir en el mismo, nunca podrán ser tomados por el contratista en su favor.

En consecuencia, se contemplará específicamente una actuación preventiva eficaz, respecto de los riesgos profesionales que pudieran derivarse, procurando para ello, la protección integral de cuantos trabajadores intervengan en el proceso productivo, desde el propio inicio de la obra.

Así mismo, se establecerán las medidas preventivas adecuadas respecto de los riesgos que se deriven, bien durante la realización de la obra o terminada esta, por los trabajos de reparación, conservación, entretenimiento y mantenimiento, y las instalaciones preceptivas de higiene, salud y bienestar de los trabajadores.

La realización del presente Estudio de Seguridad y Salud queda justificada en virtud de lo contemplado en el artículo 4 del R.D. 1627/97, que establece:

> *"El promotor estará obligado a que en la fase de redacción del proyecto se elabore un estudio de seguridad y salud en los proyectos de obras en que se den alguno de los supuestos siguientes:*
>
> - *Que el presupuesto de ejecución por contrata incluido en el proyecto sea igual o superior a 450.000 Euros.*
> - *Que la duración estimada sea superior a 30 días laborables, empleándose en algún momento a más de 20 trabajadores simultáneamente.*
> - *Que el volumen de mano de obra estimada, entendiendo por tal la suma de los días de trabajo del total de los trabajadores en la obra, sea superior a 500.*
> - *Las obras de túneles, galerías, conducciones subterráneas y presas ".*

El presupuesto base de licitación es de 2.644.761,02 €.

El proyecto dentro del que se enmarca el presente estudio de seguridad y salud supera los 450.000 Euros definidos en el punto 1, por lo que es obligatoria la redacción de un estudio de seguridad y salud.

12.1.2. DATOS GENERALES DEL PROYECTO Y DEL ESTUDIO DE SEGURIDAD Y SALUD

DATOS GENERALES DEL PROYECTO	
Promotor de la obra:	**MADRID DESTINO CULTURA TURISMO Y NEGOCIO S.A.** Dirección: Calle Conde Duque 9-11, 28015 (Madrid) CIF: A-84073105
Proyecto sobre el que se trabaja:	**PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO**
Autor del ESS	D. JOSÉ MORIANA PERICET Arquitecto Colegiado nº 375 C.O.A.CO. Domicilio a efectos de notificaciones en: C/ Innovación, 11; Pol. Ind. Los Olivos 28906. Getafe. Madrid.
Plazo para la ejecución de la obra:	6 meses
Tipología de la obra a construir:	Reforma energética y obras de rehabilitación

Es voluntad del autor de este Estudio de Seguridad y Salud, identificar los riesgos y evaluar la eficacia de la prevención prevista sobre el proyecto y consecuentemente, diseñar la prevención que pueda idear a su buen saber y entender técnico.

Confía en que, si surgiese alguna laguna preventiva, el contratista, como empresario principal, a la hora de elaborar su Plan de seguridad y salud en el trabajo, será capaz de detectarla y presentarla para que se la analice en toda su importancia, proponiendo la mejor solución posible. Todo ello, debe entenderse como la consecuencia del estudio de los datos que el promotor ha facilitado relativos a las necesidades planteadas, objeto de proyecto.

Se confía en que, con los datos mencionados anteriormente y el perfil empresarial exigible al contratista, el contenido de este estudio de seguridad y salud sea coherente con la tecnología utilizable por el mismo, con la intención de que el Plan de seguridad y salud que elabore, encaje técnica y económicamente sin diferencias notables con este trabajo.

En este trabajo, se considera que es obligación del Contratista, disponer los recursos materiales, económicos, humanos, preventivos y de formación necesarios para conseguir que el proceso de producción de construcción de esta obra sea seguro.

Los objetivos de este trabajo preventivo son:

A. Conocer el proyecto a construir, la tecnología, los procedimientos de trabajo y organización previstos para la ejecución de la obra, así como el entorno, condiciones físicas y climatología del lugar donde se debe realizar dicha obra, para poder identificar y analizar los posibles riesgos de seguridad y salud en el trabajo.

B. Analizar todas las unidades de obra del proyecto, en función de sus factores: formal y de ubicación, coherentemente con la tecnología y métodos viables de construcción.

C. Colaborar con el proyectista para estudiar y adoptar soluciones técnicas y de organización que permitan incorporar los Principios de Acción Preventiva del artículo 15 de la Ley de Prevención de Riesgos Laborales que eliminen o disminuyan los riesgos.

D. Identificar los riesgos evitables proponiendo las medidas para conseguirlo.

E. Relacionar los riesgos inevitables especificando las soluciones para controlarlos y reducirlos mediante los procedimientos, equipos técnicos y medios auxiliares a utilizar.

F. Diseñar, proponer y poner en práctica tras la toma de decisiones de proyecto y como consecuencia de la tecnología que se utilizará definir las: soluciones por aplicación de tecnología segura en sí misma, protecciones colectivas, equipos de protección individual, procedimientos de trabajo seguro, los servicios sanitarios y comunes, a implantar durante todo el proceso de esta construcción.

G. Presupuestar los costes de la prevención e incluir los planos y gráficos necesarios para la comprensión de la prevención proyectada.

H. Ser base para la elaboración del Plan de seguridad y salud por el contratista y formar parte junto al mismo y el plan de prevención de empresa, de las herramientas de planificación e implantación de la prevención en la obra.

I. Divulgar la prevención proyectada para esta obra, a través del Plan de seguridad y salud que elabore el Contratista. La divulgación se efectuará entre todos los que intervienen en el proceso de construcción. Se espera que sea capaz por sí misma, de animar a todos los que intervengan en la obra a ponerla en práctica con el fin de lograr su mejor y más razonable colaboración. Sin esta colaboración inexcusable y la del contratista, de nada servirá este trabajo. Por ello, este conjunto documental se proyecta hacia el contratista, los subcontratistas y los trabajadores autónomos que van a ejecutar la obra; debe llegar a todos ellos, mediante los mecanismos previstos en los textos y planos de este

trabajo técnico, en aquellas partes que les afecten directamente y en su medida. En cualquier caso, se recuerda, que en virtud del RD 171/2004, cada empresario, se convierte en "contratista principal de aquellos a los que subcontrata y estos a su vez de los que subcontraten, por consiguiente, el Plan de seguridad y salud deberá resolver eficazmente el método de comunicación de riesgos y su solución en dirección a las subcontrataciones y de éstas hacia los diversos "empresarios principales".

J. Crear un ambiente de salud laboral en la obra, mediante el cual, la prevención de las enfermedades profesionales sea eficaz.

K. Definir las actuaciones a seguir en el caso de accidente, de tal forma, que la asistencia al accidentado sea la oportuna a su caso concreto y aplicada con la máxima celeridad y atención posibles.

L. Expresar un método formativo e informativo para prevenir los accidentes, llegando a definir y a aplicar en la obra los métodos correctos de trabajo.

M. Hacer llegar la prevención de riesgos, gracias a su presupuesto, a cada empresa o autónomos que trabajen en la obra, de tal forma, que se eviten prácticas contrarias a la seguridad y salud.

N. Colaborar a que el proyecto prevea las instrucciones de uso, mantenimiento y las previsiones e informaciones útiles para efectuar en su día, en las debidas condiciones de seguridad y salud, los previsibles trabajos posteriores: de reparación, conservación y mantenimiento. Esto se elaborará una vez conocidas las acciones necesarias para las operaciones de mantenimiento y conservación tanto de la obra en sí como de sus instalaciones.

SE COMUNICA EXPRESAMENTE PARA SU CONOCIMIENTO Y EFECTOS:

Este Estudio de Seguridad y Salud en el trabajo, es un capítulo más del proyecto de ejecución que debe ejecutarse. Según la interpretación legal de la legislación realizada por el Instituto Nacional de Seguridad e Higiene en el Trabajo, para que sea eficaz, es necesario que esté presente en obra junto al proyecto de ejecución del que es parte y al Plan de Seguridad y Salud en el trabajo que lo desarrolla en su caso y complementa. El contratista, debe saber, que el Plan de Seguridad y Salud no sustituye a este documento preventivo, y que esa creencia, es un error de interpretación jurídica.

12.1.3. DESCRIPCIÓN GENERAL DE LA OBRA

El presente proyecto tiene como finalidad, por una parte, desarrollar los procedimientos de actuación para realizar la rehabilitación energética de un edificio existente.

La referencia catastral de la parcela es la nº 7541208VK3774B.

Dichas obras se encuadran dentro del ACUERDO POR EL QUE SE APRUEBA EL PLAN DE INFRAESTRUCTURAS DE LA SEGURIDAD DEL ESTADO PARA LA TRANSICIÓN ENERGÉTICA, EN EL MARCO DEL PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA, Y SE CONSIDERAN DE INTERÉS GENERAL LAS ACTUACIONES INCLUIDAS EN EL MISMO.

Para la redacción del presente estudio se ha recurrido a las siguientes fuentes:

- Programa de necesidades
- Proyecto básico y de ejecución; éste se ha redactado de forma simultánea al estudio, para la integración de los principios generales al proyecto de obra contemplados en el art. 8.

El redactor del Proyecto es el Arquitecto, **D. José Moriana Pericet**, colegiado nº 375 del COA de Córdoba, empleado de la empresa adjudicataria de la redacción del proyecto CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRA (CEMOSA).

12.1.4. NÚMERO DE TRABAJADORES

TRABAJADORES ESTIMADOS EN ACTUACIONES ASOCIADAS A ESTE PROYECTO:

CÁLCULO MEDIO DEL NÚMERO DE TRABAJADORES A INTERVENIR EN LA OBRA	
Prespuesto de Ejecución Material	1.836.767,15 €
Importe porcentual del coste de la mano de obra	5,47%
Importe del coste de la mano de obra	100.515,86 €
Nº medio de horas trabajadas por los trabajadores en un año	1720
Duración de la obra (meses)	6
Nº medio de horas trabajadas por los trabajadores en la duración de la obra	860
Precio medio hora / trabajadores	20,50 €
Coste global por horas	17.630,00 €
Número medio de trabajadores / obra	**6**

El cálculo de trabajadores, base para el cálculo de consumo de los "equipos de protección individual", así como para el cálculo de las "Instalaciones Provisionales para los Trabajadores", arroja como resultado **6 trabajadores de media para las actuaciones destinadas a este proyecto .**

Para lograr una mejora efectiva e las condiciones de trabajo de la obra es preciso anticipar la consideración de dichos aspectos a la etapa de elaboración de proyecto.

En pro de la seguridad, teniendo presente la necesidad de incorporar y aplicar principios de acción preventiva desde la fase de proyecto, se plantea aumentar el número de trabajadores por los siguientes motivos:

-Debido a las características de la obra, a la naturaleza de los trabajos y a los oficios implicados, existe una alta posibilidad de que existan varias empresas y que éstas confluyan a la misma vez y sea necesaria una coordinación de actividades empresariales (CAE) durante la fase de ejecución.

Sí es cierto que existirán situaciones especiales en que la actividad de presencia de personal será mayor o menor, por ello se tomará la cantidad de trabajadores reflejada como una estimación, quedando a disposición del contratista principal la decisión del número de trabajadores si efectuara alguna modificación en el estudio, debiendo adecuar las previsiones de instalaciones provisionales y protecciones colectivas e individuales a la realidad, y según el plan de ejecución de las obras que tenga pensado realizar.

12.1.5. PLAN Y ORGANIZACIÓN DE LA OBRA

La planificación de los trabajos será la que determine la empresa encargada de la ejecución de los trabajos y siempre bajo el acuerdo del jefe de obra. Se seguirá para dicha planificación el orden que se establece en las correspondientes unidades de obra.

Esta planificación podrá verse modificada antes o durante el transcurso de los trabajos, ya que, inevitablemente, toda ella estará condicionada por la operativa de ejecución que plantee la empresa adjudicataria, así como por los condicionantes que puedan imponer tanto **La Sociedad Mercantil MADRID DESTINO** u otros imprevistos o circunstancias que pudieran presentarse con el inicio y desarrollo de los trabajos. Se establece como suficiente para la ejecución de las obras, un plazo de **SEIS (6) MESES.**

En cualquier caso, la empresa adjudicataria en el Plan de seguridad y salud debe incluir un plan de trabajos donde haya tenido en cuenta los criterios preventivos a la hora de proponer la secuencia de trabajos; que evite el solape entre distintas actividades de obra, en particular cuando se realicen actividades fundamentalmente de manipulación de cargas suspendidas no debe realizarse otra actividad en las cercanías, además de realización de trabajos a diferentes niveles, trabajos en horas de mayor nivel de calor, trabajos nocturnos.

12.1.6. DATOS DE INTERÉS PARA LA SEGURIDAD Y SALUD DURANTE LA REALIZACIÓN DE LA OBRA

DATOS DEL EDIFICIO

El pabellón presenta una imagen homogénea en todos sus alzados, compuestos por un reticulado de acero y cristal. Desde el año 2005 se han realizado varias intervenciones dentro de un plan de rehabilitación integral del edificio, con el fin último de recuperar el aspecto edificio original. En estas rehabilitaciones se ha sustituido la cubierta de planta alta y se ha ejecutado una central térmica anexa para ubicar los sistemas primarios de climatización.

El Pabellón de Cristal cuenta con tres plantas y un total de superficie de 24.202 metros cuadrados. La planta alta se resuelve sin pilares intermedios, ofreciendo una superficie diáfana de 72,50 x 127,50 metros. Este espacio que se utiliza como recinto ferial. También existe una zona de aseos para el público.

En la entreplanta hay una zona para eventos feriales, aseos para el público, y otra zona anexa de oficinas, cafetería, cocina y una sala polivalente.

En planta baja existe la zona para eventos feriales, aseos de público y vestuarios para el personal, también están las salas técnicas y almacenes. La entreplanta del edificio no cubre la totalidad de la superficie de planta, por lo que en planta baja se disponen espacios a una y dos alturas.

EMPLAZAMIENTO

El Pabellón de Cristal se encuentra situado en la Avenida Principal, 16, sito en la Moncloa – Aravaca en la ciudad de Madrid (28011), en una parcela de 18.678 m2 de superficie gráfica en suelo urbano según se indica en la ficha catastral de referencia 7541208VK3774B0001QY y de uso “Ocio, Hostelería”.

PROGRAMA DE NECESIDADES

El edificio tiene un uso de ocio y hostelería. A este respecto, no se modifica el uso del edificio ni de espacios dentro del mismo. Adicionalmente, se ha redactado un proyecto paralelo que define las actuaciones en la envolvente necesarias para la mejora de eficiencia energética y la reducción del 30% del consumo de energía primaria no renovable.

Por lo tanto, las actuaciones que se definen en el presente proyecto son:

- Renovación de toda la instalación de climatización y ventilación del edificio, parte de la instalación eléctrica y de PCI. Esto incluye el desmontaje e instalación de nuevos cuadros eléctricos, tomas para puestos de trabajo, etc.

12.1.7. DESCRIPCIÓN DE LAS OBRAS ASOCIADAS AL PROYECTO:

Estas son las obras destinadas a conseguir una reducción del consumo de energía primaria no renovable del 30% y dar un salto de una letra en la calificación energética de los edificios. Junto con las actuaciones destinadas directamente a la reducción del consumo energético, deben ejecutarse otras actuaciones accesorias que sin su ejecución sería imposible realizar las anteriores. A tal fin se acometen las siguientes intervenciones en cada uno de los bloques:

(a) FINANCIABLES:

(i) Ejecución de nuevo sistema de climatización y ventilación mediante instalación de unidades de tratamiento de aire

(ii) Desmontaje de las salidas de instalaciones existentes en patinillo y del resto de instalaciones implicadas en los trabajos de rehabilitación energética.

ACCESOS Y EVACUACIÓN

El acceso del edificio se encuentra situado en la fachada este, aunque la fachada oeste también cuenta con accesos secundarios y de evacuación.



Figura 1. Alzado este acceso principal



Figura 2. Alzado oeste accesos secundarios y de evacuación

PROTECCIÓN DE ACCESOS Y RECORRIDOS SEGUROS:

Para la ejecución de los trabajos se colocarán vallados de protección perimetrales fijos conforme a los planos de seguridad y salud.

En el caso de modificación de recorridos naturales para los peatones en el exterior al recinto, se protegerá la zona para evitar el paso de personas y se señalizará el recorrido seguro o las alternativas viables, garantizando la visibilidad y la seguridad en todo momento, teniendo en cuenta que se trata de vías con tráfico rodado.

Se establecen tres accesos diferenciados a la obra. Uno para trabajadores y personal relacionado con la obra, otro para entrada y otro para salida de vehículos.

Se establecerá un control de accesos.

La entrada y salida de vehículos, así como las operaciones de carga y descarga dentro del recinto se realizarán con apoyo de un señalista.

Se establecen recorridos seguros para la circulación de las personas en el interior del recinto:

- Las zonas de paso de vehículos estarán valladas y señalizadas de forma que se impida que las personas puedan acceder a éstas cuando los vehículos estén en movimiento o realizando operaciones.
- Se establecerán zonas de paso señalizadas y visibles de paso para las personas.
- Se limitará la velocidad de circulación en el interior del recinto.

Se intentará invadir lo menos posible las zonas de paso durante la obra, aprovechando las zonas aceradas para realizar el movimiento de personas en el interior del recinto.

La protección de accesos y los recorridos se planificarán y señalizarán teniendo en cuenta que se deben respetar los criterios de seguridad ante todo.

ZONAS DE CARGA Y DESCARGA:

Se habilitará una zona de carga y descarga próxima a la zona de acopios.

Las operaciones de carga y descarga se realizarán con apoyo de uno o más señalistas si fuera necesario.

Se ubicará un espacio resguardado (caseta almacén) para guardar las herramientas y elementos que necesiten protegerse de la intemperie.

SEÑALIZACIÓN:

La señalización de las obras se colocará en la Avenida Principal del Recinto Ferial de la Casa de Campo, junto al acceso principal y en el nuevo acceso rodado. También se colocará señalización interior junto a los accesos del edificio.

Si fuera necesario, se cortará la calle previa autorización municipal el mínimo tiempo necesario.

El vallado de protección se instalará de forma que no invada la calzada de la vía ni interfiera con el paso de vehículos.

Se dotará al vallado de iluminación suficiente para permitir su visibilidad a cualquier hora. En el caso de proximidad con paso de vehículos se instalarán balizas intermitentes.

Se señalizarán los accesos, realizando la diferenciación entre “entrada” y “salida” de vehículos.

Si se plantean recorridos alternativos / modificaciones (tanto para personas como para vehículos) se señalizarán y se dotarán de iluminación suficiente.

EVACUACIÓN:

La salida del edificio en caso de evacuación se producirá hacia la Avenida Principal del Recinto Ferial de la Casa de Campo. La zona exterior del recinto de la parcela se considera segura, siempre y cuando no se invadan las zonas de paso de los vehículos al ser ésta una vía con tráfico rodado.

ACCESOS A LOS LUGARES DE TRABAJO:

Los accesos a los lugares de trabajo deberán de cumplir con lo siguiente:

- Las vías de circulación, incluidas las escaleras, las escalas fijas deberán estas calculados, situados, acondicionados y preparados para su uso de manera que se puedan utilizar fácilmente, con toda seguridad y conforme al uso al que se les haya destinado y de forma que los trabajadores empleados en las proximidades de estas vías de circulación no corran riesgo alguno.

- Cuando se utilicen medios de transporte en las vías de circulación, se deberá prever una distancia de seguridad suficiente o medios de protección adecuados para las demás personas que puedan estar presentes en el recinto.
- Las vías de circulación destinadas a los vehículos deberán estar situadas a una distancia suficiente de las puertas, portones, pasos de peatones, corredores y escaleras.
- Si en la obra hubiera zonas de acceso limitado, dichas zonas deberán estar equipadas con dispositivos que eviten que los trabajadores no autorizados puedan penetrar en ellas. Se deberán tomar todas las medidas adecuadas para proteger a los trabajadores que estén autorizados a penetrar en las zonas de peligro. Estas zonas deberán estar señalizadas de modo claramente visible.
- Para garantizar la protección de los trabajadores, el trazado de las vías de circulación deberá ser claramente marcado en la medida en que lo exijan la utilización y las instalaciones.
- Los desniveles deberán ser salvados con rampas o elementos que eviten el tropiezo de las personas.

CUADRO DE SUPERFICIES

El presente proyecto no actúa sobre los espacios interiores y modifica las distribuciones por lo que las superficies del estado actual no se modifican y serán las mismas en el estado actual y reformado.

CUADRO DE SUPERFICIES ÚTILES	
PLANTA BAJA	
Almacén 1	25,12 m²
Almacén 2	26,22 m²
Almacén 3	35,54 m²
Almacén 4	26,03 m²
Ascensor de vidrio	5,50 m²
Ascensor de vidrio	5,50 m²
Aseos	54,57 m²
Azafatas	17,37 m²
Bombas y climatizadores	193,07, m²
Circulación	112,17 m²
Cuadro eléctrico clima	443,87 m²
Depósito fluxores	8,05 m²
Limpieza	11,05 m²
Montadores	11,63 m²
Sala 1	31,97 m²

Sala 2	72,28 m²
Sala 3	31,97 m²
Sala 4	25,18 m²
Sala 5	48,46 m²
Salón PB	8.522,86 m²
Seguridad	89,72 m²
ÚTIL PLANTA BAJA	**9.833,70 m²**
ENTREPLANTA	
Cafetería	72, 73 m²
Ascensor	5,50 m²
Ascensor	5,50 m²
Aseos	69,99 m²
Cafetería	114,31 m²
Circulación	33,88 m²
Cocina	64,67 m²
Comedor	200,31 m²
Sala 6	28,33 m²
Escaleras	124,42 m²
Limpieza/montadores	23,44 m²
Rampa	22,97 m²
Salón EP	4,157,83 m²
Servicio médico	59,80 m²
Telefonía	121,24 m²
Vestíbulo ingreso	197,87 m²
ÚTIL ENTREPLANTA	**5.302,79 m²**
PLANTA PRIMERA	
Ascensor	5,50 m²
Ascensor	5,50 m²
Aseos 1	15,64 m²
Aseos 2	92,96 m²
Salón	8.088,91 m²
Escalera	58,49 m²
ÚTIL PLANTA PRIMERA	**8.267,00 m²**
SUPERFICIE ÚTIL TOTAL	**23.403,49 m²**

CUADRO DE SUPERFICIES CONSTRUIDAS	
Planta baja	10.541,88 m²
Entreplanta	6.100,99 m²
Planta primera	9.310,18 m²
SUPERFICIE CONSTRUIDA TOTAL	**25.953,05 m²**

PRESUPUESTO DE EJECUCIÓN MATERIAL

El **Presupuesto de Ejecución Material** de las obras asciende a la cantidad de UN MILLÓN OCHOCIENTOS TREINTA Y SEIS MIL SETECIENTOS SESENTA Y SIETE EUROS CON QUINCE CÉNTIMOS DE EURO (1.836.767,15 €). Dicho presupuesto se detalla en el documento de Mediciones y presupuesto que acompaña a esta memoria y el resto del proyecto.

PLAZO DE EJECUCIÓN DE LAS OBRAS

El plazo de ejecución se estima en **6 meses.**

CENTRO ASISTENCIAL MÁS PRÓXIMO

La localización del **hospital de referencia para la zona** se encuentra es el **HOSPITAL CENTRAL DE LA DEFENSA GÓMEZ ULLA**, ubicado en la Glorieta del Ejército 1 Latina,28047, Madrid.

Se encuentra a **5,4 km**, y se tarda en llegar **12 minutos en coche** en condiciones normales. Debido a la ubicación del sitio y la lejanía del núcleo urbano, no se recomienda hacer esta distancia a pie. El teléfono es el 914 22 20 00

El centro asistencial más próximo a la obra es el CENTRO DE SALUD PASCUAL RODRÍGUEZ, ubicado en la Calle Pascual Rodríguez, nº 21, Latina, 28011 Madrid. Se encuentra a **2,9 km,** tardando aproximadamente 8 minutos en condiciones de tráfico normales por la M-40. El número de teléfono para urgencias es el 914 64 64 45

12.1.8. CONDICIONES DEL ENTORNO DE LA OBRA QUE INFLUYEN EN LA PREVENCIÓN DE RIESGOS LABORALES

OBJETIVOS PREVENCIONISTAS

Un número elevado de accidentes en la obra son originados por las interferencias realizadas con las canalizaciones, conducciones e instalaciones que cruzan por la obra o están en sus inmediaciones. En los

siguientes apartados se especifican todas aquellas condiciones del entorno de la obra que hay que tener presente, y que van a permitir valorar y delimitar los riesgos que se pueden originar.

CONDICIONES DE LOS ACCESOS Y VÍAS DE ACCESO A LA OBRA

Tal como se observa en la imagen inferior y en el plano de seguridad y salud, los accesos a la obra no presentan ningún riesgo ni para las personas que trabajan ni para los transeúntes que circulan por las inmediaciones ni para el tráfico rodado.

Los accesos de la obra serán, común el acceso peatonal y diferenciado rodado.

Entre las medidas adoptadas para evitar los riesgos están:

- Señalizar convenientemente la entrada y salida de personal y pequeña maquinaria a la obra.
- Las operaciones de entrada y salida de camiones estarán dirigidas por personal de la obra, facilitando las maniobras y ayudando a la visibilidad y seguridad de las operaciones. No llegarán a obstaculizar los accesos al edificio.
- Se señalizará convenientemente el desvío provisional del tráfico rodado, cuando por naturaleza de las operaciones a realizar sea necesario.
- Se plantea que las operaciones de carga y descarga se realicen en el interior de la parcela, próximas a la zona de acopios indicada en los planos.

Se identifica en la fotografía posterior con una línea roja las zonas objeto de los trabajos:



Accesos:

Se entienden por accesos los lugares o zonas por donde deben pasar los operarios y las máquinas de los trabajos preliminares y exteriores al edificio.



De lo dispuesto en el Anexo IV, Parte A del Real Decreto 1627/1997, de 24 de octubre, se desprenden las siguientes disposiciones:

Estabilidad y solidez:

a) Deberá procurarse, de modo apropiado y seguro, la estabilidad de los materiales y equipos y, en general, de cualquier elemento que en cualquier desplazamiento pudiera afectar a la seguridad y la salud de los trabajadores.

b) El acceso a cualquier superficie que conste de materiales que no ofrezcan una resistencia suficiente sólo se autorizará en caso de que se proporcionen equipos o medios apropiados para que el trabajo se realice de manera segura.

Vías y salidas de emergencia:

a) Las vías y salidas de emergencia deberán permanecer expeditas y desembocar lo más directamente posible en una zona de seguridad.

b) En caso de peligro, todos los lugares de trabajo deberán poder evacuarse rápidamente y en condiciones de máxima seguridad para los trabajadores.

c) El número, la distribución y las dimensiones de las vías y salidas de emergencia dependerán del uso, de los equipos y de las dimensiones de la obra y de los locales, así como del número máximo de personas que puedan estar presentes en ellos.

d) Las vías y salidas específicas de emergencia deberán señalizarse conforme al Real Decreto 485/1997, de 14 de abril, sobre disposiciones mínimas en materia de señalización de seguridad y salud en el trabajo. Dicha señalización deberá fijarse en los lugares adecuados y tener la resistencia suficiente.

e) Las vías y salidas de emergencia, así como las vías de circulación y las puertas que den acceso a ellas, no deberán estar obstruidas por ningún objeto, de modo que puedan utilizarse sin trabas en cualquier momento.

f) En caso de avería del sistema de alumbrado, las vías y salidas de emergencia que requieran iluminación deberán estar equipadas con iluminación de seguridad de suficiente intensidad.

Vías de circulación y zonas peligrosas:

a) Las vías de circulación, incluidas las escaleras, las escalas fijas y los muelles y rampas de carga deberán estar calculados, situados, acondicionados y preparados para su uso de manera que se puedan utilizar fácilmente, con toda seguridad y conforme al uso al que se les haya destinado y de forma que los trabajadores empleados en las proximidades de estas vías de circulación no corran riesgo alguno.

b) Las dimensiones de las vías destinadas a la circulación de personas o de mercancías, incluidas aquellas en las que se realicen operaciones de carga y descarga, se calcularán de acuerdo con el número de personas que puedan utilizarlas y con el tipo de actividad.

c) Cuando se utilicen medios de transporte en las vías de circulación, se deberá prever una distancia de seguridad suficiente o medios de protección adecuados para las demás personas que puedan estar presentes en el recinto.

d) Se señalizarán claramente las vías y se procederá regularmente a su control y mantenimiento.

e) Las vías de circulación destinadas a los vehículos deberán estar situadas a una distancia suficiente de las puertas, portones, pasos de peatones, corredores y escaleras.

f) Si en la obra hubiera zonas de acceso limitado, dichas zonas deberán estar equipadas con dispositivos que eviten que los trabajadores no autorizados puedan penetrar en ellas. Se deberán tomar todas las medidas adecuadas para proteger a los trabajadores que estén autorizados a penetrar en las zonas de peligro. Estas zonas deberán estar señalizadas de modo claramente visible.

Muelles y rampas de carga:

a) Los muelles y rampas de carga deberán ser adecuados a las dimensiones de las cargas transportadas.

b) Los muelles de carga deberán tener al menos una salida y las rampas de carga deberán ofrecer la seguridad de que los trabajadores no puedan caerse.

Espacio de trabajo:

a) Las dimensiones del puesto de trabajo deberán calcularse de tal manera que los trabajadores dispongan de la suficiente libertad de movimientos para sus actividades, teniendo en cuenta la presencia de todo el equipo y material necesario.

Disposiciones varias:

a) Los accesos y el perímetro de la obra deberán señalizarse y destacarse de manera que sean claramente visibles e identificables.

CARACTERÍSTICAS DE LOS ACCESOS DEL PERSONAL

- Deben señalizarse y mantenerse lisas y sin obstáculos. Si las circunstancias no lo permitieran, se dispondrán pasarelas con un ancho mínimo de 60 cm y, a ser posible, zonas que no deban pisar los vehículos.

- Se procederá de la misma forma para el paso de carretillas manuales.

- Se señalizará el itinerario a seguir por los operarios para su circulación por la obra y a las zonas de trabajo, almacenaje o dependencias mediante cinta plástica. La empresa dispondrá las señales indicativas de los riesgos existentes y de las obligaciones en materia de seguridad.

- Se situarán de forma separada al de vehículos.

- El acceso al cuadro eléctrico, cuando está sobre el terreno excavado, se realizará a través de plataforma de madera (aislante) a la que se acceda a través de una escalera provisional.

- Si existe poco desnivel, puede disponerse una plataforma con traviesas y pasamanos que, de forma inclinada y firme, alcanzará el punto más bajo y el más alto.

- En caso de que los trabajadores tengan que utilizar como vía de evacuación rápida la rampa de acceso de vehículos, deberá cuidarse:

1. Haber informado previamente de su existencia así como de la forma de actuar.

2. La rampa de acceso deberá tener amplitud suficiente.

3. Dispondrá de traviesas o escalones y barandilla en su recorrido.

4. La máxima pendiente será del 8% si su longitud es superior a 10 metros.

CARACTERÍSTICAS DE LOS ACCESOS DE VEHÍCULOS

Los vehículos de los trabajadores no accederán al interior del recinto, debido a las características del mismo.

El acceso a vehículos será diferenciado, conforme a los planos.

Las operaciones de carga y descarga se realizarán en zona próxima a la zona de acopios indicada en los planos.

Las calles están asfaltadas y la misma pendiente de éstas permite poder acceder al recinto. No se plantea en fase de proyecto la creación de rampas.

INTERFERENCIAS CON LOS SERVICIOS AFECTADOS

Del estudio sobre el emplazamiento de la obra y de la comprobación de la normativa urbanística hecha en el proyecto en cuestión, se desprende que las interferencias con servicios públicos detectadas y que pueden ocasionar riesgos laborales durante la ejecución de la obra, son las que siguen:

- Utilización del edificio PABELLÓN DE CRISTAL, y de otros servicios de la edificación:

Acceso peatonal:

Se dispondrá de un vallado perimetral.

El vallado del edificio se realizará junto con la colocación del resto de vallas de protección y otros elementos para la ejecución de los trabajos. No estará permitida la entrada por personal ajeno a la obra. Se señalizará convenientemente esta circunstancia.

Se dispondrán de puertas de acceso al interior del vallado de la obra, para favorecer la movilidad y evitar interferencias.

Salubridad:

Los contenedores se colocarán en las zonas del recinto delimitadas en los planos.

Se prestará especial atención a la limpieza y orden de todos los materiales y elementos de la obra en especial en las zonas abiertas, los accesos y otras zonas por donde puedan transitar personas ajenas a las obras.

La existencia de otras edificaciones en las inmediaciones de la obra, pueden suponer ciertos riesgos, como son:

- Ruidos y vibraciones.
- Choques y golpes de la maquinaria de elevación (en especial los equipos de elevación de cargas previstos para la obra).
- Caída de cargas suspendidas (fundamentalmente en el transporte de cargas).
- Proyección de objetos o partículas durante las operaciones en obra.
- Molestias en las operaciones de carga y descarga de materiales.

Para evitar estos inconvenientes y evitar interferencias con las edificaciones u obras que simultáneamente se estén desarrollando a la par, se toman las siguientes medidas:

- Organización del espacio de la obra en especial los accesos, para evitar molestias.
- Ubicación de equipos de elevación de carga, donde menos interferencias puede provocar, elevándola para sortear obstáculos y no causar interferencia con otras obras o edificios.
- Señalizar debidamente los accesos y dirigir las maniobras de entrada-salida de vehículos.
- Acopiar los materiales debidamente para evitar riesgos por vuelco.
- Para ubicar debidamente máquinas, equipos, accesos, itinerarios de circulación de vehículos, radios de acción de equipos de elevación de carga, distancias de seguridad, ubicación de talleres, almacenes, etc., para la Organización preventiva de la obra.

INTERFERENCIAS CON ZONAS DE PROXIMIDAD

No se plantean interferencias con las zonas de proximidad.

Las interferencias con servicios de todo tipo son causa frecuente de accidentes, por ello se considera muy importante detectar su existencia y localización, con el fin de poder evaluar y delimitar claramente los diversos riesgos. Antes del inicio de las obras, se tendrán los planos de los diferentes servicios que se vean afectados.

CONDICIONES CLIMÁTICAS Y AMBIENTALES

En Madrid los veranos son cortos, cálidos, secos y mayormente despejados y los inviernos son muy frío y parcialmente nublados. Durante el transcurso del año, la temperatura generalmente varía de 0 °C a 33 °C y rara vez baja a menos de -5 °C o sube a más de 37 °C.

Los trabajos a realizar serán sobre todo en interiores aunque se prestará especial atención a los riesgos derivados de las tormentas con fuerte aparato eléctrico en cuyo caso se paralizarán de inmediato los trabajos.

TRABAJOS PREVIOS A LA EJECUCIÓN DE LA OBRA

Previo a la ejecución de las obras han sido tenidos en cuenta los siguientes trabajos:

- Vallado de las zonas inmediata a las fachadas que se van a intervenir por el exterior con paneles de enrejado metálico y postes.
- Se mantendrá el acceso actual por avenida Principal, y se abrirá un nuevo acceso rodado. Los accesos al vallado reunirán los siguientes requisitos:
    - Altura: 2 mts.
    - Separarse lo máximo posible las zonas de acopios facilitando el acceso a peatones.
- Puerta de una hoja para acceso de personas.
- Señalización en acceso principal peatonal que indique:
    - “Prohibida la entrada a personas ajenas a la obra”
    - “Obligatorio el uso del caso de seguridad”
    - “Prohibida la entrada de vehículos, salvo autorización expresa”.
- Señalización en acceso rodado nuevo en la puerta de acceso al patio donde se realizarán las operaciones de carga y descarga que indique:
    - “Atención peligro: Salida vehículos pesados”
    - “Prohibida la entrada a personas ajenas a la obra”
    - “Obligatorio el uso del casco de seguridad”

- Señalización en acceso principal (avenida Principal), que indique:
    - "Atención peligro: Zona en obras. Extreme la precaución"
- La acometida general a la obra se realizará mediante un cuadro homologado con cerradura, y se tendrá en cuenta el Reglamento Electrotécnico de Baja Tensión.
- Ubicación y puesta en servicio de las instalaciones provisionales de obra que se realizarán en proporción al número de personas que inicialmente existan en obra, se colocará una caseta prefabricada para herramientas. Se plantea la utilización de casetas para vestuario y aseos y comedor. Se plantea también como favorable instalar los servicios higiénicos y vestuarios.

INSTALACIONES PROVISIONALES PARA LOS TRABAJADORES: SERVICIOS HIGIÉNICOS, VESTUARIO, COMEDOR, LOCALES DE DESCANSO

Dado que existen los problemas originados por el movimiento concentrado y simultáneo de personas dentro de ámbitos cerrados en los que se deben desarrollar actividades cotidianas relacionadas con los usos actuales del edificio, que exigen intimidad y relación con otras personas que se consideran en el diseño de estas instalaciones provisionales y quedan resueltos en los planos de ubicación y plantas de las mismas, de este estudio de seguridad y salud.

Se le ha dado un tratamiento uniforme, procurando evitar la dispersión de los trabajadores por toda la obra, con el consiguiente desorden y aumento de los riesgos de difícil control, falta de limpieza de la obra y el aseo deficiente de las personas.

Los principios de diseño han sido los que se expresan a continuación:

- Aplicar los requisitos regulados por la legislación vigente.
- Quedan centralizadas metódicamente.
- Se da a todos los trabajadores un trato de igualdad, calidad y confort, independientemente de su raza y costumbres o de su pertenencia a cualquiera de las empresas: principal o subcontratadas, o sean trabajadores autónomos o de esporádica concurrencia en la obra.

- Resuelven de forma ordenada, las circulaciones en su interior, sin graves interferencias entre los usuarios.
- Se puedan realizar en ellas de forma digna, reuniones de tipo sindical o formativo, con tan sólo retirar el mobiliario o reorganizarlo.
- Organizar de forma segura el acceso, estancia en su interior y salida de la obra.

INSTALACIONES PROVISIONALES PARA LOS TRABAJADORES CON MÓDULOS PREFABRICADOS METÁLICOS COMERCIALIZADOS

En este Estudio de Seguridad y Salud se plantea la utilización de módulos prefabricados para los servicios higiénicos y auxiliares de los trabajadores., como así viene reflejado en el presupuesto y en los planos.

Módulos prefabricados:

La utilización de módulos prefabricados para los servicios higiénicos, las instalaciones provisionales para los trabajadores se alojarán en el interior de módulos metálicos prefabricados, comercializados en chapa emparedada con aislante térmico y acústico.

Tendrán un aspecto sencillo pero digno. El pliego de condiciones, los planos y las mediciones aclaran las características técnicas de estos módulos metálicos, que han sido elegidos como consecuencia de su temporalidad y espacio disponible. Deben retirarse al finalizar la obra.

Se ha modulado cada una de las instalaciones de vestuario y comedor con una capacidad para **15 trabajadores,** de tal forma, que den servicio a todos los trabajadores adscritos a la obra según la curva de contratación.

CUADRO INFORMATIVO DE EXIGENCIAS LEGALES VIGENTES	
Superficie de vestuario	6 trab x 2 m^2. = 12 m^2
Superficie de comedor	6 trab x 1 m^2. = 6 m^2
Nº de inodoros	6 trab / 25 trab. = 1 ud
Nº de lavabos	6 trab / 10 trab. = 1 ud
Nº de duchas	6 trab / 10 trab. = 1 ud

Servicios higiénicos en el interior de los locales:

Atendiendo a la necesidad de vestuario y comedor, y como sustitución de utilizar módulos prefabricados, se deberá atender a las necesidades planteadas por el Cuadro Informativo de Exigencias Legales Vigentes.

Se establecerá una zona de vestuario, y una de comedor. Dichos espacios se equiparán de manera conveniente, teniendo en cuenta los requisitos planteados por la legislación vigente.

Se habilitará una zona de aseo, y se procurará que se disponga de agua fría y caliente para el uso del personal.

En el presupuesto de este proyecto se valoran casetas de módulos prefabricados. Si se realiza la adecuación funcional de un espacio en el interior del edificio, el presupuesto de seguridad para las casetas y otros servicios para tal fin se utilizará en la adecuación funcional de dichos espacios.

Se procurará interferir lo mínimo posible en las condiciones de uso del edificio por los usuarios del mismo.

12.1.9. INSTALACIÓN ELÉCTRICA PROVISIONAL DE OBRA

Se analiza en este apartado la instalación provisional de electricidad necesaria para la realización de los diferentes trabajos de la obra, así como para el suministro de corriente eléctrica a la maquinaría a emplear en los mismos.

Se dispondrá de un cuadro de electricidad de obra, independiente del cuadro del edificio. Se instalará según la reglamentación pertinente, se realizarán las operaciones de mantenimiento necesarias y se mantendrá en buen estado durante la ejecución de la obra.

RIESGOS DETECTABLES MÁS COMUNES

1. Heridas punzantes en manos.
2. Caídas al mismo nivel.
3. Caídas a distinto nivel.
4. Electrocución, contactos eléctricos directos e indirectos derivados esencialmente de:
    a. Trabajos con tensión.
    b. Intentar trabajar sin tensión pero sin cerciorarse de que está efectivamente e interrumpida.

c. Mal funcionamiento de los mecanismos y sistemas de protección.

d. Usar equipos inadecuados o deteriorados.

e. Mal comportamiento o incorrecta instalación del sistema de protección contra contactos eléctricos indirectos en general y de la toma de tierra en particular.

NORMAS O MEDIDAS PREVENTIVAS TIPO

SISTEMA DE PROTECCIÓN CONTRA CONTACTOS INDIRECTOS

Para la prevención de posibles contactos eléctricos indirectos, el sistema de protección elegido es el de puesta a tierra de las masas y dispositivos de corte por intensidad de defecto, interruptores diferenciales. Se instalarán como mínimo 4 diferenciales de 60 A. y de 30 mA. de sensibilidad y una toma de tierra inferior a 20 ohmios de resistencia, que irá instalada en una arqueta a 1 m. de la caseta, será única en obra y a ella se conectarán todas las máquinas por una línea de tierra secundaria.

NORMAS DE PREVENCIÓN TIPO PARA LOS CABLES

1. El calibre o sección del cableado será el especificado en planos y de acuerdo a la carga eléctrica que ha de soportar en función de la maquinaria e iluminación prevista.

2. Todos los conductores utilizados serán aislados de tensión nominal de 1000 voltios como mínimo y sin defectos apreciables (rasgones, repelones y asimilables). No se admitirán tramos defectuosos en este sentido.

3. La distribución desde el cuadro general de obra a los cuadros secundarios (o de planta), se efectuará mediante manguera eléctrica antihumedad.

4. En caso de efectuarse tendido de cables y mangueras, éste se realizará a una altura mínima de 2 m. en los lugares peatonales y de 5 m. en los pasos de vehículos, medidos sobre el nivel del pavimento.

5. El tendido de los cables para cruzar viales de obra, como ya se ha indicado anteriormente se efectuará enterrado. Se señalizará el "paso del cable" mediante una cubrición permanente de tablones que tendrán por objeto el proteger mediante reparto de cargas, y señalar la existencia del "paso eléctrico" a los vehículos. La profundidad de la zanja

mínima, será entre 40 y 50 cm; el cable irá además protegido en el interior de un tubo rígido, bien de fibrocemento, bien de P.V.C.

6. Caso de tener que efectuar empalmes entre mangueras se tendrá en cuenta:
    a. Siempre estarán elevados. Se prohíbe mantenerlos en el suelo.
    b. Los empalmes provisionales entre mangueras, se ejecutarán mediante conexiones normalizadas estancas antihumedad.
    c. Los empalmes definitivos se ejecutarán utilizando cajas de empalmes normalizados estancos de seguridad.
7. El trazado de las mangueras de suministro eléctrico no coincidirá con el de suministro provisional de agua a las plantas.
8. Las mangueras de "alargadera":
    a. Si son para cortos períodos de tiempo, podrán llevarse tendidas por el suelo, pero arrimadas a los parámetros verticales.
    b. Se empalmarán mediante conexiones normalizadas estancos antihumedad o fundas aislantes termorretráctiles, con protección mínima contra chorros de agua (protección recomendada IP. 447).

NORMAS DE PREVENCIÓN TIPO PARA LOS INTERRUPTORES

1. Se ajustarán expresamente a, los especificado en el Reglamento Electrotécnico de Baja Tensión.
2. Los interruptores se instalarán en el interior de cajas normalizadas, provistas de puerta de entrada con cerradura de seguridad.
3. Las cajas de interruptores poseerán adherida sobre su puerta una señal normalizada de "PELIGRO ELECTRICIDAD".
4. Las cajas de interruptores serán colgadas, bien de los paramentos verticales, bien de "pies derechos" estables.

NORMAS DE PREVENCIÓN TIPO PARA LOS CUADROS ELÉCTRICOS

1. Serán metálicos de tipo para la intemperie, con puerta y cerraja de seguridad (con llave), según norma UNE-20324.
2. Pese a ser de tipo para la intemperie, se protegerán del agua de lluvia mediante viseras eficaces como protección adicional.
3. Los cuadros eléctricos metálicos tendrán las carcasas conectadas a tierra.
4. Poseerán adherida sobre la puerta una señal normalizada de "PELIGRO ELECTRICIDAD".
5. Los cuadros eléctricos de distribución se ubicarán siempre en lugares de fácil acceso.
6. Los cuadros eléctricos no se instalarán en el desarrollo de las rampas de acceso al fondo de la excavación (pueden ser arrancados por la maquinaria o camiones y provocar accidentes).
7. Se colgarán pendientes de tableros de madera recibidos a los parámetros verticales o bien a "pies derechos" firmes.
8. Poseerán tomas de corriente para conexiones normalizadas blindadas para intemperie, en número determinado según el cálculo realizad. (Grado de protección recomendable IP. 447).
9. Los cuadros eléctricos de esta obra, estarán dotados de enclavamiento eléctrico de apertura.

NORMAS DE PREVENCIÓN TIPO PARA LAS TOMAS DE ENERGÍA

1. Las tomas de corriente irán provistas de interruptores de corte omnipolar que permita dejarlas sin tensión cuando no hayan de ser utilizadas.
2. Las tomas de corriente de los cuadros se efectuarán de los cuadros de distribución, mediante clavijas normalizadas blindadas (protegidas contra contactos directos).
3. La instalación poseerá todos los interruptores automáticos que el cálculo defina como necesarios, su cálculo se ha efectuado siempre minorando con el fin de que actúen dentro

del margen de seguridad; es decir, antes de que el conductor al que protegen, llegue a la carga máxima admisible.

4. Los interruptores automáticos se hallarán instalados en todas las líneas de toma de corriente de los cuadros de distribución, así como en las de alimentación a las máquinas, aparatos y máquinas-herramientas de funcionamiento eléctrico, tal y como queda reflejado en el esquema unifilar.

5. Los circuitos generales estarán igualmente protegidos con interruptores automáticos o magnetotérmicos.

6. Todos los circuitos eléctricos se protegerán asimismo mediante disyuntores diferenciales.

7. Los disyuntores diferenciales se instalarán de acuerdo con las siguientes sensibilidades:

   - 300 mA.- (según R.E.B.T.) - Alimentación a la maquinaria.
   - 30 mA.- (según R.E.B.T.)- Alimentación a la maquinaria como mejora del nivel de seguridad.
   - 30 mA.- Para las instalaciones eléctricas de alumbrado no portátil.

8. El alumbrado portátil se alimentará a 24 v. Mediante transformadores de seguridad, preferentemente con separación de circuitos.

NORMAS DE PREVENCIÓN TIPO PARA LAS TOMAS DE TIERRA

1. La red general de tierra deberá ajustarse a las especificaciones detalladas en la Instrucción MIBT.039 del vigente Reglamento Electrotécnico para baja Tensión, así como todos aquellos aspectos especificados en la Instrucción M.I.BT.023 mediante los cuales pueda mejorarse la instalación.

2. Caso de tener que disponer de un transformador en la obra, será dotado de una toma de tierra ajustada a los Reglamentos vigentes y a las normas propias de la compañía eléctrica suministradora en la zona.

3. Las partes metálicas de todo equipo eléctrico dispondrán de toma de tierra.

4. El neutro de la instalación estará puesto a tierra.

5. La toma de tierra en una primera fase se efectuará a través de una pica o placa a ubicar junto al cuadro general, desde el que se distribuirá a la totalidad de los receptores de la instalación. Cuando la toma general de tierra definitiva del edificio se halle realizada, será esta la que se utilice para la protección de la instalación eléctrica provisional de obra.

6. El hilo de toma de tierra, siempre estará protegido con macarrón en colores amarillo y verde. Se prohíbe expresamente utilizarlo para otros usos. Únicamente podrá utilizarse conductor o cable de cobre desnudo de 95 mm2 de sección como mínimo en los tramos enterrados horizontalmente y que serán considerados como electrodo artificial de la instalación.

La red general de tierra será única para la totalidad de la instalación, incluidas las uniones a tierra de los carriles para estancia o desplazamiento de las grúas.

7. Caso de que las grúas pudiesen aproximarse a una línea eléctrica de media o alta tensión carente de apantallamiento aislante adecuado, la toma de tierra, tanto de la grúa como o de sus carriles, deberá ser eléctricamente independiente de la red general de tierra de la instalación eléctrica provisional de obra.

8. Los receptores eléctricos dotados de sistema de protección por doble aislamiento y los alimentados mediante transformador de separación de circuitos, carecerán de conductor de protección, a fin de evitar su referenciación a tierra. El resto de carcasas de motores o máquinas se conectarán debidamente a la red general de tierra.

9. Las tomas de tierra estarán situadas en el terreno de tal forma, que su funcionamiento y eficacia sea el requerido por la instalación.

10. La conductividad del terreno se aumentará vertiendo en el lugar de hincado de la pica (placa o conductor) agua de forma periódica.

11. El punto de conexión de la pica (placa o conductor), estará protegido en el interior de una arqueta practicable.

NORMAS DE PREVENCIÓN TIPO PARA LA INSTALACIÓN DE ALUMBRADO

1) Las masas de los receptores fijos de alumbrado, se conectarán a la red general de tierra mediante el correspondiente conductor de protección. Los aparatos de alumbrado portátiles, excepto los utilizados con pequeñas tensiones, serán de tipo protegido contra los chorros de agua (Grado de protección recomendable IP.447).

2) El alumbrado de la obra, cumplirá las especificaciones establecidas en las Ordenanzas de Trabajo de la Construcción, vidrio y Cerámica y General de Seguridad e Higiene en el Trabajo.

3) La iluminación de los tajos será mediante proyectores ubicados sobre "pies derechos" firmes.

4) La energía eléctrica que deberá suministrarse a las lámparas portátiles para la iluminación de tajos encharcados, (o húmedos), se servirá a través de un transformador de corriente con separación de circuitos que la reduzca a 24 voltios.

5) La iluminación de los tajos se situará a una altura en torno a los 2 m., medidos desde la superficie de apoyo de los operarios en el puesto de trabajo.

6) La iluminación de los tajos, siempre que sea posible, se efectuará cruzada con el fin de disminuir sombras.

7) Las zonas de paso de la obra estarán permanentemente iluminadas evitando rincones oscuros.

NORMAS DE SEGURIDAD TIPO, DE APLICACIÓN DURANTE EL MANTENIMIENTO Y REPARACIONES DE LA INSTALACIÓN ELÉCTRICA PROVISIONAL DE OBRA

1. El personal de mantenimiento de la instalación será electricista, y preferentemente en posesión de carné profesional correspondiente.
2. Toda la maquinaria eléctrica se revisará periódicamente, y en especial, en el momento en el que se detecte un fallo, momento en el que se la declarará "FUERA DE SERVICIO" mediante desconexión eléctrica y el cuelgue del rótulo correspondiente en el cuadro de gobierno.
3. La maquinaria eléctrica, será revisada por personal especialista en cada tipo de máquina.

4. Se prohíben las revisiones o reparaciones bajo corriente. Antes de iniciar una reparación se desconectará la máquina de la red eléctrica, instalando en el lugar de conexión un letrero visible, en el que se lea: "NO CONECTAR, PERSONAL TRABAJANDO EN LA RED".
5. La ampliación o modificación de líneas, cuadros y asimilables sólo la efectuarán los electricistas.

PRENDAS DE PROTECCIÓN PERSONAL RECOMENDABLES

1. Casco de polietileno para riesgos eléctricos.
2. Botas y guantes aislantes de electricidad.
3. Cinturón de seguridad clase C.
4. Banqueta aislante de la electricidad.
5. Trajes impermeables para ambientes lluviosos.
6. Comprobadores de tensión.
7. Letreros de " NO CONECTAR, PERSONAL TRABAJANDO EN RED".

12.1.10. RELACIÓN DE RIESGOS LABORALES QUE NO SE HAN PODIDO ELIMINAR

En este trabajo, se consideran riesgos existentes en la obra pero resueltos mediante la prevención contenida en este trabajo el listado siguiente:

- Caídas de personas a distinto nivel
- Caída de personas al mismo nivel
- Caídas de objetos por desplome o derrumbamiento
- Caídas de objetos en manipulación
- Caídas de objetos desprendido
- Pisadas sobre objetos
- Choques contra objetos inmóviles
- Choques contra objetos móviles
- Golpes por objetos o herramientas

- Proyección de fragmentos o partículas
- Atrapamiento por o entre objetos
- Atrapamiento por vuelco de máquinas o vehículos
- Sobresfuerzos
- Exposición a temperaturas ambientales extremas
- Contactos térmicos
- Exposición a contactos eléctricos
- Exposición a sustancias nocivas
- Contactos con sustancias cáusticas o corrosivas
- Exposición a radiaciones
- Explosiones
- Incendios
- Accidentes causados por seres vivos
- Atropellos o golpes con vehículos
- Patologías no traumáticas
- "In itinere"
- Posibilidad de exposición al amianto

12.1.11. IDENTIFICACIÓN DE RIESGOS ESPECIALES

En el ANEXO II del Real Decreto 1627/2007 se incluye la *Relación no exhaustiva de los trabajos que implican riesgos especiales para la seguridad y la salud de los trabajadores*:

1. *Trabajos con riesgos especialmente graves de sepultamiento, hundimiento o caída de altura, por las particulares características de la actividad desarrollada, los procedimientos aplicados, o el entorno del puesto de trabajo.*

2. Trabajos en los que la exposición a agentes químicos o biológicos suponga un riesgo de especial gravedad, o para los que la vigilancia específica de la salud de los trabajadores sea legalmente exigible.

3. Trabajos con exposición a radiaciones ionizantes para los que la normativa específica obliga a la delimitación de zonas controladas o vigiladas.

4. Trabajos en la proximidad de líneas eléctricas de alta tensión.

5. Trabajos que expongan a riesgo de ahogamiento por inmersión.

6. Obras de excavación de túneles, pozos y otros trabajos que supongan movimientos de tierra subterráneos.

7. Trabajos realizados en inmersión con equipo subacuático.

8. Trabajos realizados en cajones de aire comprimido.

9. Trabajos que impliquen el uso de explosivos.

10. Trabajos que requieran montar o desmontar elementos prefabricados pesados."

Dadas las características de la obra, aunque los trabajos se realicen en interiores, y dada la altura libre de las plantas, consideramos que existe riesgo grave de caída de altura.

Este es un riesgo que no se ha puede eliminar completamente con medidas preventivas y organizativas.

En este Estudio de Seguridad y Salud se ha tenido en cuenta esta circunstancia planteando medidas colectivas e individuales para salvaguardar la integridad y seguridad de las personas frente a una caída en altura.

12.1.12. NORMAS PREVENTIVAS GENERALES DE LA OBRA

NORMAS GENERALES

- Cumplir activamente las instrucciones y medidas preventivas que adopte el empresario

- Velar por la seguridad propia y de las personas a quienes pueda afectar sus actividades desarrolladas.
- Utilizar, conforme a las instrucciones de seguridad recibidas, los medios y equipos asignados.
- Asistir a todas las actividades de formación acerca de prevención de riesgos laborales organizadas por el empresario.
- Consultar y dar cumplimiento a las indicaciones de la información sobre prevención de riesgos recibida del empresario.
- Cooperar para que en la obra se puedan garantizar unas condiciones de trabajo seguras.
- No consumir sustancias que puedan alterar la percepción de los riesgos en el trabajo.
- Comunicar verbalmente y, cuando sea necesario, por escrito, las instrucciones preventivas necesarias al personal subordinado.
- Acceder únicamente a las zonas de trabajo que ofrezcan las garantías de seguridad.
- Realizar únicamente aquellas actividades para las cuales se está cualificado y se dispone de las autorizaciones necesarias.
- No poner fuera de servicio y utilizar correctamente los medios de seguridad existentes en la obra.
- Informar inmediatamente a sus superiores de cualquier situación que pueda comportar un riesgo para la seguridad y salud de los trabajadores.
- Contribuir al cumplimiento de las obligaciones establecidas por la autoridad laboral competente.
- Respetar la señalización de seguridad colocada en la obra.
- No encender fuego en la obra.
- Utilizar la herramienta adecuada según el trabajo que se quiere realizar.
- En caso de producirse cualquier tipo de accidente, comunicar la situación inmediatamente a sus superiores.

- Conocer la situación de los extintores en la obra.
- No permanecer bajo cargas suspendidas.
- En zonas de circulación de maquinaria, utilizar los pasos previstos para trabajadores.
- Respetar los radios de seguridad de la maquinaria.
- Al levantar pesos, hacerlo con la espalda recta y realizar la fuerza con las piernas, nunca con la espalda.
- Lavarse las manos antes de comer, beber o fumar.
- Toda la maquinaria de obra matriculada que supere los 25 km/h, deberá tener pasada la ITV

PROTECCIONES INDIVIDUALES Y COLECTIVAS

- Utilizar, de acuerdo con las instrucciones de seguridad recibidas en la obra, los equipos de protección individual y las protecciones colectivas.
- En caso de no disponer de equipos de protección individual o de que se encuentren en mal estado, hay que pedir equipos nuevos a los responsables.
- Anteponer las medidas de protección colectivas frente a las individuales.
- Conservar en buen estado los equipos de protección individual y las protecciones colectivas.
- En caso de retirar una protección colectiva por necesidades, hay que volver a restituir lo antes posible.
- En zonas con riesgos de caída en altura, no iniciar los trabajos hasta la colocación de las protecciones colectivas.
- Para colocar las protecciones colectivas, utilizar sistemas seguros: arnés de seguridad anclado a líneas de vida, plataformas elevadoras, etc.

MAQUINARIA Y EQUIPOS DE TRABAJO

- Utilizar únicamente aquellos equipos y máquinas para los cuales se dispone de la cualificación y autorización necesarias.

- Utilizar estos equipos respetando las medidas de seguridad y las especificaciones indicadas por el fabricante.
- Al manipular una máquina o equipo, respetar la señalización interna de la obra.
- No utilizar la maquinaria para transportar a personal.
- Realizar los mantenimientos periódicos conforme las instrucciones del fabricante.
- Circular con precaución en las entradas y salidas de la obra.
- Vigilar la circulación y la actividad de los vehículos situados en el radio de trabajo de la máquina.
- ORDEN Y LIMPIEZA
- Mantener las zonas de trabajo limpias y ordenadas.
- Segregar y depositar los residuos en los contenedores habilitados en obra.
- Acopiar correctamente los escombros en la obra.
- Retirar los materiales caducados y en mal estado del almacén de la obra.

12.1.13. DEBERES, OBLIGACIONES Y COMPROMISOS

Según los Arts. 14 y 17, en el Capítulo III de la Ley de Prevención de Riesgos Laborales se establecen los siguientes puntos:

1. Los trabajadores tienen derecho a una protección eficaz en materia de seguridad y salud en el trabajo. El citado derecho supone la existencia de un correlativo deber del empresario de protección de los trabajadores frente a los riesgos laborales. Este deber de protección constituye, igualmente, un deber de las Administraciones Públicas respecto del personal a su servicio. Los derechos de información, consulta y participación, formación en materia preventiva, paralización de la actividad en caso de riesgo grave e inminente y vigilancia de su estado de salud, en los términos previstos en la presente Ley, forman parte del derecho de los trabajadores a una protección eficaz en materia de seguridad y salud en el trabajo.

2. En cumplimiento del deber de protección, el empresario deberá garantizar la seguridad y la salud de los trabajadores a su servicio en todos los aspectos relacionados con el trabajo. A estos efectos, en el marco de sus responsabilidades, el empresario realizará la prevención de los riesgos laborales mediante la integración de la actividad preventiva en la empresa y la adopción de cuantas medidas sean necesarias para la protección de la seguridad y la salud de los trabajadores, con las especialidades que se recogen en los artículos siguientes en materia de plan de prevención de riesgos laborales, evaluación de riesgos, información, consulta y participación y formación de los trabajadores, actuación en casos de emergencia y de riesgo grave e inminente, vigilancia de la salud, y mediante la constitución de una organización y de los medios necesarios en los términos establecidos en el capítulo IV de esta ley.

   El empresario desarrollará una acción permanente de seguimiento de la actividad preventiva con el fin de perfeccionar de manera continua las actividades de identificación, evaluación y control de los riesgos que no se hayan podido evitar y los niveles de protección existentes y dispondrá lo necesario para la adaptación de las medidas de prevención señaladas en el párrafo anterior a las modificaciones que puedan experimentar las circunstancias que incidan en la realización del trabajo.

3. El empresario deberá cumplir las obligaciones establecidas en la normativa sobre prevención de riesgos laborales.

4. Las obligaciones de los trabajadores establecidas en esta Ley, la atribución de funciones en materia de protección y prevención a trabajadores o Servicios de la empresa y el recurso al concierto con entidades especializadas para el desarrollo de actividades de prevención complementarán las acciones del empresario, sin que por ello le eximan del cumplimiento de su deber en esta materia, sin perjuicio de las acciones que pueda ejercitar, en su caso, contra cualquier otra persona.

5. El coste de las medidas relativas a la seguridad y la salud en el trabajo no deberá recaer en modo alguno sobre los trabajadores.

EQUIPOS DE TRABAJO Y MEDIOS DE PROTECCIÓN

1. El empresario adoptará las medidas necesarias con el fin de que los equipos de trabajo sean adecuados para el trabajo que deba realizarse y convenientemente adaptados a tal efecto, de forma que garanticen la seguridad y la salud de los trabajadores al utilizarlos. Cuando la utilización de un equipo de trabajo

pueda presentar un riesgo específico para la seguridad y la salud de los trabajadores, el empresario adoptará las medidas necesarias con el fin de que:

a. La utilización del equipo de trabajo quede reservada a los encargados de dicha utilización.

b. Los trabajos de reparación, transformación, mantenimiento o conservación sean realizados por los trabajadores específicamente capacitados para ello.

1. El empresario deberá proporcionar a sus trabajadores equipos de protección individual adecuados para el desempeño de sus funciones y velar por el uso efectivo de los mismos cuando, por la naturaleza de los trabajos realizados, sean necesarios. Los equipos de protección individual deberán utilizarse cuando los riesgos no se puedan evitar o no puedan limitarse suficientemente por medios técnicos de protección colectiva o mediante medidas, métodos o procedimientos de organización del trabajo.

12.1.14. DEBERES, OBLIGACIONES Y COMPROMISOS

De acuerdo con los Arts. 15 y 16 de la Ley de Prevención de Riesgos Laborales, se establece que:

2. El empresario aplicará las medidas que integran el deber general de prevención previsto en el capítulo anterior, con arreglo a los siguientes principios generales:

a. Evitar los riesgos.

b. Evaluar los riesgos que no se puedan evitar.

c. Combatir los riesgos en su origen.

d. Adaptar el trabajo a la persona, en particular en lo que respecta a la concepción de los puestos de trabajo, así como a la elección de los equipos y los métodos de trabajo y de producción, con miras, en particular, a atenuar el trabajo monótono y repetitivo y a reducir los efectos del mismo en la salud.

e. Tener en cuenta la evolución de la técnica.

f. Sustituir lo peligroso por lo que entrañe poco o ningún peligro.

g. Planificar la prevención, buscando un conjunto coherente que integre en ella la técnica, la organización del trabajo, las condiciones de trabajo, las relaciones sociales y la influencia de los factores ambientales en el trabajo.

h. Adoptar medidas que antepongan la protección colectiva a la individual.

i. Dar las debidas instrucciones a los trabajadores.

6. El empresario tomará en consideración las capacidades profesionales de los trabajadores en materia de seguridad y salud en el momento de encomendarles las tareas.

7. El empresario adoptará las medidas necesarias a fin de garantizar que solo los trabajadores que hayan recibido información suficiente y adecuada puedan acceder a las zonas de riesgo grave y específico.

8. La efectividad de las medidas preventivas deberá prever las distracciones o imprudencias no temerarias que pudiera cometer el trabajador. Para su adopción se tendrán en cuenta los riesgos adicionales que pudieran implicar determinadas medidas preventivas; las cuales solo podrán adoptarse cuando la magnitud de dichos riesgos sea sustancialmente inferior a la de los que se pretende controlar y no existan alternativas más seguras.

9. Podrán concertar operaciones de seguro que tengan como fin garantizar como ámbito de cobertura la previsión de riesgos derivados del trabajo, la empresa respecto de sus trabajadores, los trabajadores autónomos respecto a ellos mismos y las sociedades cooperativas respecto a sus socios cuya actividad consista en la prestación de su trabajo personal.

EVALUACIÓN DE LOS RIESGOS

1. La prevención de riesgos laborales deberá integrarse en el sistema general de gestión de la empresa, tanto en el conjunto de sus actividades como en todos los niveles jerárquicos de ésta, a través de la implantación y aplicación de un plan de prevención de riesgos laborales a que se refiere el párrafo siguiente.

Este plan de prevención de riesgos laborales deberá incluir la estructura organizativa, las responsabilidades, las funciones, las prácticas, los procedimientos, los procesos y los recursos necesarios para realizar la acción de prevención de riesgos en la empresa, en los términos que reglamentariamente se establezcan.

2. Los instrumentos esenciales para la gestión y aplicación del plan de prevención de riesgos, que podrán ser llevados a cabo por fases de forma programada, son la evaluación de riesgos laborales y la planificación de la actividad preventiva a que se refieren los párrafos siguientes:

    a. El empresario deberá realizar una evaluación inicial de los riesgos para la seguridad y salud de los trabajadores, teniendo en cuenta, con carácter general, la naturaleza de la actividad, las características de los puestos de trabajo existentes y de los trabajadores que deban desempeñarlos. Igual evaluación deberá hacerse con ocasión de la elección de los equipos de trabajo, de las sustancias o preparados químicos y del acondicionamiento de los lugares de trabajo. La evaluación inicial tendrá en cuenta aquellas otras actuaciones que deban desarrollarse de conformidad con lo dispuesto en la normativa sobre protección de riesgos específicos y actividades de especial peligrosidad. La evaluación será actualizada cuando cambien las condiciones de trabajo y, en todo caso, se someterá a consideración y se revisará, si fuera necesario, con ocasión de los daños para la salud que se hayan producido.

Cuando el resultado de la evaluación lo hiciera necesario, el empresario realizará controles periódicos de las condiciones de trabajo y de la actividad de los trabajadores en la prestación de sus servicios, para detectar situaciones potencialmente peligrosas.

a. Si los resultados de la evaluación prevista en el párrafo a) pusieran de manifiesto situaciones de riesgo, el empresario realizará aquellas actividades preventivas necesarias para eliminar o reducir y controlar tales riesgos. Dichas actividades serán objeto de planificación por el empresario, incluyendo para cada actividad preventiva el plazo para llevarla a cabo, la designación de responsables y los recursos humanos y materiales necesarios para su ejecución.

El empresario deberá asegurarse de la efectiva ejecución de las actividades preventivas incluidas en la planificación, efectuando para ello un seguimiento continuo de la misma.

Las actividades de prevención deberán ser modificadas cuando se aprecie por el empresario, como consecuencia de los controles periódicos previstos en el párrafo a) anterior, su inadecuación a los fines de protección requeridos.

3. Las empresas, en atención al número de trabajadores y a la naturaleza y peligrosidad de las actividades realizadas, podrán realizar el plan de prevención de riesgos laborales, la evaluación de riesgos y la planificación de la actividad preventiva de forma simplificada, siempre que ello no suponga una reducción del nivel de protección de la seguridad y salud de los trabajadores y en los términos que reglamentariamente se determinen.

4. Cuando se haya producido un daño para la salud de los trabajadores o cuando, con ocasión de la vigilancia de la salud prevista en el artículo 22, aparezcan indicios de que las medidas de prevención resultan insuficientes, el empresario llevará a cabo una investigación al respecto, a fin de detectar las causas de estos hechos.

12.1.15. GESTIÓN MEDIOAMBIENTAL

SOSTENIBILIDAD AMBIENTAL

PROBLEMAS AMBIENTALES EXISTENTES QUE SON RELEVANTES EN LAS INMEDIACIONES DE LA OBRA

Se contemplan en esta Memoria de Seguridad, la influencia e impacto del proceso constructivo de la misma sobre el medio ambiente en el que se desarrolla.

El objetivo es que la prevención aplicada a la sostenibilidad durante el proceso constructivo de la obra permita que el desarrollo de la misma sea respetuoso con el medio ambiente, con los recursos naturales, el patrimonio cultural y arqueológico, al tratamiento de los residuos y con el medio urbano.

IMPACTO SOBRE LOS RECURSOS NATURALES	
Desastres y accidentes mayores: No son de esperar desastres y accidentes mayores en esta obra, por las características de las operaciones que se van a realizar, por los materiales utilizados y por el entorno de la misma.	-
Contaminación ambiental: No se espera contaminación ambiental como consecuencia de los procesos productivos utilizados en esta obra, por las características de las operaciones que se van a realizar, por los materiales utilizados y por el entorno de la misma.	-

IMPACTO CONTRA EL PATRIMONIO CULTURAL	
Restos arqueológicos: En principio no se espera el hallazgo de restos arqueológicos durante las excavaciones y/o el movimiento de tierras. Cualquier indicio, sospecha o resto encontrado, será comunicado a las autoridades siguiendo los protocolos establecidos por la normativa.	-

IMPACTO SOBRE EL MEDIO URBANO	
Contaminación del medio urbano: No se espera contaminación del medio urbano como consecuencia de los procesos productivos utilizados en esta obra, por las características de las operaciones que se van a realizar, por los materiales utilizados y por el entorno de la misma, a excepción de la contaminación acústica que pudiera ocasionarse como consecuencia del desarrollo de determinadas tareas constructivas:	-
Contaminación del suelo urbano	
Contaminación atmosférica	
Contaminación acústica	

RIESGOS SANITARIOS	
No son de temer riesgos sanitarios ni como consecuencia de la actividad desarrollada ni por los residuos generados durante el proceso constructivo.	-

ASPECTOS RELEVANTES DE LA SITUACIÓN ACTUAL DEL MEDIO AMBIENTE

La prevención aplicada a la sostenibilidad durante el proceso constructivo de la obra permita que el desarrollo de la misma sea respetuoso con el medio ambiente, con los recursos naturales, el patrimonio cultural y arqueológico, al tratamiento de los residuos y con el medio urbano.

Se contemplan a continuación los aspectos más relevantes de la situación actual del medio ambiente donde se desarrolla la obra.

- Interferencias con plantaciones:

En el caso de que se afecten elementos vegetales de las inmediaciones, se llevará a cabo el trasplante de árboles, arbustos y diversos elementos de jardinería, desde su actual emplazamiento hasta la

nueva ubicación en la parcela, con aportación de tierra vegetal, apertura de hoyos y primer riego, contribuyendo con el medio ambiente de la zona.

RELACIÓN DE MEDIDAS PREVISTAS PARA PREVENIR, REDUCIR Y EN LA MEDIDA DE LO POSIBLE CONTRARRESTAR CUALQUIER EFECTO NEGATIVO EN EL MEDIO AMBIENTE

En los puntos anteriores, se ha tratado de estudiar los problemas ambientales existente en las inmediaciones de la obra, los aspectos relevantes de la situación actual del medio ambiente donde se desarrollan las tareas y los probables efectos significativos que las actividades a desarrollar en la obra influyen en el medio ambiente. Ahora lo que vamos a mostrar es en conjunto cual es la relación de medidas previstas para prevenir, reducir y en la medida de lo posible contrarrestar cualquier efecto negativo que las obras pueden afectar al medio ambiente

IMPACTO SOBRE LOS RECURSOS NATURALES

RELACIÓN DE MEDIDAS ADOPTADAS PARA REDUCIR EL RIESGO DE INCENDIO EN ESTA OBRA	
Limpieza y orden en los trabajos	X
Eliminar llamas desnudas (calefacción, quemadores, etc.)	X
Control exhaustivo de operaciones de mantenimiento que utilicen o produzcan llamas o chispas (soldadura, corte, etc.)	X
Prohibir la acumulación de material combustible (papel, cartón, etc.,) cerca de los focos de ignición	X
Carga de combustible con el motor parado y en frío, sin fumar porque está prohibido y sin arrancar el vehículo repostado hasta haber cerrado el tapón del depósito del combustible	X
Prohibición de fumar en el recinto de la obra y de utilizar otros focos de ignición	X
Prohibición de encender fuegos en el recinto de la obra	X
Prohibición de quemar papel, cartón, maderas o residuos en el recinto de la obra	X
Señalización de las zonas de productos peligrosos	X
Restringir el paso a las zonas de peligro solo al personal Autorizado	X
Otras	

RELACIÓN DE MEDIDAS ADOPTADAS PARA REDUCIR EL RIESGO DE EXPLOSIÓN EN ESTA OBRA	
Zonas de acumulación de almacenamiento, manipulación, envasado, etc. de gases y fluidos	X

lo más alejado posible de otras actividades	
Confinamiento de las zonas de riesgo	
Prohibición de fumar y de utilizar otros focos de ignición	X
Eliminación de llamas desnudas	X
Control exhaustivo de operaciones de mantenimiento que utilicen o produzcan llamas o chispas (soldadura, corte, etc.)	X
Instalación eléctrica antiexplosiva acorde con el Reglamento Electrotécnico para Baja Tensión	X
Limpieza periódica de los túneles, zonas y conductos en donde puedan producirse condensaciones de disolvente, aceites, fibras o polvos inflamables	
Instalación de uno o más explosímetros de detección continua de atmósferas inflamables	
Señalización de las zonas de productos peligrosos	X
Restringir el paso a las zonas de peligro solo al personal Autorizado	X
Otras	

RELACIÓN DE MEDIDAS ADOPTADAS PARA REDUCIR LA CONTAMINACIÓN DEL SUELO EN ESTA OBRA	
Limitaciones de accesos y ocupación	
Señalización de itinerarios de circulación de vehículos	X
Señalización de zonas de carga y descarga de materiales	X
Impermeabilización	X
Retirada de suelos contaminados	
Recuperación de la capa vegetal	
Reutilización de inertes procedentes de otras obras	
Reducción de préstamos y de inertes a vertedero respecto al volumen previsto	X
Otras	

RELACIÓN DE MEDIDAS ADOPTADAS PARA REDUCIR LA CONTAMINACIÓN DEL AGUA EN ESTA OBRA	
Red de saneamiento de la propia obra	X
Balsas de decantación	
Depuración de aguas	
Tratamiento de vertidos	X

Reutilización de efluentes y aguas residuales de procesos	
Impermeabilizaciones	
Otras	

RELACIÓN DE MEDIDAS ADOPTADAS PARA REDUCIR LA CONTAMINACIÓN DEL AIRE EN ESTA OBRA	
Riegos en áreas de circulación y acopios	
Uso de estabilizantes en caminos	
Limitaciones de velocidad de circulación de vehículos	
Pantallas o humidificadores	
Filtros	X
Otras	

RELACIÓN DE MEDIDAS ADOPTADAS PARA REDUCIR LA CONTAMINACIÓN ACÚSTICA EN ESTA OBRA	
Limitación de horarios de trabajo	X
Limitación de horarios de tráfico de mercancías	
Colocación de pantallas antirruido	
Protecciones en maquinaria	X
Planificación de trabajos para evitar concurrencia de operaciones ruidosas que incremente los niveles	X
Planificación de operaciones para evitar coincidencia de operaciones ruidosas con periodos de reproducción	
Reducción de las afecciones por voladuras	
Utilizar máquinas y equipos avanzados con niveles de contaminación acústica limitada	
Otros	

IMPACTO SOBRE EL PATRIMONIO CULTURAL

RELACIÓN DE MEDIDAS ADOPTADAS EN ESTA OBRA EN CASO DE APARICIÓN DE RESTOS O RUINAS ARQUEOLÓGICAS	
Paralización inmediata de trabajos que puedan afectar al patrimonio arqueológico	X
Delimitación del espacio y señalización de las zonas	X
Comunicación a las autoridades de los hallazgos	X

Planificación de trabajos para impedir la concurrencia de actividades con las operaciones arqueológicas	X
Cooperación entre equipos	X
Limitación de horarios de trabajo que puedan ocasionar incidencias o perturbaciones	
Limitación de horarios de tráfico de mercancías	
Otros	

RELACIÓN DE MEDIDAS DE PROTECCIÓN ADOPTADAS EN ESTA OBRA PARA HACER FRENTE AL IMPACTO DEL ENTORNO URBANO.	
Redes de protección	
Delimitación del espacio y señalización de las zonas	X
Limitación de accesos	X
Protección del espacio urbano (retirada, desvío o reposicionamiento de señales, semáforos, farolas, instalaciones urbanas, etc.)	X
Retirada de mobiliario urbano	X
Protección de árboles	X
Retirada de arbustos, setos y plantas	X
Reposiciones al finalizar las obras	X
Protección del patrimonio histórico-artístico (fuentes, estatuas, esculturas, fachadas protegidas, etc.)	
Limitación de horarios de tráfico de mercancías	
Otros	

TRATAMIENTO DE RESIDUOS

Ver en el Estudio de Gestión de Residuos.

PREVENCIÓN Y SALUD EN EL TRABAJO

El cambio de los procesos constructivos, de las máquinas y equipos a utilizar, la generación de los residuos, emisiones y vertidos, el mejor envasado y recogida de los mismos, toxicidad y peligrosidad, la manipulación de los residuos, la disminución de los niveles de contaminación y otros fenómenos, también suponen una mejora en el efecto sobre la salud de los trabajadores.

La adopción de medidas de protección sobre el medio ambiente incluye notables aspectos intangibles, como:

Impacto sobre el medio ambiente

- Efecto sobre la salud de los trabajadores
- Mejora en las condiciones de seguridad e higiene de los trabajadores
- Aumento de la productividad, mejora de la calidad y ambiente laboral por adopción de tecnologías menos contaminantes
- Reduce el riesgo de ocasionar daños al medio ambiente y en consecuencia a las personas y trabajadores
- Mejora de las condiciones laborales
- Accidentes durante el transporte de los residuos
- Escapes y fugas en los depósitos de almacenamiento
- Contaminación del suelo
- Impacto en empresas o viviendas cercanas
- Influencia en la imagen de la empresa

MEJORA DE LAS CONDICIONES LABORALES

Uno de los aspectos primordiales es motivar a todos los trabajadores de la empresa, ya que son ellos los que están más en contacto con los residuos y la forma en que trabajan puede contribuir a su generación, por lo que desempeñan un papel fundamental para identificar problemas y plantear soluciones.

También es importante que comprendan los motivos de llevar a cabo la protección del medio ambiente y como a su vez influye en la mejora de las condiciones de trabajo y de su seguridad y salud, que se familiaricen con los cambios que se propongan y se sientan parte importante del programa de actuaciones, lo que se llevará a cabo mediante la formación y el reconocimiento de sus aportaciones.

REPOSICIÓN DE SERVICIOS

Al finalizar las actividades en la obra y antes de la entrega de la misma, se procederá a la reposición de todos los servicios e infraestructuras que se hayan visto afectados por las actividades desarrolladas directa o indirectamente en la obra.

La correcta reposición de estos servicios permitirá seguir manteniendo unas condiciones medio ambientales que permitan garantizar un impacto mínimo.

Reposición de vallados de zonas o áreas protegidas

Se procederá a la reposición de todos aquellos vallados de las zonas protegidas que se han visto afectados por la ejecución de las obras. La localización y características de las mismos serán las que se establecen. en los Planes establecidos por la Comunidad autónoma para cada zona.

- La reposición del vallado incluye la reposición de la señalización medio ambiental igualmente afectada.
- Se retirará las sobras de materiales, herramientas y restos de obra no colocados como piezas rotas, envoltorios, palets, etc.

Reposición de caminos

Se procederá a la reposición de los caminos y vías que se han visto afectadas por el tránsito de vehículos o interrumpidos por la ejecución de las obras.

- La reposición de los caminos incluye la reposición de la señalización medio ambiental afectada (señales indicadoras de especies, señalización de cruces y caminos, etc.) y del mobiliario ambiental (papeleras, anidamientos, áreas de descanso, etc.) igualmente afectados.
- Se retirará las sobras de materiales, herramientas y restos de obra no utilizados en la reposición, como piezas rotas, envoltorios, palets, etc.

Reposición de líneas eléctricas

Finalizadas las obras, se deberá proceder a la reposición de las líneas eléctricas aéreas que atraviesan la zona donde se realizó la obra, siguiendo los trazados establecidos en el proyecto de obra.

- La reposición de los tendidos eléctricos incluye la señalización de los mismos para evitar accidentes, así como el mantenimiento de las distancias de seguridad a los árboles y edificaciones existentes.
- Se retirarán las sobras de conductos, materiales, herramientas y restos no utilizados en la reposición, no abandonando ningún residuo, y en especial piezas rotas, envoltorios, palets, etc.

Reposición de riegos y acequias

Se procederá a la reposición de los sistemas de riego y acequias que se han visto afectados por la ejecución de las obras, siguiendo el trazado establecido en el proyecto de obra.

Se procurará su integración en el medio ambiente utilizando técnicas, productos y materiales acordes con el mismo.

- La reposición de los sistemas de riego y acequias incluye la señalización de los mismos (señales indicadoras de especies, señalización de cruces y caminos, etc.), así como las barreras, barandillas de protección y defensas en los puntos en que supongan un riesgo. Igualmente de los puentes y cualquier otro medio que permita el tránsito seguro de personas.
- Se retirará las sobras de materiales, herramientas y restos de obra no utilizados en la reposición, como piezas rotas, envoltorios, palets, etc. siendo respetuosos con el medio ambiente.

LIMPIEZA Y LABORES FIN DE OBRA

Las operaciones de entrega de obra llevan consigo determinadas operaciones de retirada de residuos y escombros, ordenación de espacios, retirada de medios auxiliares y limpieza general.

- Para la limpieza se deben usar las herramientas, máquinas y equipos adecuados a lo que se va a limpiar.
- Las operaciones de limpieza no provocarán ninguna degradación del medio ambiente por el uso de grasa, disolventes, pinturas o productos que puedan ser contaminantes.
- Se deben retirar todos los restos de materiales, áridos, palets, escombros, etc. del mismo modo que los envases de los productos de limpieza utilizados.
- La eliminación de estos residuos se hará siguiendo las mismas especificaciones de recogida de materiales y productos químicos tratadas, de manera que el impacto final sobre el medio ambiente sea mínimo.

12.1.16. PREVENCIÓN DE RIESGOS DE LA OBRA

IDENTIFICACIÓN DE RIESGOS QUE PUEDEN SER EVITADOS Y EN CONSECUENCIA SE EVITAN

En esta obra, se consideran al menos riesgos evitados los siguientes:

- Los derivados de las interferencias de los trabajos a ejecutar, que se han eliminado mediante el estudio preventivo del plan de ejecución de obra.
- Los originados por las máquinas sin protecciones en sus partes móviles, que se han desestimado mediante la exigencia de que todas las máquinas estén completas, con sus revisiones y mantenimientos al día y con todas sus protecciones operativas.
- Los originados por las máquinas eléctricas carentes de protecciones contra los contactos eléctricos, que se han eliminado mediante la exigencia de que todas ellas estén dotadas con doble aislamiento o en su caso, de toma de tierra de sus carcasas metálicas, en combinación con los interruptores diferenciales de los cuadros de suministro y red de toma de tierra general eléctrica.
- Los derivados del factor de forma y de ubicación del puesto de trabajo, resuelto mediante la aplicación de procedimientos de trabajo seguro, en combinación con las protecciones colectivas, equipos de protección individual y señalización.

- Los derivados de las máquinas sin mantenimiento preventivo, que se eliminan mediante el control de sus libros de mantenimiento y revisión de que no falte en ellas, ninguna de sus protecciones específicas y la exigencia en su caso, de poseer el marcado CE.
- Los derivados de los medios auxiliares deteriorados, en mal estado o peligrosos, mediante la exigencia de utilizar medios auxiliares con marcado CE o en su caso, medios auxiliares en buen estado de mantenimiento, montados con todas las protecciones diseñadas por su fabricante.
- Los derivados por el mal comportamiento de los materiales preventivos a emplear en la obra, que se exigen en su caso, con marcado CE o con el certificado de ciertas normas UNE.
- En general, todos los riesgos evitados en origen no son objeto de evaluación en las diferentes unidades de obra, pues por la ejecución, organización del trabajo o por la planificación del mismo ya no existen al haber sido evitados y en consecuencia no son evaluados

UNIDADES DE OBRA

En esta obra, se consideran al menos riesgos evitados los siguientes:

EDIFICACIÓN - ACTUACIONES PREVIAS - OPERACIONES PREVIAS - CIERRE DE OBRA CON VALLADO PROVISIONAL DE OBRA

Operaciones a desarrollar previstas en el proyecto

Se delimitará el recinto y se realizará el vallado antes del inicio de la obra, para impedir así el acceso libre a personas ajenas a la obra.

Se colocarán vallas cerrando todo el perímetro abierto de la obra, las cuales serán resistentes y tendrán una altura de 2.00 m.

Las nuevas puertas de acceso peatonal deberán separarse lo máximo posible de las zonas de paso de vehículos.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Caídas de operarios al mismo nivel.

Caídas de operarios a distinto nivel.

Pisadas sobre objetos.

Choques y golpes contra objetos inmóviles.

Golpes y cortes por objetos o herramientas.

Iluminación inadecuada.

Sobreesfuerzos, posturas inadecuadas o movimientos repetitivos.

Atrapamientos

Golpes y choque con vehículos en movimiento

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Es difícil debido a las condiciones de acceso existente realizar distintos accesos diferenciados y señalizados para las personas y vehículos. Las operaciones relacionadas con el movimiento de vehículos de obra se realizarán con vigilancia, y se procurará delimitar la zona de paso peatonal de la del paso de vehículos.

Se prohibirá aparcar en la zona de entrada de vehículos.

Se prohibirá el paso de peatones por la entrada de vehículos.

Se prohibirá la entrada a toda persona ajena a la obra.

Cualquier obstáculo que se encuentre situado en las inmediaciones de la obra deberá de quedar debidamente señalizado.

Se dispondrá en obra un Cartel de obra, en el que se puedan contemplar todas las indicaciones y señalización de obra.

El vallado dispondrá de luces para la señalización nocturna en los puntos donde haya circulación de vehículos.

Si al instalar el vallado de obra invadimos la acera, nunca se desviarán los peatones hacia la calzada sin que haya protecciones.

ACTUACIONES PREVIAS - DERRIBOS - DURANTE LA DEMOLICIÓN - ELEMENTO A ELEMENTO - INSTALACIONES - RETIRADA DE INSTALACIÓN ELÉCTRICA Y OTROS ELEMENTOS

Operaciones a desarrollar previstas en el proyecto

Tras la instalación de la acometida provisional de obra y su cuadro y conductores correspondientes, se procederá a la retirada de conductores eléctricos, dispositivos eléctricos , y otros elementos de fachada, siempre después de anular el servicio de electricidad.

Los cables de fachada de servicios generales serán retirados por personal de las empresas suministradoras.

Las unidades exteriores de los aparatos de aire serán retiradas y almacenadas.

Los trabajos se ejecutarán según condiciones de proyecto y teniendo en vista la premisa de que hay que mantener el servicio en el edificio durante la ejecución de los trabajos.

Se intentará que la desconexión interfiera lo mínimo posible.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel.

Sobreesfuerzos o posturas inadecuadas.

Choques y golpes contra objetos inmóviles.

Contacto con sustancias cáusticas o corrosivas.

Iluminación inadecuada.

Golpes y cortes por objetos o herramientas.

Pisadas sobre objetos.

Proyección de fragmentos o partículas.

Riesgo eléctrico

Relación de EPIS necesarios y cuya eficacia ha sido evaluada

Casco de seguridad para riesgo eléctrico

Guantes de cuero.

Guantes para riesgo eléctrico

Ropa de trabajo.

Calzado de seguridad aislante

Gafas de seguridad antiproyecciones.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas.

La retirada de líneas eléctricas, equipos de climatización y accesorios se realizará por personal especializado.

El espacio donde estén almacenados los escombros y conductores retirados estará acotado y vigilado.

No se acumularán escombros o material eléctrico con peso superior a 100 kg./m2 sobre forjados aunque estén en buen estado.

No se depositará escombro o material eléctrico sobre los andamios.

No se acumulará escombro o material eléctrico ni se apoyarán elementos contra vallas, muros y soportes, propios o medianeros, mientras éstos deban permanecer en pie.

Los escombros deberán conducirse hasta la planta baja o el lugar de carga por medio de rampas, con tolvas o espuertas, sacos, etc., prohibiéndose arrojarlos desde alto.

Cuando se empleen más de diez trabajadores en tarea de demolición, se adscribirá un Jefe de equipo para la vigilancia por cada docena de trabajadores.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas a distinto nivel.

Caída de personas al mismo nivel.

Sobreesfuerzos o posturas inadecuadas.

Choques y golpes contra objetos inmóviles.

Contacto con sustancias cáusticas o corrosivas.

Proyección de fragmentos o partículas.

Golpes y cortes por objetos o herramientas.

Pisadas sobre objetos.

Relación de EPIS necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Guantes de cuero.

Máscara antipolvo.

Ropa de trabajo.

Calzado de seguridad.

Gafas de seguridad antiproyecciones.

Arnés de seguridad sujeto a línea de vida.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. La demolición se realizará por personal especializado.

Las tuberías, instalaciones y chimeneas de la cubierta, se demolerán antes que la cubierta y no deberán de abatirse nunca sobre la misma.

Las cornisas o aleros volados pueden estar contrapesados por la propia cubierta, por lo que se apearán previamente a desmantelar la cubierta.

Regado de los escombros para evitar la creación de grandes cantidades de polvo.

Se tendrán en cuenta las condiciones de protección colectiva, como utilización del andamio perimetral con redes de protección y se proveerá a los operarios de arnés de seguridad asido a lugar firme de la cubierta.

Comprobar que se suspenden los trabajos en condiciones climatológicas adversas. No se acopiará en planta una carga superior a 100 kp/cm2.

No se depositará escombro sobre los andamios.

No se acumulará escombro ni se apoyarán elementos contra vallas, muros y soportes, propios o medianeros, mientras éstos deban permanecer en pie.

Se apuntalará en caso necesario los voladizos.

Los escombros deberán conducirse hasta la planta baja o el lugar de carga por medio de rampas, con tolvas o espuertas, sacos, etc., prohibiéndose arrojarlos desde alto.

Cuando se empleen más de diez trabajadores en tarea de demolición, se adscribirá un Jefe de equipo para la vigilancia por cada docena de trabajadores.

EDIFICACIÓN - ACTUACIONES PREVIAS - DERRIBOS - DURANTE LA DEMOLICIÓN - ELEMENTO A ELEMENTO - REVESTIMIENTOS - PICADO REVESTIMIENTOS

Operaciones a desarrollar previstas en el proyecto

Para realizar el picado de los enlucidos previamente se mojará el paramento para reblandecerlo, pudiéndolo realizar con martillo eléctrico o con espátula.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel.

Caída de personas a distinto nivel.

Caída de objetos sobre las personas.

Sobreesfuerzos o posturas inadecuadas.

Choques y golpes contra objetos inmóviles.

Contacto con sustancias cáusticas o corrosivas.

Iluminación inadecuada.

Golpes y cortes por objetos o herramientas

Pisadas sobre objetos.

Proyección de fragmentos o partículas.

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Guantes de cuero.

Máscara antipolvo.

Ropa de trabajo.

Calzado de seguridad.

Gafas de seguridad antiproyecciones.

Arnés de seguridad.

Protección auditiva o tapones auditivos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. La demolición se realizará por personal especializado.

Los trabajos estarán supervisados por persona competente en la materia.

Regado de los escombros para evitar la creación de grandes cantidades de polvo. En todos los casos el espacio donde cae escombro estará acotado y vigilado.

No se acumularán escombros con peso superior a 100 kg/m2 sobre forjados aunque estén en buen estado. No se depositará escombro sobre los andamios.

No se acumulará escombro ni se apoyarán elementos contra vallas, muros y soportes, propios o medianeros, mientras éstos deban permanecer en pie.

Los escombros deberán conducirse hasta la planta baja o el lugar de carga por medio de rampas, con tolvas o espuertas, sacos, etc., prohibiéndose arrojarlos desde alto.

Cuando se empleen más de diez trabajadores en tarea de demolición, se adscribirá un Jefe de equipo para la vigilancia por cada docena de trabajadores.

EDIFICACIÓN - INSTALACIONES - INDUSTRIALES - TUBERÍAS - TUBOS - ACERO - TUBOS SIN SOLDADURA

Operaciones a desarrollar previstas en el proyecto

En esta unidad de obra se estudia la disposición y acopio de los tubos en la obra, en el lugar establecido en el proyecto de obra, hasta su posterior puesta en obra. Se contempla aquí el empleo de tubos de acero sin soldadura, que se utilizarán con diámetros pequeños de conducción, según se establece en el proyecto de obra.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Pisadas sobre objetos.

Caída de personas a distinto nivel.

Caída de objetos por desplome o derrumbamiento.

Caída de objetos en manipulación.

Atrapamiento o aplastamiento por o entre objetos.

Atrapamiento o aplastamiento por vuelco de maquinaria o vehículos.

Choques y golpes contra objetos inmóviles.

Choques y golpes contra objetos móviles.

Golpes y cortes por objetos y herramientas.

Sobreesfuerzos, posturas inadecuadas o movimientos repetitivos.

Atropellos o golpes con vehículos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

En los trabajos en altura los operarios llevarán arnés de seguridad para el que se habrán previsto puntos fijos de enganche con la necesaria resistencia.

Los tubos se descargarán de los camiones y se acopiarán en los lugares señalados para tal menester.

Los tubos se acopiarán en posición horizontal sobre durmientes dispuestos por capas de tal forma que no se dañen los elementos de enganche para su izado.

Se realizará el transporte de los tubos mediante eslingas enlazadas y provistas de ganchos con pestillos de seguridad. El izado de los tubos se ejecutará suspendiendo la carga de dos puntos tales, que la carga permanezca estable.

La colocación deberá ser efectuada bajo la supervisión del jefe de obra, por personal técnicamente capacitado.

El tubo se manejará, para su colocación, por medio de las cuerdas dispuestas a tal fin.

Diariamente se realizará una inspección sobre el buen estado de los elementos de elevación.

Se prohibirá trabajar o permanecer en lugares de tránsito de piezas suspendidas, en prevención del riesgo de desplome. Se instalarán señales de peligro, paso de cargas suspendidas sobre pies derechos bajo los lugares destinados a su paso. Se prepararán zonas de obra compactadas para facilitar la circulación de camiones de transporte de tubos.

La obra se mantendrá en las debidas condiciones de orden y limpieza.

Se suspenderán los trabajos en condiciones climatológicas adversas.

EDIFICACIÓN - INSTALACIONES - INDUSTRIALES - TUBERÍAS - TUBOS - ACERO - TUBOS SOLDADOS

Operaciones a desarrollar previstas en el proyecto

En esta unidad de obra se estudia la disposición y acopio de los tubos en la obra, en el lugar establecido en el proyecto de obra, hasta su posterior puesta en obra. En esta unidad se emplearán tubos de acero con soldaduras, según se establece en el proyecto de obra.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Pisadas sobre objetos.

Caída de personas a distinto nivel.

Caída de objetos por desplome o derrumbamiento.

Caída de objetos en manipulación.

Atrapamiento o aplastamiento por o entre objetos.

Atrapamiento o aplastamiento por vuelco de maquinaria o vehículos.

Choques y golpes contra objetos inmóviles.

Choques y golpes contra objetos móviles.

Golpes y cortes por objetos y herramientas.

Sobreesfuerzos, posturas inadecuadas o movimientos repetitivos.

Atropellos o golpes con vehículos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

En los trabajos en altura los operarios llevarán arnés de seguridad para el que se habrán previsto puntos fijos de enganche con la necesaria resistencia.

Los tubos se descargarán de los camiones y se acopiarán en los lugares señalados para tal menester.

Los tubos se acopiarán en posición horizontal sobre durmientes dispuestos por capas de tal forma que no se dañen los elementos de enganche para su izado.

Se realizará el transporte de los tubos mediante eslingas enlazadas y provistas de ganchos con pestillos de seguridad. El izado de los tubos se ejecutará suspendiendo la carga de dos puntos tales, que la carga permanezca estable.

La colocación deberá ser efectuada bajo la supervisión del jefe de obra, por personal técnicamente capacitado. El tubo se manejará, para su colocación, por medio de las cuerdas dispuestas a tal fin.

Diariamente se realizará una inspección sobre el buen estado de los elementos de elevación.

Se prohibirá trabajar o permanecer en lugares de tránsito de piezas suspendidas, en prevención del riesgo de desplome. Se instalarán señales de peligro, paso de cargas suspendidas sobre pies derechos bajo los lugares destinados a su paso. Se prepararán zonas de obra compactadas para facilitar la circulación de camiones de transporte de tubos.

La obra se mantendrá en las debidas condiciones de orden y limpieza. Se suspenderán los trabajos en condiciones climatológicas adversas.

EDIFICACIÓN - INSTALACIONES - INDUSTRIALES - TUBERÍAS - TUBOS - PVC

Operaciones a desarrollar previstas en el proyecto

En esta unidad de obra se estudia la disposición y acopio de los tubos en la obra, en el lugar establecido en el proyecto de obra, hasta su posterior puesta en obra. Se utilizarán tubos de PVC, según lo establecido en el proyecto de obra, para pequeños diámetros y presiones bajas. El PVC utilizado será rígido y no plastificado.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Pisadas sobre objetos.

Caída de personas a distinto nivel.

Caída de objetos por desplome o derrumbamiento.

Caída de objetos en manipulación.

Atrapamiento o aplastamiento por o entre objetos.

Atrapamiento o aplastamiento por vuelco de maquinaria o vehículos.

Choques y golpes contra objetos inmóviles.

Choques y golpes contra objetos móviles.

Golpes y cortes por objetos y herramientas.

Sobreesfuerzos, posturas inadecuadas o movimientos repetitivos.

Atropellos o golpes con vehículos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

En los trabajos en altura los operarios llevarán arnés de seguridad para el que se habrán previsto puntos fijos de enganche con la necesaria resistencia.

Los tubos se descargarán de los camiones y se acopiarán en los lugares señalados para tal menester.

Los tubos se acopiarán en posición horizontal sobre durmientes dispuestos por capas de tal forma que no se dañen los elementos de enganche para su izado.

Se realizará el transporte de los tubos mediante eslingas enlazadas y provistas de ganchos con pestillos de seguridad. El izado de los tubos se ejecutará suspendiendo la carga de dos puntos tales, que la carga permanezca estable.

La colocación deberá ser efectuada bajo la supervisión del jefe de obra, por personal técnicamente capacitado. El tubo se manejará, para su colocación, por medio de las cuerdas dispuestas a tal fin.

Diariamente se realizará una inspección sobre el buen estado de los elementos de elevación.

Se prohibirá trabajar o permanecer en lugares de tránsito de piezas suspendidas, en prevención del riesgo de desplome.

Se instalarán señales de peligro, paso de cargas suspendidas sobre pies derechos bajo los lugares destinados a su paso.

Se prepararán zonas de obra compactadas para facilitar la circulación de camiones de transporte de tubos.

La obra se mantendrá en las debidas condiciones de orden y limpieza.

Se suspenderán los trabajos en condiciones climatológicas adversas.

EDIFICACIÓN - INSTALACIONES - INDUSTRIALES - TUBERÍAS - JUNTAS DE UNIÓN - JUNTAS A TOPE - CON BRIDAS

Operaciones a desarrollar previstas en el proyecto

Se desarrollan en esta unidad de obra, las operaciones para la ejecución de las juntas a tope mediante bridas. Para la ejecución de esta unión, los tubos no presentarán ninguna forma especial, colocándose uno frente al otro, sin superposición.

Las juntas mediante bridas se utilizarán para la unión de piezas especiales, valvulería, etc. y siempre en tuberías sin enterrar.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de objetos en manipulación.

Caída de personas al mismo nivel.

Sobreesfuerzos, posturas forzadas o movimientos repetitivos.

Proyección de fragmentos o partículas.

Pisadas sobre objetos.

Choques y golpes contra objetos inmóviles.

Golpes y cortes por objetos o herramientas.

Exposición a temperaturas ambientales extremas.

Contactos eléctricos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas.

Los trabajos estarán supervisados por una persona competente en la materia.

Con temperaturas ambientales extremas se suspenderán los trabajos.

Cuando las condiciones de trabajo exijan otros medios de protección, se dotará a los trabajadores de los mismos.

Se realizarán los trabajos de tal manera que no se esté en la misma postura durante mucho tiempo.

Se colocará iluminación artificial adecuada en caso de carecer de luz natural.

La colocación de cada uno de los dispositivos lo realizará personal especializado en el mismo.

Las herramientas a utilizar por los instaladores estarán protegidas contra contactos eléctricos con material aislante normalizado.

Las herramientas con aislante en mal estado o defectuoso serán sustituidas de inmediato por otras que estén en buen estado.

Antes de que las instalaciones entren en carga, se revisarán perfectamente las conexiones de mecanismos y protecciones.

Se suspenderán los trabajos en condiciones climatológicas adversas.

Se mantendrá siempre la limpieza y orden en la obra.

EDIFICACIÓN - INSTALACIONES - INDUSTRIALES - TUBERÍAS - MACIZOS Y OBRAS DE FÁBRICA - MACIZOS DE ANCLAJE - CODOS

Operaciones a desarrollar previstas en el proyecto

Se estudia aquí el procedimiento para la ejecución de los macizos de anclaje en aquellos puntos donde se sitúen codos en las conducciones, de forma que se obtenga una correcta sujeción de las mismas frente a esfuerzos producidos por el empuje del agua.

Las operaciones previstas para la realización de esta unidad de obra, consisten en el replanteo, colocación de encofrados, armado, hormigonado y desencofrado, conforme se especifica en el proyecto de obra.

El hormigón utilizado en obra será suministrado desde una Planta de Hormigón. El hormigón se verterá mediante bombeo neumático.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas a distinto nivel.

Caída de personas al mismo nivel.

Caída de materiales por desplome,

Derrumbamiento, transporte, etc.

Caída de objetos durante la manipulación.

Atrapamiento por o entre objetos.

Golpes y choques contra apilados.

Golpes y choques contra transportes de carga.

Golpes y cortes con herramienta manual.

Pisadas sobre objetos punzantes.

Exposición a sustancias nocivas

Proyección de materiales o partículas, durante tareas de corte de materiales o durante el vertido de hormigón.

Contactos eléctricos.

Ruidos y vibraciones.

Sobreesfuerzos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas.

Los trabajos estarán supervisados por una persona competente en la materia.

En los trabajos en altura los operarios llevarán arnés de seguridad para el que se habrán previsto puntos fijos de enganche con la necesaria resistencia.

El encargado comprobará que en cada fase, estén colocadas las protecciones colectivas previstas.

No se realizarán trabajos de encofrado sin antes haber cubierto el riesgo de caída desde altura mediante la instalación o rectificación de las redes y la instalación de barandillas.

Se advertirá a los operarios que deben caminar sobre el entablado del encofrado, sobre el riesgo de caída a distinto nivel.

El ascenso y descenso de los operarios a los encofrados se efectuará a través de escaleras de mano reglamentarias.

El izado de los tableros, placas de encofrado y puntales se efectuará mediante bateas emplintadas en cuyo interior se dispondrá el material ordenadamente y sujetos mediante flejes o cuerdas.

No permanecerán operarios en las zonas de batido de cargas durante las operaciones de izado de tablones, placas de encofrado, puntales y ferralla.

Se evitará pisar los tableros excesivamente alabeados, que deberán desecharse de inmediato antes de su puesta.

Los operarios caminan apoyando los pies en dos tableros a la vez, es decir, sobre las juntas.

Los huecos se cubrirán con madera clavada sobre las tabicas perimetrales antes de proceder al armado.

Los huecos permanecerán siempre tapados para evitar caídas a distinto nivel.

La ferralla montada se almacenará en lugares designados a tal efecto separado del lugar de montaje.

Los desperdicios o recortes de hierro y acero se recogerán.

Se realizará el transporte de armaduras mediante eslingas enlazadas y provistas de ganchos con pestillos de seguridad.

Se colocarán protectores en las puntas de las armaduras salientes.

El desprendimiento de los tableros se ejecutará mediante uña metálica, realizando la operación desde una zona ya desencofrada.

Concluido el desencofrado, se apilarán los tableros ordenadamente para su transporte sobre bateas emplintadas, sujetas con sogas atadas con nudos de marinero, redes, lonas, etc.

Terminado el desencofrado, se procederá a un barrido de la planta para retirar los escombros y proceder a su vertido mediante trompas o bateas emplintadas.

Se esmerará el orden y la limpieza durante la ejecución de los trabajos.

Se extraerán los clavos o puntas existentes en la madera usada.

Los clavos sueltos o arrancados se eliminarán mediante un barrido y apilado en lugar conocido para su posterior retirada. Una vez concluido un determinado tajo, se limpiará eliminando todo el material sobrante, que se apilará, en un lugar conocido para su posterior retirada.

Se suspenderán los trabajos en condiciones climatológicas adversas.

EDIFICACIÓN - INSTALACIONES - INDUSTRIALES - TUBERÍAS - VÁLVULAS Y VENTOSAS - VÁLVULAS DE RETENCIÓN

Operaciones a desarrollar previstas en el proyecto

En esta unidad de obra se estudian las operaciones necesarias para la correcta instalación de las válvulas de retención en la instalación. La función de estas válvulas será permitir el paso del agua en un sentido, impidiéndolo en el sentido contrario.

Estas válvulas se dispondrán de tal forma que sean fácilmente accesibles para su mantenimiento y conservación, y que el cuerpo de la válvula quede sólidamente anclado al terreno. El tipo de válvula a utilizar será el indicado en el proyecto de obra, adecuándose a los diámetros y características de las conducciones donde se deban situar.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas al mismo nivel.

Golpes o cortes por manejo de herramientas manuales.

Caída de objetos en manipulación.

Pisadas sobre objetos.

Choques y golpes contra objetos inmóviles.

Contactos eléctricos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

El acopio de materiales nunca obstaculizará las zonas de paso, para evitar tropiezos.

Se retirará las sobras de materiales, herramientas y restos de obra no colocados como piezas rotas, envoltorios, palets, etc. La colocación de cada uno de los dispositivos lo realizará personal especializado en el mismo.

Las herramientas a utilizar por los instaladores estarán protegidas contra contactos eléctricos con material aislante normalizado. Las herramientas con aislante en mal estado o defectuoso serán sustituidas de inmediato por otras que estén en buen estado.

Antes de que las instalaciones entren en carga, se revisarán perfectamente las conexiones de mecanismos y protecciones.

Se suspenderán los trabajos con condiciones climatológicas adversas.

Se mantendrá la obra en buen estado de orden y limpieza.

EDIFICACIÓN - INSTALACIONES - ELECTRICIDAD - BAJA TENSIÓN - ACOMETIDA GENERAL Y MONTAJE DE LA CAJA GENERAL DE PROTECCIÓN

Operaciones a desarrollar previstas en el proyecto

Se intervendrá en ella, existente.

Los conductores o cables de acometida son aislados y los materiales utilizados y las condiciones de instalación cumplirán con las prescripciones establecidas en los reglamentos de aplicación.

La acometida se realizará siguiendo el proyecto de obra:

- La caja general de protección que colocaremos será con tapa, de material aislante y auto extinguible de clase A.
- Estará provista de sistema de entrada para conductores unipolares o multipolares, orificios de salida para conductores unipolares, dispositivos de cierre, precintado, sujeción de tapa y fijación al muro.
- Contendrá tres cortacircuitos fusibles, de cartucho de fusión cerrada de la clase GT, maniobrables individualmente y un seccionador de neutro, así como bornes de entrada y salida para conexionado, directo o por medio de terminales, de los tres conductores de fase y el neutro.
- Estará íntegramente protegida con material aislante estable hasta + 70 C. Será plana o en puente.
- La base soporte que colocaremos estará provista de orificios y elementos para fijación al muro, así como de vástagos y abrazaderas, éstas últimas manipulables individualmente.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Caída de personas a distinto nivel

Caída de objetos por desplome o derrumbamiento

Caída de materiales o elementos en manipulación

Choques y golpes contra objetos inmóviles

Sobreesfuerzos o posturas inadecuadas

Contactos eléctricos

Golpes y cortes por objetos o herramientas

Trabajos en intemperie

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Ropa de trabajo.

Arnés de Seguridad (cuando sea necesario).

Guantes de goma aislantes.

Comprobadores de tensión.

Herramientas aislantes.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas.

El personal encargado de esta instalación deberá conocer el sistema constructivo a poner en práctica, en prevención de los riesgos por inexperiencia, debiendo seguir las especificaciones fijadas en el proyecto de obra.

Los trabajos estarán supervisados por una persona competente en la materia. Se prohibirá la circulación bajo cargas suspendidas.

Se dispondrán los medios necesarios para evitar, en los posible, la permanencia de personas en la zona de elevación de cargas.

En la fase de obra de apertura y cierre de rozas se esmerará el orden y la limpieza de la obra, para evitar los riesgos de pisadas o tropezones.

Los tajos estarán bien iluminados, entre los 200-300 lux.

La iluminación mediante portátiles se efectuará utilizando 'portalámparas estancos con mango aislante', y rejilla de protección de la bombilla, alimentados a tensión de seguridad.

Se prohibirá el conexionado de cables a los cuadros de suministro eléctrico de obra, sin la utilización de las clavijas macho- hembra.

Acotaremos las zonas de trabajo para evitar accidentes.

Se suspenderán los trabajos en condiciones atmosféricas adversas.

Verificaremos el estado de los cables de las máquinas portátiles para evitar contactos eléctricos.

Las escaleras de mano a utilizar, serán del tipo 'tijera', dotadas con zapatas antideslizantes y cadenilla limitadora de apertura, para evitar los riesgos por trabajos realizados sobre superficies inseguras y estrechas.

Se prohibirá la formación de andamios utilizando escaleras de mano a modo de borriquetas, para evitar los riesgos por trabajos sobre superficies inseguras y estrechas.

Se prohibirá en general en esta obra, la utilización de escaleras de mano o de andamios sobre borriquetas, en lugares con riesgo de caída desde altura durante los trabajos de electricidad, si antes no se han instalado las protecciones de seguridad adecuadas.

Las herramientas a utilizar por los electricistas instaladores, estarán protegidas con material aislante normalizado contra los contactos con la energía eléctrica.

Las pruebas de funcionamiento de la instalación eléctrica serán anunciadas a todo el personal de la obra antes de ser iniciadas, para evitar accidentes.

Antes de hacer entrar en carga a la instalación eléctrica se hará una revisión en profundidad de las conexiones de mecanismos, protecciones y empalmes de los cuadros generales eléctricos directos o indirectos, de acuerdo con el Reglamento Electrotécnico de Baja Tensión.

EDIFICACIÓN - INSTALACIONES - ELECTRICIDAD - BAJA TENSIÓN - DERIVACIONES INDIVIDUALES

Operaciones a desarrollar previstas en el proyecto

Se incluye en esta unidad de obra las operaciones necesarias para la colocación de las derivaciones individuales, tanto la colocación de tubos, tendido de cables y conexionado, por las canalizaciones establecidas y según las especificaciones técnicas del proyecto de obra.

Las derivaciones individuales las realizaremos bajo tubo normal. Flexible o Curvable en caliente. De policloruro de vinilo, estanco y estable hasta 60º C y no propagador de la llama.

El cableado de la derivación será un conductor aislado para tensión nominal de 500 V-S. o 1.000 V-S según las prescripciones del proyecto de obra.

El aislamiento de policloruro de vinilo de color azul claro para conductores de neutro, negro o marrón para conductores de fase y bicolor, amarillo-verde, para conductores de protección.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Caída de personas a distinto nivel

Caída de materiales o elementos en manipulación

Choques y golpes contra objetos inmóviles

Sobreesfuerzos o posturas inadecuadas

Contacto con sustancias nocivas o tóxicas

Contactos eléctricos

Iluminación inadecuada

Golpes y cortes por objetos o herramientas

Pisadas sobre objetos

Proyección de fragmentos o partículas

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Ropa de trabajo.

Arnés de Seguridad (cuando sea necesario).

Guantes de goma aislantes.

Comprobadores de tensión.

Herramientas aislantes.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas.

El personal encargado de esta instalación deberá conocer el sistema constructivo a poner en práctica, en prevención de los riesgos por inexperiencia, debiendo seguir las especificaciones fijadas en el proyecto de obra.

Los trabajos estarán supervisados por una persona competente en la materia. Se prohibirá la circulación bajo cargas suspendidas.

Se dispondrán los medios necesarios para evitar, en los posible, la permanencia de personas en la zona de elevación de cargas.

En la fase de obra de apertura y cierre de rozas se esmerará el orden y la limpieza de la obra, para evitar los riesgos de pisadas o tropezones.

Los tajos estarán bien iluminados, entre los 200-300 lux.

La iluminación mediante portátiles se efectuará utilizando 'portalámparas estancos con mango aislante', y rejilla de protección de la bombilla, alimentados a tensión de seguridad.

Se prohibirá el conexionado de cables a los cuadros de suministro eléctrico de obra, sin la utilización de las clavijas macho- hembra.

Acotaremos las zonas de trabajo para evitar accidentes.

Verificaremos el estado de los cables de las máquinas portátiles para evitar contactos eléctricos.

Las escaleras de mano a utilizar, serán del tipo 'tijera', dotadas con zapatas antideslizantes y cadenilla limitadora de apertura, para evitar los riesgos por trabajos realizados sobre superficies inseguras y estrechas.

Se prohibirá la formación de andamios utilizando escaleras de mano a modo de borriquetas, para evitar los riesgos por trabajos sobre superficies inseguras y estrechas.

Se prohibirá en general en esta obra, la utilización de escaleras de mano o de andamios sobre borriquetas, en lugares con riesgo de Caída desde altura durante los trabajos de electricidad, si antes no se han instalado las protecciones de seguridad adecuadas.

Las herramientas a utilizar por los electricistas instaladores, estarán protegidas con material aislante normalizado contra los contactos con la energía eléctrica.

Las pruebas de funcionamiento de la instalación eléctrica serán anunciadas a todo el personal de la obra antes de ser iniciadas, para evitar accidentes.

Antes de hacer entrar en carga a la instalación eléctrica se hará una revisión en profundidad de las conexiones de mecanismos, protecciones y empalmes de los cuadros generales eléctricos directos o indirectos, de acuerdo con el Reglamento Electrotécnico de Baja Tensión.

EDIFICACIÓN - INSTALACIONES - ELECTRICIDAD - BAJA TENSIÓN - INSTALACIÓN EN INTERIOR DE EDIFICIO

Operaciones a desarrollar previstas en el proyecto

Se incluye en esta unidad de obra las operaciones necesarias para las modificaciones necesarias en la instalación interior de electricidad e iluminación, tanto la colocación de tubos, tendido de cables y conexionado, instalación del cuadro general e interruptores de potencia, puntos de luz, conexiones y cajas de maniobra, por las canalizaciones establecidas y según las especificaciones técnicas del proyecto de obra.

El Cuadro general de maniobra para la obra que colocaremos es empotrable. De material aislante. Con tapa del mismo material sujeta con bisagras, ajustable a presión o por tornillos. La tapa llevará la abertura necesaria para que sobresalgan los elementos de maniobra de los interruptores. En su parte superior dispondrá de un espacio reservado para la identificación del instalador y del nivel de electrificación. La caja llevará huellas laterales de ruptura para el paso de tubos y elementos para la fijación del interruptor diferencial y de los pequeños interruptores automáticos, así como un borne para la fijación del extremo del conductor de protección de la derivación individual.

Los interruptores de control de potencia estarán formados por envolvente aislante con mecanismo de fijación a la caja, sistema de conexiones y dispositivo limitador de corriente y de desconexión. El dispositivo limitador estará formado por bilámina o sistema equivalente de par térmico, pudiendo llevar además bobina de disparo magnético. Se indicará marca, tipo, tensión nominal en voltios, intensidad nominal en amperios, poder de cortocircuito en amperios, naturaleza de la corriente y frecuencia en hertzios, designación según dispositivo de desconexión y número de orden de fabricación así como fecha del Boletín Oficial del Estado en que se publique la aprobación del tipo del aparato.

El interruptor diferencial estará constituido por envolvente aislante, sistema de conexiones y dispositivos de protección de corriente por defecto y desconexión. El dispositivo de protección estará formado por un núcleo magnético, pudiendo llevar además protecciones adicionales de bilámina o sistema equivalente de par térmico, y bobina de disparo magnético. Se indicará la marca, tipo, tensión nominal en voltios, intensidad nominal I en amperios e intensidad diferencial nominal de desconexión J (sensibilidad) en amperios.

La instalación interior se ejecutará bajo roza. Unirá el cuadro general de distribución con cada punto de utilización. Usaremos tubo aislante flexible. Diámetro interior D según el proyecto de obra. Se alojará en la roza y penetrará 0,5 cm en cada una de las cajas.

El conductor será aislado para tensión nominal de 750 V o 500 V según el proyecto de obra, y de sección S igualmente según el proyecto de obra. Se tenderán por el tubo el conductor de fase y el neutro desde cada pequeño interruptor automático y el conductor de protección desde su conexión con el de protección de la derivación individual, hasta cada caja de derivación. En los tramos en que el recorrido de dos tubos se efectúe por la misma roza, los seis conductores atravesarán cada caja de derivación.

Para la alimentación de cada punto de luz, se tenderá el conductor de fase desde el interruptor y el neutro desde la correspondiente caja de derivación. Entre dos conmutadores para accionamiento de un mismo punto de luz se tenderá el conductor de fase y uno de retorno. Todos los conductores penetrarán 10 cm en las cajas para mecanismos.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Caída de materiales o elementos en manipulación

Choques y golpes contra objetos inmóviles

Sobreesfuerzos o posturas inadecuadas

Contacto con sustancias nocivas o tóxicas

Contactos eléctricos

Golpes y cortes por objetos o herramientas

Pisadas sobre objetos

Proyección de fragmentos o partículas

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Ropa de trabajo.

Guantes de goma aislantes.

Comprobadores de tensión.

Herramientas aislantes.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

En la fase de obra de apertura y cierre de rozas se esmerará el orden y la limpieza de la obra, para evitar los riesgos de pisadas o tropezones.

Los tajos estarán bien iluminados, entre los 200-300 lux.

La iluminación mediante portátiles se efectuará utilizando 'portalámparas estancos con mango aislante', y rejilla de protección de la bombilla, alimentados a tensión de seguridad.

Se prohibirá el conexionado de cables a los cuadros de suministro eléctrico de obra, sin la utilización de las clavijas macho- hembra.

Acotaremos las zonas de trabajo para evitar accidentes.

Verificaremos el estado de los cables de las máquinas portátiles para evitar contactos eléctricos.

Las escaleras de mano a utilizar, serán del tipo 'tijera', dotadas con zapatas antideslizantes y cadenilla limitadora de apertura, para evitar los riesgos por trabajos realizados sobre superficies inseguras y estrechas.

Se prohibirá la formación de andamios utilizando escaleras de mano a modo de borriquetas, para evitar los riesgos por trabajos sobre superficies inseguras y estrechas.

Se prohibirá en general en esta obra, la utilización de escaleras de mano o de andamios sobre borriquetas, en lugares con riesgo de Caída desde altura durante los trabajos de electricidad, si antes no se han instalado las protecciones de seguridad adecuadas.

Las herramientas a utilizar por los electricistas instaladores, estarán protegidas con material aislante normalizado contra los contactos con la energía eléctrica.

Las pruebas de funcionamiento de la instalación eléctrica serán anunciadas a todo el personal de la obra antes de ser iniciadas, para evitar accidentes.

Antes de hacer entrar en carga a la instalación eléctrica se hará una revisión en profundidad de las conexiones de mecanismos, protecciones y empalmes de los cuadros generales eléctricos directos o indirectos, de acuerdo con el reglamento.

EDIFICACIÓN - INSTALACIONES - FONTANERÍA - ABASTECIMIENTO

Operaciones a desarrollar previstas en el proyecto

Se instalará una acometida de agua de obra.

Procedimiento constructivo que incluye todas las operaciones para la instalación del sistema completo de suministro de agua potable, desde la toma en un depósito o conducción, hasta las arquetas de acometida, incluyendo conducciones enterradas de alimentación, conexiones de derivación, redes de distribución, arquetas de conexión y registro y por último las pruebas de servicio.

La instalación estará compuesta por: punto de toma, conducción de alimentación y la red de distribución.

La llave de la conducción principal se embridará al carrete nervado y a la junta de desmontaje. La llave de conducción de desagüe se unirá a ésta y a un codo.

La tapa para la arqueta de registro quedará enrasada con el pavimento.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel.

Caída de personas a distinto nivel.

Cortes por manejo de herramientas manuales.

Cortes por manejo de las guías y conductores.

Pinchazos en las manos por manejo de guías y conductores.

Golpes por herramientas manuales.

Sobreesfuerzos por posturas forzadas.

Quemaduras

Electrocución.

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Guantes de cuero.

Ropa de trabajo.

Guantes de goma, o de PVC

Traje para tiempo lluvioso.

Arnés de seguridad (cuando sea necesario) Además, en el tajo de soldadura utilizarán:

- Gafas de soldador (siempre el ayudante).
- Yelmo de soldador.
- Pantalla de soldadura de mano.
- Mandil de cuero.
- Manoplas de cuero.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

El taller-almacén se ubicará en el lugar establecido a tal fin; estará dotado de puerta, ventilación por 'corriente de aire' e iluminación artificial en su caso.

El transporte de tramos de tubería a hombro por un solo hombre se realizará inclinando la carga hacia atrás, de tal forma, que el extremo que va por delante supere la altura de un hombre, en evitación de golpes y tropiezos con otros operarios en lugares poco iluminados (o iluminados a contraluz).

Los bancos de trabajo se mantendrán en buenas condiciones de uso, evitando que se levanten astillas durante la labor. (Las astillas pueden originar pinchazos y cortes en las manos).

Se mantendrán limpios de cascotes y recortes los lugares de trabajo. Se limpiarán conforme se avance, apilando el escombro para su vertido por las trompas, para evitar el riesgo de pisadas sobre objetos.

Se prohíbe soldar con plomo en lugares cerrados. Siempre que se deba soldar con plomo se establecerá una corriente de aire de ventilación, para evitar el riesgo de respirar productos tóxicos.

El local destinado a almacenar las bombonas (o botellas) de gases licuados, se ubicará en el lugar establecido a tal fin; tendrá ventilación constante por 'corriente de aire', puerta con cerradura de seguridad e iluminación artificial en su caso.

La iluminación eléctrica del local donde se almacenan las botellas o bombonas de gases licuados se establecerá una señal normalizada de peligro de explosión y otra de prohibido fumar.

Al lado de la puerta del almacén de gases licuados se instalará un extintor de polvo seco.

La iluminación de los tajos de fontanería será de un mínimo de 100 lux medidos a una altura sobre el nivel del pavimento, en torno a los 2 m.

La iluminación eléctrica mediante portátiles se efectuará mediante mecanismos estancos de seguridad con mango aislante y rejilla de protección de la bombilla.

Se prohíbe el uso de mecheros y sopletes junto a materiales inflamables. Se prohíbe abandonar los mecheros y sopletes encendidos.

Se controlará la dirección de la llama durante las operaciones de soldadura en evitación de incendios. Las botellas o bombonas de gases licuados expuestos al sol.

Se evitará soldar con las botellas o bombonas de gases licuados expuestos al sol.

Se instalará un letrero de prevención en el almacén de gases licuados y en el taller de fontanería con la siguiente leyenda: **'NO UTILICE ACETILENO PARA SOLDAR COBRE O ELEMENTOS QUE LO CONTENGAN, SE PRODUCE ACETILURO DE COBRE' QUE ES EXPLOSIVO.**

EDIFICACIÓN - INSTALACIONES - FONTANERÍA - AGUA FRÍA Y CALIENTE -

Operaciones a desarrollar previstas en el proyecto

Los servicios higiénicos de la obra se proveerán de agua fría y caliente.

Procedimiento constructivo que incluye todas las operaciones para la instalación y colocación de la red interior, la cual la realizaremos mediante tuberías de acero galvanizado, con uniones roscadas con junta de teflón.

Se incluyen las operaciones de anclaje, roscado, conexionado y pruebas de servicio de las instalaciones.

Los tubos, en sus tramos horizontales bajo techo, se sujetarán mediante tirantes cada 2 metros.

Los tubos empotrados en las paredes y siguiendo las especificaciones del proyecto de obra, se protegerán con una vaina de tubo de PVC corrugado.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Choques y golpes contra objetos inmóviles

Atrapamientos o aplastamientos por objetos

Sobreesfuerzos o posturas inadecuadas

Contacto con sustancias nocivas o tóxicas

Contactos eléctricos

Iluminación inadecuada

Golpes y cortes por objetos o herramientas

Pisadas sobre objetos

Proyección de fragmentos o partículas

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Guantes de cuero.

Ropa de trabajo.

Guantes de goma, o de PVC

Traje para tiempo lluvioso.

Arnés de seguridad (cuando sea necesario) Además, en el tajo de soldadura utilizarán:

Gafas de soldador (siempre el ayudante).

Yelmo de soldador.

Pantalla de soldadura de mano.

Mandil de cuero.

Manoplas de cuero.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

El taller-almacén se ubicará en el lugar establecido a tal fin; estará dotado de puerta, ventilación por 'corriente de aire' e iluminación artificial en su caso.

El transporte de conducciones, llaves, bombas y depósitos a hombros por un solo hombre se realizará inclinando la carga hacia atrás, de tal forma, que el extremo que va por delante supere la altura de un hombre, en evitación de golpes y tropiezos con otros operarios en lugares poco iluminados (o iluminados a contraluz).

Se mantendrán limpios de cascotes y recortes los lugares de trabajo. Se limpiarán conforme se avance, apilando el escombro para su vertido por las trompas, para evitar el riesgo de pisadas sobre objetos.

La iluminación de los tajos de fontanería será de un mínimo de 100 lux medidos a una altura sobre el nivel del pavimento, en torno a los 2 m.

La iluminación eléctrica mediante portátiles se efectuará mediante mecanismos estancos de seguridad con mango aislante y rejilla de protección de la bombilla.

Se prohíbe el uso de mecheros y sopletes junto a materiales inflamables. Se prohíbe abandonar los mecheros y sopletes encendidos.

Se controlará la dirección de la llama durante las operaciones de soldadura en evitación de incendios. Se evitará soldar con las botellas o bombonas de gases licuados expuestos al sol.

Se instalará un letrero de prevención en el almacén de gases licuados y en el taller de fontanería con la siguiente leyenda: **'NO UTILICE ACETILENO PARA SOLDAR COBRE O ELEMENTOS QUE LO CONTENGAN, SE PRODUCE ACETILURO DE COBRE QUE ES EXPLOSIV**O.

Se deberá tener precaución en el manejo de la sierra y de la roscadora de tubos. Usaremos guantes de seguridad en el manejo de los tubos para evitar cortes.

EDIFICACIÓN - INSTALACIONES - FONTANERÍA - AGUA FRÍA Y CALIENTE - COLOCACIÓN DE APARATOS SANITARIOS

Operaciones a desarrollar previstas en el proyecto

Las instalaciones de aguas fría y caliente son las relacionadas con los servicios higiénicos.

Se ubicarán en una caseta para tal fin, o en el interior del edificio en zona habilitada a tal efecto.

Procedimiento constructivo que incluye todas las operaciones para la instalación de las piezas sanitarias:

- Lavabo, ducha, inodoro, y las características técnicas del fabricante.
- Se incluyen las operaciones de colocación, anclaje, conexionado y prueba de servicio de las piezas sanitarias. Quedarán perfectamente asentados en el pavimento o en el mueble, según el caso.
- Las conexiones se realizarán una vez asentados los aparatos.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel.

Electrocución.

Cortes por manejo de herramientas manuales.

Cortes por manejo de las guías y conductores.

Pinchazos en las manos por manejo de guías y conductores.

Golpes por herramientas manuales.

Sobreesfuerzos por posturas forzadas.

Quemaduras

Electrocución.

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Guantes de cuero.

Ropa de trabajo.

Guantes de goma, o de PVC

Traje para tiempo lluvioso.

Arnés de seguridad (cuando sea necesario) Además, en el tajo de soldadura utilizarán:

- Gafas de soldador (siempre el ayudante).
- Yelmo de soldador.
- Pantalla de soldadura de mano.
- Mandil de cuero.
- Manoplas de cuero.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Los trabajos estarán supervisados por una persona competente en la materia.

El almacén para los aparatos sanitarios, (inodoros, lavados, piletas, fregaderos y asimilables), se ubicará en el lugar establecido a tal fin, estará dotado de puerta y cerrojo.

Se prohíbe utilizar los flejes de los paquetes como asideros de carga.

Los bloques de aparatos sanitarios, una vez recibidos en las plantas se transportarán directamente al sitio de ubicación, para evitar accidentes por obstáculos en las vías de paso interno, (o externo), de la obra.

El taller-almacén se ubicará el lugar establecido a tal fin; estará dotado de puerta, ventilación por corriente de aire e iluminación artificial en su caso.

Se mantendrán limpios de cascotes y recortes los lugares de trabajo. Se limpiarán conforme se avance, apilando el escombro para su vertido por las trompas, para evitar el riesgo de pisadas sobre objetos.

La iluminación de los tajos de fontanería será de un mínimo de 100 lux medidos a una altura sobre el nivel del pavimento, en torno a los 2 m.

La iluminación eléctrica mediante portátiles se efectuará mediante mecanismos estancos de seguridad con mango aislante y rejilla de protección de la bombilla.

El transporte de material sanitario, se efectuará a hombro, apartando cuidadosamente los aparatos rotos, así como sus fragmentos para su transporte al vertedero.

El material sanitario se transportará directamente de su lugar de acopio a su lugar de emplazamiento, procediendo a su montaje inmediato.

La ubicación in situ de aparatos sanitarios inodoros, piletas, fregaderos y asimilables) será efectuada por un mínimo de dos operarios los cuales controlan la pieza para evitar los accidentes por caídas y desplomes de los aparatos.

EDIFICACIÓN - INSTALACIONES - ILUMINACIÓN - INTERIOR

Operaciones a desarrollar previstas en el proyecto

Procedimiento constructivo que incluye todas las operaciones para la instalación del sistema completo para la iluminación general y la iluminación especial (lámparas de trabajo), cuando sea necesaria, siguiendo las especificaciones del proyecto de obra.

Deberán garantizar unos niveles adecuados de luminancias.

Las fuentes de luz se colocarán de manera que eviten los deslumbramientos y los reflejos molestos en la pantalla o en otras partes del equipo.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel.

Caída de personas a distinto nivel.

Cortes por manejo de herramientas manuales.

Cortes por manejo de las guías y conductores.

Pinchazos en las manos por manejo de guías y conductores.

Golpes por herramientas manuales.

Sobreesfuerzos por posturas forzadas.

Quemaduras

Electrocución.

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Ropa de trabajo.

Arnés de Seguridad (cuando sea necesario).

Guantes de goma aislantes.

Comprobadores de tensión.

Herramientas aislantes.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Se esmerará el orden y la limpieza de la obra, para evitar los riesgos de pisadas o tropezones. Los tajos estarán bien iluminados, entre los 200-300 lux.

La iluminación mediante portátiles se efectuará utilizando 'portalámparas estancos con mango aislante', y rejilla de protección de la bombilla, alimentados a tensión de seguridad.

Se prohibirá el conexionado de cables a los cuadros de suministro eléctrico de obra, sin la utilización de las clavijas macho- hembra.

Acotaremos las zonas de trabajo para evitar accidentes.

Verificaremos el estado de los cables de las máquinas portátiles para evitar contactos eléctricos.

Las escaleras de mano a utilizar, serán del tipo 'tijera', dotadas con zapatas antideslizantes y cadenilla limitadora de apertura, para evitar los riesgos por trabajos realizados sobre superficies inseguras y estrechas.

Se prohibirá la formación de andamios utilizando escaleras de mano a modo de borriquetas, para evitar los riesgos por trabajos sobre superficies inseguras y estrechas.

Se prohibirá en general en esta obra, la utilización de escaleras de mano o de andamios sobre borriquetas, en lugares con riesgo de Caída desde altura durante los trabajos de electricidad, si antes no se han instalado las protecciones de seguridad adecuadas.

Las herramientas a utilizar por los electricistas instaladores, estarán protegidas con material aislante normalizado contra los contactos con la energía eléctrica.

Las pruebas de funcionamiento de la instalación eléctrica serán anunciadas a todo el personal de la obra antes de ser iniciadas, para evitar accidentes.

Antes de hacer entrar en carga a la instalación eléctrica se hará una revisión en profundidad de las conexiones de mecanismos, protecciones y empalmes de los cuadros generales eléctricos directos o indirectos, de acuerdo con el Reglamento Electrotécnico de Baja Tensión.

EDIFICACIÓN - INSTALACIONES - SALUBRIDAD - SANEAMIENTO - SUMIDERO SIFÓNICO

Operaciones a desarrollar previstas en el proyecto

Procedimiento constructivo que incluye todas las operaciones para la instalación del sumidero sifónico, conforme se especifica en el proyecto de obra.

Se incluyen las operaciones de ejecución de solera, rejillas, acabados y las pruebas de servicio, para ello:

- Se ejecutará la solera y formación de pendientes de hormigón en masa.
- Se realizarán las paredes, que serán de fábrica de ladrillo cerámico perforado aparejado de 12 cm de espesor, el interior será enfoscado.
- Se colocará el cerco con rejilla de fundición dúctil.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Caída de objetos por desplome o derrumbamiento

Pisadas sobre objetos

Golpes y cortes por objetos o herramientas

Proyección de fragmentos o partículas

Sobreesfuerzos, posturas inadecuadas o movimientos repetitivos

Exposición a temperaturas ambientales extremas

Contacto con sustancias cáusticas o corrosivas

Exposición al ruido

Exposición a vibraciones

Iluminación inadecuada

Trabajos en intemperie

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

EDIFICACIÓN - INSTALACIONES - SALUBRIDAD - VENTILACIÓN - ASPIRADOR ESTÁTICO

Operaciones a desarrollar previstas en el proyecto

Procedimiento constructivo que incluye todas las operaciones para la colocación del aspirador estático, conforme se especifica en el proyecto de obra.

Se incluyen las operaciones de colocación, ensamblado, montaje y las pruebas de servicio, para ello:

- Se instalará de tal forma que permitan crear dentro de él, la depresión necesaria para la evacuación del aire viciado. Tendrá una sección útil establecida en el proyecto de obra.
- Dispondrá de certificado de funcionamiento obtenido mediante ensayos en laboratorio oficial.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Caída de personas a distinto nivel

Caída de objetos en manipulación

Pisadas sobre objetos

Golpes y cortes por objetos o herramientas

Proyección de fragmentos o partículas

Exposición a temperaturas ambientales extremas

Contactos eléctricos

Exposición al ruido

Exposición a vibraciones

Iluminación inadecuada

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Ropa de trabajo.

Guantes de cuero.

Arnés de seguridad (cuando sea necesario).

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Usaremos gafas de protección para protegernos de salpicaduras.

Los huecos y bordes de forjado estarán protegidos con redes o barandillas. Las plataformas de trabajo serán como mínimo de 0,60 m.

No se acopiarán materiales en las plataformas de trabajo.

Usaremos andamios de borriquetas en alturas menores de dos metros. Usaremos el arnés de seguridad en trabajos en altura.

Los trabajos estarán supervisados por una persona competente en la materia.

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas. Cuando las condiciones de trabajo exijan otros medios de protección, se dotará a los trabajadores de los mismos. Realizaremos los trabajos de tal manera que no se esté en la misma postura durante mucho tiempo.

Se colocará iluminación artificial adecuada en caso de carecer de luz natural. Se mantendrá siempre la limpieza y orden en la obra.

EDIFICACIÓN - INSTALACIONES - SALUBRIDAD - VENTILACIÓN - REJILLAS

Operaciones a desarrollar previstas en el proyecto

Procedimiento constructivo que incluye todas las operaciones para la instalación de las rejillas y difusores de aluminio, material inoxidable o tratado de forma que se garantice su inalterabilidad frente al aire húmedo.

Estará dotado de un sistema de fijación mediante tornillos, patillas de anclaje y pernios.

Las lamas podrán ser fijas u orientables, conforme se especifique en la Documentación Técnica.

Se tendrá un especial cuidado en colocarlas exactamente en los puntos reflejados en el proyecto de obra.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel

Pisadas sobre objetos

Golpes y cortes por objetos o herramientas

Iluminación insuficiente

Proyección de fragmentos o partículas

Exposición al ruido

Iluminación inadecuada

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Calzado de seguridad.

Arnés de seguridad (cuando sea necesario)

Ropa de trabajo.

Guantes de cuero.

Mascarilla con filtro mecánico recambiable.

Cinturón porta-herramientas.

Gafas de seguridad antiproyecciones.

Además, en el tajo de soldadura se utilizarán:

- Gafas de soldador.
- Yelmo de soldador.
- Pantalla de soldadura de mano.
- Mandil de cuero.
- Manoplas de cuero.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Realizaremos los trabajos de tal manera que no se esté en la misma postura durante mucho tiempo.

Las plataformas de trabajo serán como mínimo de 0,60 m, y no se acopiarán materiales en las plataformas de trabajo. Se colocará iluminación artificial adecuada en caso de carecer de luz natural.

Usaremos andamios de borriquetas en alturas menores de dos metros. Usaremos el arnés de seguridad en trabajos en altura.

Se mantendrá siempre la limpieza y orden en la obra.

Los operarios tendrán los Equipos de Protección Individual correspondientes para la realización de las tareas.

El almacenado de las rejillas se ubicará en los lugares establecidos para eliminar los riesgos por interferencias en los lugares de paso.

Se prohíbe abandonar en el suelo, cuchillas, cortantes, grapadoras y remachadoras para evitar los accidentes a los operarios o a terceros.

Las rejillas se montarán desde escaleras de tijeras dotadas de zapatas antideslizantes y cadenilla delimitadora de apertura, para eliminar el riesgo de caída.

Las rejillas a colocar en alturas considerables se instalarán desde andamios con plataformas de trabajo de un mínimo de 60 cm. de anchura, rodeadas de barandillas sólidas de al menos 90,0 cm. (recomendable 100 cm.) de altura, formadas por pasamanos, listón intermedio y rodapié.

EDIFICACIÓN - REVESTIMIENTOS - PARAMENTOS - PINTURAS - BARNICES

Operaciones a desarrollar previstas en el proyecto

Se consideran incluidas dentro de esta unidad de obra de barnices, la relación de operaciones que se detallan:

- Primeramente se procederá a la limpieza de la superficie.
- A continuación se procederá a la aplicación del barniz a brocha o pistola, en número de manos señalado por el fabricante, procurando la impregnación de los poros de la superficie del soporte.
- El rendimiento así como el tiempo mínimo de secado entre ambas manos serán los especificados por el fabricante.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caída de personas al mismo nivel.

Caída de personas a distinto nivel.

Caída de personas al vacío.

Cuerpos extraños en los ojos.

Los derivados de los trabajos en atmósferas nocivas.

Contactos con substancias corrosivas.

Los derivados de la rotura de las mangueras de los compresores.

Contactos con la energía eléctrica.

Sobreesfuerzos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Las pinturas se almacenarán en los lugares señalados, manteniéndose siempre la ventilación por tiro de aire, para evitar los riesgos de incendios y de intoxicaciones.

Se instalará un extintor de polvo químico seco al lado de la puerta de acceso al almacén de pinturas.

Sobre la hoja de la puerta de acceso al almacén de pinturas, se instalará una señal de "peligro de incendios" y otra de "prohibido fumar".

Los botes industriales de pinturas y disolventes se apilarán sobre tablones de reparto de cargas en evitación de sobrecargas innecesarias.

Se prohíbe almacenar pinturas susceptibles de emanar vapores inflamables con los recipientes mal o incompletamente cerrados, para evitar accidentes por generación de atmósferas tóxicas o explosivas.

Los almacenamientos de recipientes con pintura que contenga nitrocelulosa, se realizarán de tal forma que pueda realizarse el volteo periódico de los recipientes para evitar el riesgo de inflamación.

Se evitará la formación de atmósferas nocivas manteniéndose siempre ventilado el local que se está pintando.

Se tenderán cables de seguridad amarrados a puntos fuertes, de los que amarrar el fiador del arnés de seguridad en las situaciones de riesgo de caída desde altura.

Los andamios para pintar tendrán una superficie de trabajo de una anchura mínima de 60 cm., para evitar los accidentes por trabajos realizados sobre superficies angostas.

Se prohíbe la formación de andamios a base de bidones, pilas de materiales y asimilables, para evitar la realización de trabajos sobre superficies inseguras.

Se prohíbe en esta obra, la utilización de las escaleras de mano en los balcones, sin haber puesto previamente los medios de protección colectiva, para evitar los riesgos de caídas al vacío.

La iluminación mínima en las zonas de trabajo será de 100 lux, medidos a una altura sobre el pavimento en torno a los 2 m. La iluminación mediante portátiles se efectuará utilizando <<portalámparas estancos con mango aislante>> y rejilla de protección de la bombilla; alimentados a tensión de seguridad.

Se prohíbe el conexionado de cables eléctricos a los cuadros de suministro de energía sin la utilización de las clavijas macho-hembra.

Las escaleras de mano a utilizar, serán de tipo <<tijera>>, dotadas con zapatas antideslizantes y cadenilla limitadora de apertura, para evitar el riesgo de caídas por inestabilidad

Las operaciones de lijados, mediante lijadora eléctrica de mano, se ejecutarán siempre bajo ventilación por <<corriente de aire>>, para evitar el riesgo de respirar polvo en suspensión.

El vertido de pigmentos en el soporte se realizará desde la menor altura posible, en evitación de salpicaduras y formación de atmósferas pulverulentas.

Se prohíbe fumar o comer en las estancias en las que se pinte con pinturas que contengan disolventes orgánicos o pigmentos tóxicos.

Procuraremos evitar el contacto de cualquier tipo de pintura con la piel. Usaremos protectores auditivos en el empleo de compresores de aire.

Usaremos mascarillas específicas para evitar inhalar los vapores procedentes de la pintura

Se advertirá al personal encargado de manejar disolventes orgánicos de la necesidad de una profunda higiene personal, antes de realizar cualquier tipo de ingesta.

Se prohíbe realizar trabajos de soldadura y oxicorte en lugares próximos a los tajos en los que se empleen pinturas inflamables, para evitar el riesgo de explosión (o de incendio).

Se prohíbe realizar "pruebas de funcionamiento" de las instalaciones, durante los trabajos de pintura de señalización. Deberá señalizarse debidamente la zona de acopios.

EDIFICACIÓN - SEÑALIZACIÓN Y EQUIPAMIENTO - INDICADORES - RÓTULOS Y PLACAS - RÓTULO Y SEÑALIZACIÓN

Operaciones a desarrollar previstas en el proyecto

Se incluyen en esta unidad, las señales, indicadores, luminosos o luces, que tienen como finalidad, indicar, señalizar o dar a conocer de antemano determinados peligros.

Cuando la dimensión de la señal lo requiera, se utilizará un camión-grúa para descargarla y manipularla durante su fijación.

En tal caso, durante el montaje se dejará libre y acotada una zona de igual radio a la altura de la misma más 5 m.

En los trabajos de señalización exteriores, es necesario que la zona de trabajo quede debidamente señalizada con una valla y luces rojas durante la noche.

La instalación eléctrica se hará sin tensión en la línea.

Se consideran incluidas dentro de esta unidad de obra las operaciones de izado, fijación, nivelación y conexionado a la red.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas a distinto nivel.

Caídas al mismo nivel.

Quemaduras.

Golpes o cortes por manejo de herramientas manuales.

Golpes o cortes por manejo de chapas metálicas.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

La señalización se llevará de acuerdo con los principios profesionales de las técnicas y del conocimiento del comportamiento de las personas a quienes va dirigida la señalización y siguiendo las especificaciones del proyecto de obra, y especialmente, se basará en los fundamentos de los códigos de señales, como son:

- Que la señal sea de fácil percepción, visible, llamativa, para que llegue al interesado (supone que hay que anunciar los peligros que se presentan en la obra).
- Que las personas que la perciben, vean lo que significa. Letreros como PELIGRO, CUIDADO, ALTO, una vez leídos, cumplen bien con el mensaje de señalización, porque de todos es conocido su significado (consiste en que las personas perciban el mensaje o señal, lo que supone una educación preventiva o de conocimiento del significado de esas señales).

El acopio de materiales nunca obstaculizará las zonas de paso, para evitar tropiezos.

Se retirará las sobras de materiales, herramientas y restos de obra no colocados como piezas rotas, envoltorios, palets, etc. La colocación de cada uno de los servicios lo realizará personal especializado en el mismo.

Las herramientas a utilizar por los instaladores electricistas estarán protegidas contra contactos eléctricos con material aislante normalizado. Las herramientas con aislante en mal estado o defectuoso serán sustituidas de inmediato por otras que estén en buen estado.

Antes de que las instalaciones entren en carga, se revisarán perfectamente las conexiones de mecanismos, protecciones y pasos por arquetas.

Los instaladores irán equipados con calzado de seguridad, guantes aislantes, casco de seguridad, calzado aislantes de seguridad, ropa de trabajo, protectores auditivos, protectores de la vista, comprobadores de tensión y herramientas aislantes.

En lugares en donde existan instalaciones en servicio, se tomarán medidas adicionales de prevención y con el equipo necesario, descrito en el punto anterior.

EDIFICACIÓN - LIMPIEZA FINAL DE OBRA Y ADECUACIÓN DE LOCALES - LIMPIEZA DE ESTANCIAS Y LOCALES

Operaciones a desarrollar previstas en el proyecto

Se incluye en el estudio de esta unidad final de obra, todas las actuaciones y pautas de prevención necesarias para ejecutar las actividades y trabajos relacionados con la ejecución de la limpieza final de obra y adecuación de locales:

- eliminación de escombros, rascado, barrido y limpieza de suelos, paredes y techos, según unidades de ocupación y espacios interiores
- acondicionamiento de suelos para entrega de final de obra

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas a distinto nivel

Caídas al mismo nivel

Golpes y proyecciones

Electrocución

Pisadas sobre objetos y materiales

Polvo

Ruido

Intoxicaciones por inhalación de sustancias o productos químicos o nocivos

Interferencias y afección a terceros

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Guantes.

Arnés de seguridad (en caso necesario)

Batas y monos de trabajo

Botas antideslizantes.

Mascarilla respiratoria.

Gafas de protección.

Cinturón portaherramientas

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Se señalizarán o balizarán las zonas que estén recién fregadas o mojadas para evitar resbalones de terceros.

Durante el barrido o la limpieza del polvo en el interior de los locales, estos deberán estar convenientemente ventilados. En caso de excesivas partículas en suspensión se utilizarán mascarillas respiratorias o en su defecto se suspenderán las operaciones hasta que las partículas en suspensión se hayan decantado.

Durante los trabajos de limpieza, todas las dependencias en las que se realicen dichos trabajos deberán estar debidamente iluminadas.

Todos los operarios que realicen estas tareas deberán estar debidamente equipados: llevar bata o mono de trabajo, botas antideslizantes y, en general, los equipos de protección individual necesarios en función del riesgo existente.

Los productos y sustancias químicas utilizadas para las operaciones de limpieza, deberán hacerse conforme a las especificaciones y recomendaciones del fabricante.

En caso de agresión o entrar indebidamente en contacto con un producto químico, deberá actuarse conforme a las recomendaciones establecidas en la ficha técnica de dicho producto y que conforme a la normativa deberá ir adherida al envase.

En esta obra queda prohibida la utilización de productos o sustancias químicas que no dispongan del marcado CE

EDIFICACIÓN - LIMPIEZA FINAL DE OBRA Y ADECUACIÓN DE LOCALES - MANIPULACIÓN DE PRODUCTOS QUÍMICOS - MANIPULACIÓN DE PRODUCTOS QUÍMICOS DE LIMPIEZA

Operaciones a desarrollar previstas en el proyecto

Se estudian en esta unidad de obra la manipulación y uso de todos los productos químicos utilizados para la limpieza de acristalamientos, suelos, techos, carpinterías, productos cerámicos, hormigones, etc. entre los que se encuentran:

Amoníaco

Tensoactivos aniónicos

Detergentes

Desengrasantes

Limpiacristales

Líquidos limpia vidrios

Tensoactivos

Lejías

Hipoclorito Sódico

Blanqueantes clorados

Ácido sulfúrico (Salfumán)

etc..

Etiquetado

La utilización de los productos químicos en la obra va en aumento.

Pero los productos químicos deben estar etiquetados y sus suministradores deben proporcionar las fichas de seguridad, que permitan tomar acciones frente a accidentes de diversa naturaleza, pero también frente al almacenamiento y vertido residual de los mismos.

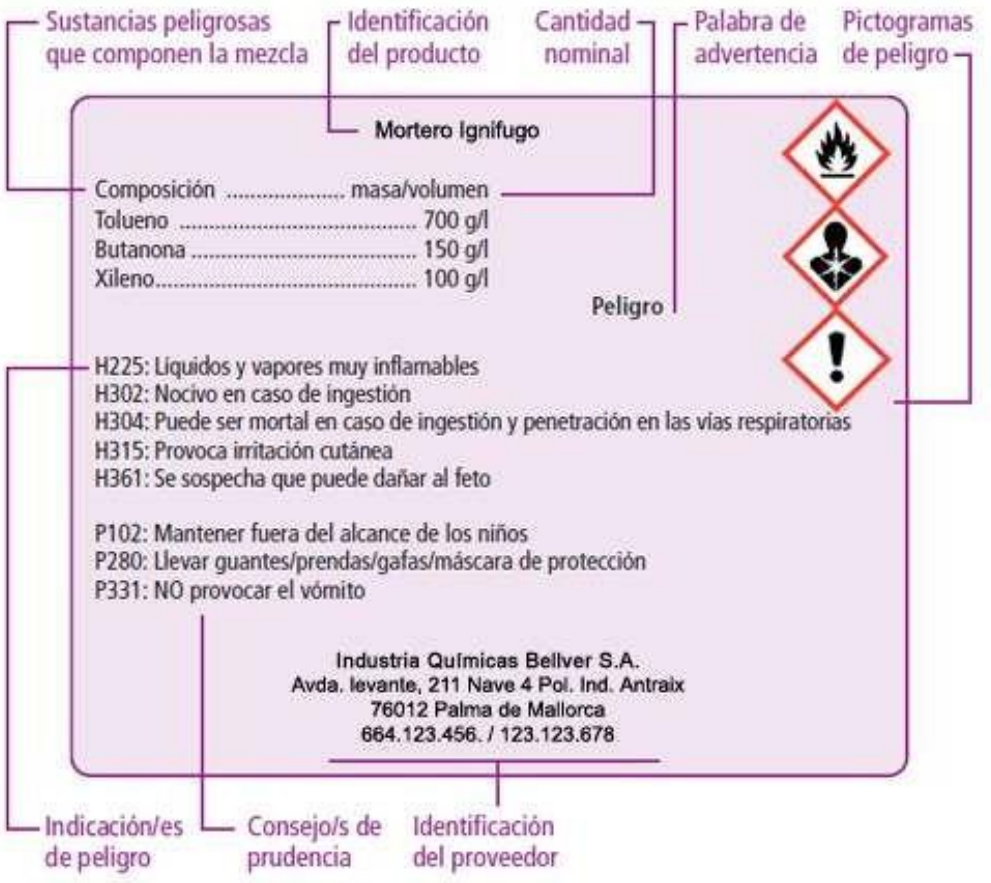
Desde el 1 de diciembre de 2010, las sustancias químicas deben ser etiquetadas según las disposiciones del Reglamento CLP, (siglas en inglés de Clasificación, Etiquetado y Envasado), que supone la aplicación del sistema mundial armonizado de clasificación y etiquetado de productos químicos.

Estas etiquetas conllevan nuevos pictogramas de peligro, una mención de advertencia y menciones de peligros.

Para los preparados (mezclas de sustancias), las nuevas etiquetas serán obligatorias en junio de 2015.

Para los productos que estén en el mercado desde el 1 de diciembre de 2010, este nuevo formato coexistirá con el anterior hasta el 1 de diciembre de 2012 para las sustancias y hasta el 1 de junio de 2017 para los preparados.

La etiqueta identifica el producto y al responsable de su comercialización, así como, aporta información sobre los riesgos que presenta, principalmente desde el punto de vista de la seguridad y de las vías de entrada al organismo en caso de exposición, tal como se observa en la figura siguiente:



Los peligros más significativos están identificados por los símbolos (pictogramas) e indicaciones de peligro que se especifican en la imagen siguiente:

- Las indicaciones de peligro o frases de riesgo describen la naturaleza de los peligros de una sustancia o mezcla peligrosa, incluyendo cuando proceda el grado o categoría de peligro.
- Las indicaciones de peligro o frases de riesgo del antiguo reglamento europeo (frases R) se llaman ahora frases H y EUH12 con el Reglamento CLP.



Frases H y EUH12

Es importante destacar que, en general, las frases son muy similares, aunque pueden tener una redacción ligeramente distinta entre las frases de riesgo atribuidas en el RD 363/1995 (frases R) y las frases H y EUH correspondientes del etiquetado del Reglamento CLP.

Por otro lado, el CLP no contempla todos los riesgos para el medio ambiente, excluyendo las indicaciones de peligro para los contaminantes de suelos y los atmosféricos, así como las indicaciones correspondientes a sustancias tóxicas, persistentes y bioacumulativas (TPB).

Frases P

Un consejo de prudencia es una frase que describe la medida o medidas recomendadas para minimizar o evitar los efectos adversos causados por la exposición a una sustancia o mezcla peligrosa durante su uso o eliminación.

Los anteriores consejos de prudencia (frases S) pasan a denominarse con el Reglamento CLP frases P, y se clasifican en cuatro grupos: prevención, respuesta, almacenamiento y eliminación.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Contactos con la piel o partes sensibles del cuerpo

Ingestión

Inhalación de gases o vapores

Incendio

Explosión

Liberación de gases tóxicos o peligrosos

Liberación de gases tóxicos o peligrosos por mezcla de componentes

Irritación

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Guantes de resistencia química

Batas y monos de trabajo

Botas antideslizantes

Mascarilla respiratoria (cuando sea necesario)

Gafas de protección (cuando sea necesario)

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Como norma general, será necesario el uso de guantes resistentes a sustancias químicas y gafas protectoras contra salpicaduras en operaciones de vertido, mezcla y uso de sustancias químicas o productos químicos de limpieza.

Los productos químicos que se utilicen para la limpieza en esta obra deberán llevar una etiqueta identificando el producto y su toxicidad en cada uno de los distintos envases a utilizar.

En términos generales y extensibles a todos los productos químicos utilizados deberán seguirse las siguientes precauciones:

- No deberá ingerirse ningún producto químico.
- Evitar el contacto o mezcla entre ellos, en especial si existe el riesgo de liberar gases tóxicos.
- Evitar el contacto con la piel y en especial con los ojos.
- En caso de accidente o peligro para su salud, acudir urgentemente al médico o ponerse en contacto con el **Servicio Médico de información Toxicológica: 915 620 420,** indicando la naturaleza del producto químico y el tipo de accidente ocasionado.

Antes de utilizar un producto químico será necesario leer con atención la etiqueta y las fichas de seguridad del producto. Cada trabajador deberá leer, entender y aplicar las instrucciones destinadas a garantizar la seguridad y la salud en el empleo de productos químicos de limpieza.

Esta información debe incluir lo siguiente:

- Instrucciones sobre cómo, dónde y cuándo utilizar el producto con inocuidad y eficacia.
- Notas explicativas sobre aspectos concretos como los índices y dosis de aplicación del producto.
- El momento y el método a seguir para el tratamiento de aplicación de limpieza.

Advertencias necesarias para evitar la utilización incorrecta o inadecuada.

La fecha de vencimiento del producto o en su caso de su recipiente, si es probable que se deteriore en condiciones normales de almacenamiento.

Instrucciones generales esenciales para la utilización adecuada, como la mezcla, aplicación, compatibilidad con otros productos, condiciones de almacenamiento preferidas y eliminación de excedentes y recipientes utilizados;

descripción de las precauciones de seguridad necesarias, como el empleo de ropa protectora y las medidas que se han de adoptar en caso de contaminación o en otras situaciones de emergencia;

advertencias acerca de la forma de evitar los efectos nocivos en el ganado, la flora y la fauna y el medio ambiente; instrucciones acerca de los primeros auxilios y consejos a los médicos, indicando lo que se ha de hacer de producirse un envenenamiento y, cuando sea necesario, los antídotos especiales de determinados productos; prohibición de volver a utilizar cualquier recipiente empleado para productos clasificados, salvo los específicamente concebidos y destinados a volver a ser utilizados.

A la hora de mezclar productos de limpieza es necesario asegurarse de su compatibilidad. A modo de ejemplo, debemos recordar que nunca se debe mezclar lejía con salfumán, antical, aguafuerte o productos amoniacales.

LOCALIZACIÓN E IDENTIFICACIÓN DE TRABAJOS ESPECIALES EN LA OBRA

Trabajos de carga y descarga de materiales

Las máquinas elevadoras, grúas, polipastos, carretillas elevadoras, etc., han de ser manejadas por personal especializado y responsable de su actuación. Antes de que una máquina elevadora efectúe un trabajo, el responsable revisará:

- Todos los cables, cadenas, cuerdas y eslingas.
- Los ganchos y los cierres de los mismos.
- El anclaje y/o apoyos del sistema de elevación.
- El sistema de elevación.
- Elementos del entorno que pudieran dificultar la maniobra para lo cual son útiles los pórticos de galibo.
- En las maniobras de elevación y tiro deben observarse las siguientes recomendaciones:
- No levantar la carga si las cadenas o cables están enredados.
- Antes de elevar la cargar, tensar las eslingas, levantar la carga 10 cm y comprobar su buen amarre y equilibrio.

- No se tocarán los cables con las manos.
- El transporte de la carga se realizará a la menor altura posible.
- Los vehículos y personas se situarán alejados de los posibles puntos de caída de la carga.
- Las maniobras de elevar y bajar serán siempre suaves y se efectuarán evitando tiros oblicuos. Los tiros en horizontal se harán utilizando elementos accesorios como poleas, tornos, etc.
- No permanecer bajo cargas suspendidas, ni en el entorno de movimiento de las máquinas.
- Todo equipo de elevación llevará marcada la capacidad máxima de carga y en ningún caso se sobrepasará ésta. Los mecanismos de elevación como "trácteles" o cabrestantes se anclarán de forma firme a elementos de estructura, evitando hacerlo sobre tuberías, postes o farolas o cualquier otro punto que no ofrezca suficientes garantías.

Aparejos de izar

- Los aparejos de izar (cables, eslingas, ganchos, etc.) serán de resistencia apropiada a la carga a manipular y estarán en buen estado de conservación.
- Los ganchos estarán dotados de pestillo de seguridad u otro dispositivo que evite la caída accidental de la carga.
- No se emplearán aparejos que presenten signos de deterioro. En especial, no se utilizarán cables de acero que presenten nudos, torceduras permanentes o aplastamientos.
- Se recomienda la utilización de eslingas textiles para no dañar el material a elevar (como el polietileno) o los recubrimientos (acero, fundición).
- Cuando las eslingas vayan a trabajar fuera de la vertical, se tendrá en cuenta la reducción sobre su capacidad máxima de carga en función del ángulo. Siempre que sea posible se trabajará con tantas eslingas como puntos de amarre sean necesarios.

Equipos de elevación.

- Los equipos a utilizar serán adecuados a las características de los materiales a manipular.
- Las grúas móviles y demás vehículos dotados de brazo telescópico estarán debidamente apoyados antes de comenzar las operaciones de carga y descarga.
- Se prohíbe el desplazamiento de los equipos con cargas suspendidas, a excepción de las carretillas elevadoras de horquillas.
- Estos equipos o vehículos estarán dotados de placa indicativa de la carga máxima que pueden izar en función del desplazamiento del brazo o pluma.
- No se moverán cargas de peso superior a su máxima carga permitida.

Manipulación de materiales.

- El manejo de tubos se realizará con dos puntos de amarre como mínimo.
- Los tubos de polietileno en rollos, se podrán manipular con un único punto de amarre.
- Los tubos se colocarán tumbados en la caja de los vehículos donde se vayan a transportar, no sobresaldrán de los laterales del mismo, ni de la parte anterior o posterior del vehículo en una longitud superior a 1,5 m.
- Los materiales, accesorios y piezas de pequeño tamaño contenidas en cajones, no sobresaldrán de los bordes del mismo. La carga estará distribuida lo más uniformemente posible.
- Los cajones o contenedores de piezas pequeñas se manipularán con cuatro puntos de sujeción o dos lazadas.
- Se prestará especial atención a las piezas tales como, codos, tes, etc. que deben manipularse, si no van sobre contenedores o cajones, enganchándolos a través de su interior si ello es posible.

- Las operaciones de elevación y descenso de la carga se realizarán lentamente, evitando movimientos bruscos y en sentido vertical, para evitar balanceos.
- Cuando sea de absoluta necesidad la elevación de cargas que no estén colocadas en la vertical del elemento de izado, lo cual implicará un arrastre de la carga en sentido oblicuo, se tomaran las máximas garantías de seguridad y en especial los operarios se situaran en lugares retirados donde no puedan ser alcanzados al balancearse la carga.
- No se transportarán cargas por encima de lugares donde se encuentren los trabajadores.
- No se permitirá que las personas viajen sobre las cargas, ganchos o eslingas, ni sobre la carretilla elevadora de horquilla, salvo si ésta está dotada de asientos para tal fin.
- No se dejarán los aparejos de izar con cargas suspendidas.
- Durante las operaciones de carga y descarga, sobre la caja del camión transportador de los materiales, los operarios encargados de las maniobras de enganche y desenganche de la carga tomarán las máximas garantías de seguridad llegando a descender de la caja, si la carga presenta signos de inestabilidad.
- Cuando se observe que una carga no está sujeta establemente, se descenderá ésta procediéndose a su reenganche.
- Cuando los aparatos funcionen sin carga, el maquinista elevará el gancho lo suficiente para que pase libremente sobre las personas y objetos.
- Cuando no queden dentro del campo visual del maquinista todas las zonas por las que deben pasar las personas u objetos, se emplearán uno o varios trabajadores para efectuar las señales adecuadas para la correcta carga, desplazamiento y parada.

<u>Condiciones de seguridad de los equipos.</u>

- Todas las máquinas u equipos de obra dispondrán de marcado CE, de manual de instrucciones y de libro de mantenimiento. Los operarios de las máquinas y equipos serán conocedores de los mismos, así como de su contenido, obrando de acuerdo con los mismos.

- Las grúas móviles, camiones con brazo telescópico y demás vehículos o equipos, dispondrán de los permisos, acreditaciones y homologaciones que les sean requeridos por la legislación vigente que les sea de aplicación.
- El personal encargado de su conducción y manipulación, dispondrá asimismo, de las autorizaciones legales que les faculte para su uso.
- Estarán debidamente mantenidos y se revisarán periódicamente, estando al corriente de la I.T.V. (Inspección Técnica de Vehículos).

Medidas preventivas generales para la ejecución de los trabajos.

- El personal y máquinas se mantendrá apartado de las zanjas y excavaciones, se mantendrán las protecciones y señalizaciones colocadas durante la fase de excavación y nivelación.
- Los maquinistas, dispondrán de capacitación suficiente, tanto en formación como en experiencia.
- Nadie se podrá situar dentro del radio de acción de la máquina.
- En las máquinas solo podrá ir el maquinista, está prohibido llevar pasajeros.
- Utilizar únicamente máquinas y equipos de trabajo que estén en perfectas condiciones, con las revisiones preceptivas y respetando las recomendaciones del fabricante, especialmente en lo referente a la carga máxima.
- Durante el transporte en camiones de materiales y equipos, deben ir sujetos y atados en dos puntos mínimos.
- Antes de levantar la carga el maquinista debe verificar que el personal ha retirado las manos y se ha apartado.
- Los maquinistas no pasarán la carga suspendida sobre el personal, debiendo este último dejar paso.
- La carga se elevará verticalmente para evitar que bascule incontroladamente, estará cogida por dos eslingas adecuadas. El manejo de cargas se efectuará por medio de cables, cuerdas

o pértigas, no permanecerá ningún trabajador debajo de cargas suspendidas (distancia de seguridad recomendada > h/2, siendo h = altura de la carga al suelo).

- El desplazamiento con cargas suspendidas sólo se realizará en casos que fuera imprescindible, se tendrá en cuenta usar la pluma lo más corta posible, mantener la carga lo más baja posible, guiar la carga por medio de cuerdas, llevar los gatos recogidos y evitar paradas y arranques repentinos.
- Los maquinistas deben evitar los movimientos bruscos, para reducir los movimientos de inercia de la carga suspendida al girar, parar, etc.

Trabajos de soldadura

- En general se tendrá en cuenta lo siguiente:
- No deben realizarse trabajos de soldadura o corte en locales que contengan materias inflamables o donde exista riesgo de explosión.
- Cuando se realicen trabajos de soldadura o corte se debe emplear equipo de protección consistente en:

- Gafas o pantalla de protección facial adecuadas al corte o al tipo de soldadura específico.
- Guantes de cuero.
- Delantal de cuero.
- Polainas y calzado apropiado.

- El ayudante del soldador llevará también las mismas protecciones.
- No se deben cortar o soldar piezas apoyadas sobre suelos de piedra, hormigón, madera, plástico o alquitrán sin aislarlas convenientemente de esos soportes.

<u>Soldadura eléctrica.</u>

- Se vigilará la correcta ejecución de las protecciones eléctricas de la máquina de soldar según indique el fabricante.

- Se utilizará la pantalla facial adecuada para el tipo de soldadura a realizar, éstas indicarán claramente la intensidad de la corriente en amperios para la cual está destinada.
- Las soldaduras se realizarán en espacios ventilados con el fin de que no se almacenen los humos desprendidos.
- Los cables de la máquina se situarán de manera que no entorpezcan el paso y eliminando la posibilidad que sean pisados por personas o vehículos.
- Se evitarán las humedades en el puesto de soldadura.
- Los cables no deben someterse a intensidades de corriente superiores a su capacidad nominal.
- La base de soldar debe ser sólida y estar apoyada sobre objetos estables. El cable de soldar debe mantenerse con una mano y la soldadura se debe ejecutar con la otra.
- Los portaelectrodos deben almacenarse donde no puedan entrar en contacto con los trabajadores, combustibles o posibles fugas de gas comprimido.
- Cuando los trabajos de soldadura se deban interrumpir durante un cierto periodo de tiempo se deben quitar todos los electrodos de sus soportes, desconectando el puesto de soldar de la fuente de alimentación.
- No utilizar electrodos a los que les quede entre 38 y 50 mm, ya que si éstos son demasiado cortos se pueden dañar los aislantes de los portaelectrodos pudiendo provocar un cortocircuito accidental.
- Los electrodos y los portaelectrodos se deben guardar bien secos. Si antes de ser utilizados están mojados o húmedos, deben secarse antes de ser utilizados.
- Los soldadores deben situarse de forma que los gases desprendidos de la soldadura no lleguen directamente a la pantalla facial protectora.

- La escoria depositada en las piezas soldadas debe picarse con un martillo especial de forma que los trozos salgan en dirección contraria al cuerpo. Previamente se deben eliminar de las escorias, las posibles materias combustibles que podrían inflamarse al ser picadas.
- No sustituir los electrodos con las manos desnudas, con guantes mojados o en el caso de estar sobre una superficie mojada o puesta a tierra, tampoco se deben enfriar los portaelectrodos sumergiéndolos en agua.
- No se deben efectuar trabajos de soldadura cerca de lugares donde se estén realizando operaciones de desengrasado, ya que pueden formarse gases peligrosos. Es conveniente prever una toma de tierra local en la zona de trabajo.
- No accionar el conmutador de polaridad mientras el puesto de soldadura esté trabajando, se debe cortar la corriente antes de cambiar la polaridad.
- La ropa de trabajo será de pura lana o algodón ignifugo. Las mangas serán largas con los puños ceñidos a la muñeca, además llevará un collarín que proteja el cuello. Es conveniente que no lleven bolsillos y en caso contrario se podrán cerrar herméticamente. Los pantalones no deben tener dobladillo, pues pueden retener las chispas producidas.
- El soldador debe tener cubiertas todas las partes del cuerpo antes de iniciar los trabajos de soldadura. La ropa manchada de grasa, disolventes o cualquier otra sustancia inflamable debe ser desechada inmediatamente, asimismo la ropa húmeda se hace conductora por lo que debe ser cambiada ya que en condiciones de bajo aislamiento es peligroso tocar los útiles de soldar. No se deben hacer trabajos de soldadura cuando llueve o en lugares conductores sin la protección eléctrica adecuada.
- Antes de soldar se debe comprobar que la pantalla o careta no tiene rendijas que dejen pasar la luz, y que el cristal contra radiaciones es adecuado a la intensidad o diámetro del electrodo.
- En los trabajos sobre elementos metálicos, es necesario utilizar calzado de seguridad aislante. Para los trabajos de picado o cepillado de escoria se deben proteger los ojos con gafas de seguridad o una pantalla transparente.

- Los ayudantes de los soldadores u operarios próximos deben usar gafas especiales con cristales filtrantes adecuados al tipo de soldadura a realizar. Para colocar el electrodo en la pinza o tenaza, se deben utilizar siempre los guantes. También se usarán los guantes para coger la pinza cuando esté en tensión.
- Todo el equipo de protección individual debe ser inspeccionado periódicamente ser sustituido cuando presente cualquier defecto.
- Se debe inspeccionar semanalmente todo el material de la instalación de soldadura, principalmente los cables de alimentación, empalmes, mordazas y bridas.
- En cuanto a los equipos de soldar de tipo rotativo es necesario revisar las escobillas sustituyéndolas o aproximándolas en caso necesario. En ambientes pulvígenos metálicos se debe limpiar periódicamente el interior con aire comprimido para evitar cortocircuitos o derivaciones a la carcasa.
- En el caso de que se utilicen electrodos de tungsteno toriado en la soldadura de arco (TIG) se produce el riesgo de exposición a radiaciones ionizantes. Para minimizar el efecto de estas radiaciones se proponen las siguientes medidas.
- Sustituir, siempre que sea posible los electrodos de tungsteno toriado por otros electrodos que no contengan materiales con actividad radioactiva, tungsteno-lantano, tungsteno-cerio.
- Garantizar que los trabajadores reciban una formación adecuada sobre los riesgos que se derivan de la utilización de este tipo de electrodos.
- Exigir al fabricante o comercializador de los electrodos el correcto etiquetado de los envases que los contienen y la correspondiente ficha de datos de seguridad (FDS).
- Los envases deberán llevar la señal de advertencia de material radioactivo y la etiqueta debe contener información sobre la composición de dichos electrodos, recomendaciones sobre su utilización y sobre la gestión de las puntas sobrantes de los mismos.

- Disminuir al mínimo posible la generación de polvo en el proceso de afilado de los electrodos, así como reducir el número de trabajadores que realizan está operación.
- Suministrar a los trabajadores ropa de trabajo adecuada y proporcionarle doble taquilla, para guardar separadamente la ropa de calle y la ropa de trabajo.
- Garantizar la vigilancia de la salud de los trabajadores que realizan operaciones de soldadura con electrodos de tungsteno toriado y especialmente a los que ocupan puestos de trabajo que incluyan su afilado.
- Es recomendable que el almacenamiento de este tipo de electrodos se realice en armarios destinados únicamente a tal fin y convenientemente señalizados.
- Se dispondrá de un plan de gestión de residuos que incluya la recogida, traslado y almacenamiento en el centro de trabajo hasta su entrega a un gestor autorizado.
- No comer ni beber en el área de trabajo
- Lavarse las manos antes de abandonar la zona de trabajo
- Manipular los electrodos de uno en uno
- No ponerse en el bolsillo electrodos de tungsteno toriado
- No utilizar estos electrodos para otra finalidad diferente a la soldadura
- No tirar al suelo los restos de electrodos y guardarlos para su adecuada gestión como residuos de soldadura.
- No utilizar electrodos y restos de los mismos como objetos personales.

<u>Soldadura autógena u oxiacetilénica, acetilénica y oxicorte.</u>

- Se prohíben los trabajos de soldadura y corte, en locales donde se almacenen materiales inflamables, combustibles, donde exista riesgo de explosión o en el interior de recipientes que hayan contenido sustancias inflamables.

- Para trabajar en recipientes que hayan contenido sustancias explosivas o inflamables, se debe limpiar con agua caliente y desgasificar con vapor de agua, por ejemplo. Además se comprobará con la ayuda de un medidor de atmósferas peligrosas (explosímetro), la ausencia total de gases.
- Se debe evitar que las chispas producidas por el soplete alcancen o caigan sobre las botellas, mangueras o líquidos inflamables.
- No utilizar el oxígeno para limpiar o soplar piezas o tuberías, etc., o para ventilar una estancia, pues el exceso de oxígeno incrementa el riesgo de incendio.
- Los grifos y los manorreductores de las botellas de oxígeno deben estar siempre limpios de grasas, aceites o combustible de cualquier tipo. Las grasas pueden inflamarse espontáneamente por acción del oxígeno.
- Si una botella de acetileno se calienta por cualquier motivo, puede explosionar; cuando se detecte esta circunstancia se debe cerrar el grifo y enfriarla con agua, si es preciso durante horas.
- Si se incendia el grifo de una botella de acetileno, se tratará de cerrarlo, y si no se consigue, se apagará con un extintor de nieve carbónica o de polvo.
- Después de un retroceso de llama o de un incendio del grifo de una botella de acetileno, debe comprobarse que la botella no se calienta sola.
- Las fugas de gas en manguera o valvulería se buscarán siempre con agua jabonosa y jamás mediante una llama.
- Después de una parada larga o en el inicio del trabajo se cuidará de purgar bien las conducciones y el soporte antes de aplicar la llama.
- Las botellas de gases no se deben vaciar por completo para evitar la posible entrada de aire. Una vez agotadas, se guardarán cuidando que no se confundan con las que están todavía llenas.

- No se utilizará nunca aire ni oxígeno comprimidos para desempolvar o limpiar ropa u otros objetos ni, mucho menos aún, se dirigirán contra la piel desnuda.
- Ante una fuga o incendio fortuito en el equipo de soldadura, antes de intentar sofocarlo, se procederá a cerrar rápidamente las válvulas de alimentación.
- Al efectuar operaciones de soldadura u oxicorte en el interior de recipientes, nunca se introducirán las botellas de gases en dichos recintos.

Normas de seguridad específicas para la soldadura autógena u oxiacetilénica, acetilénica y oxicorte.:

a) Utilización de botellas:

- Las botellas de gases comprimidos o disueltos se almacenarán en locales especiales para ellas.
- Para el transporte de las de oxicorte se utilizará siempre un carro porta-botellas.
- Las botellas deben estar perfectamente identificadas en todo momento, en caso contrario deben inutilizarse y devolverse al proveedor.
- Todos los equipos, canalizaciones y accesorios deben ser los adecuados a la presión y gas a utilizar.
- Las botellas de acetileno llenas se deben mantener en posición vertical, al menos 12 horas antes de ser utilizadas. En caso de tener que tumbarlas, se debe mantener el grifo con el orificio de salida hacia arriba, pero en ningún caso a menos de 50 cm del suelo.
- Los grifos de las botellas de oxígeno y acetileno deben situarse de forma que sus bocas de salida apunten en direcciones opuestas.
- Las botellas en servicio deben estar libres de objetos que las cubran total o parcialmente.
- Las botellas deben estar a una distancia entre 5 y 10 m de la zona de trabajo.
- Antes de empezar una botella comprobar que el manómetro marca “cero” con el grifo cerrado.

- Si el grifo de una botella se atasca, no se debe forzar la botella, se debe devolver al suministrador marcando convenientemente la deficiencia detectada.
- Antes de colocar el manorreductor, debe purgarse el grifo de la botella de oxígeno, abriendo un cuarto de vuelta y cerrando a la mayor brevedad.
- Colocar el manorreductor con el grifo de expansión totalmente abierto; después de colocarlo se debe comprobar que no existen fugas utilizando agua jabonosa, pero nunca con llama. Si se detectan fugas se debe proceder a su reparación inmediatamente.
- Abrir el grifo de la botella lentamente; en caso contrario el reductor de presión podría quemarse.
- Cerrar los grifos de las botellas después de cada sesión de trabajo. Después de cerrar el grifo de la botella se debe descargar siempre el manorreductor, las mangueras y el soplete.
- La llave de cierre debe estar sujeta a cada botella en servicio, para cerrarla en caso de incendio. Un buen sistema es atarla al manorreductor.
- Las averías en los grifos de las botellas deben ser solucionadas por el suministrador, evitando en todo caso desmontarlos.
- No sustituir las juntas de fibra por otras de goma o cuero.
- Si como consecuencia de estar sometidas a bajas temperaturas se hiela el manorreductor de alguna botella, utilizar paños de agua caliente para deshelarlas.
- Se debe evitar cualquier tipo de agresión mecánica que pueda dañar las botellas.
- Las botellas con caperuza no fija no deben asirse por ésta. En el desplazamiento, las botellas deben tener la válvula cerrada y la caperuza debidamente fijada.
- Las botellas no deben arrastrarse, deslizarse o hacerlas rodar en posición horizontal
- Las botellas deben estar siempre en posición vertical
- No manejar las botellas con guantes grasientos

b) Mangueras:

- Las mangueras deben estar siempre en perfectas condiciones de uso y sólidamente fijadas a las tuercas de empalme.
- Las mangueras deben conectarse a las botellas correctamente, sabiendo que las de oxígeno son rojas y las de acetileno negras, teniendo estas últimas un diámetro mayor que las primeras.
- Se debe evitar que las mangueras entren en contacto con superficies calientes, bordes afilados, ángulos vivos o caigan sobre ellas chispas, procurando que no formen bucles.
- Las mangueras no deben atravesar vías de circulación de vehículos o personas sin estar protegidas con apoyos de paso de suficiente resistencia a la compresión.
- Antes de iniciar el proceso de soldadura se debe comprobar que no existen pérdidas en las conexiones de las mangueras utilizando agua jabonosa, por ejemplo. Nunca utilizar una llama para efectuar la comprobación.
- No se debe trabajar con las mangueras situadas sobre los hombros o entre las piernas.
- Las mangueras no deben dejarse enrolladas sobre las ojivas de las botellas.
- Después de un retorno accidental de llama, se deben desmontar las mangueras y comprobar que no han sufrido daños. En caso afirmativo se deben sustituir por unas nuevas desechando las deterioradas.

c) Soplete:

- El soplete debe manejarse con cuidado y en ningún caso se golpeará con él.
- En la operación de encendido debería seguirse la siguiente secuencia de actuación:

- Abrir lenta y ligeramente la válvula del soplete correspondiente al oxígeno.
- Abrir la válvula del soplete correspondiente al acetileno alrededor de 3/4 de vuelta.
- Encender la mezcla con un encendedor o llama piloto.

- Aumentar la entrada del combustible hasta que la llama no despida humo.
- Acabar de abrir el oxígeno según necesidades.
- Verificar el manorreductor.
    - En la operación de apagado debería cerrarse primero la válvula del acetileno y después la del oxígeno.
    - No colgar nunca el soplete en las botellas, ni siquiera apagado.
    - No depositar los sopletes conectados a las botellas en recipientes cerrados.
    - La reparación de los sopletes la deben hacer técnicos especializados.
    - Limpiar periódicamente las toberas del soplete pues la suciedad acumulada facilita el retorno de la llama. Para limpiar las toberas se puede utilizar una aguja de latón.
    - Si el soplete tiene fugas se debe dejar de utilizar inmediatamente y proceder a su reparación. Hay que tener en cuenta que las fugas de oxígeno en locales cerrados pueden ser muy peligrosas.

d) Retorno de llama:

En caso de retorno de la llama se deben seguir los siguientes pasos:

- Cerrar la llave de paso del oxígeno interrumpiendo la alimentación a la llama interna.
- Cerrar la llave de paso del acetileno y después las llaves de alimentación de ambas botellas.
- En ningún caso se deben doblar las mangueras para interrumpir el paso del gas.
- Efectuar las comprobaciones pertinentes para averiguar las causas y proceder a solucionarlas.

e) Radiaciones no ionizantes.

Las radiaciones que produce la soldadura oxiacetilénica son muy importantes por lo que los ojos y la cara del operador deberán protegerse adecuadamente contra sus efectos utilizando gafas de montura integral combinados con protectores de casco y sujeción manual adecuada al tipo de radiaciones emitidas.

f) Inhalación de contaminantes.

Siempre que sea posible se trabajará en zonas o recintos especialmente preparados para ello y dotados de sistemas de ventilación general y extracción localizada suficientes para eliminar el riesgo. En caso de realizar las operaciones de soldadura en exteriores, la ventilación natural será suficiente, siempre y cuando el flujo de aire no pase por el entorno de respiración del trabajador.

g) Soldadura en tuberías de Polietileno.

Existen dos procedimientos de soldadura de tuberías de polietileno:

- Soldadura con termofusión a tope
- Soldadura por electrofusión (elementos electrosoldables)
- Medidas preventivas generales para soldar el polietileno
- Cada soldador y ayudante a intervenir en esta obra deberán tener en cuenta:
- El tubo a soldar se debe redondear sujetándolo con un dispositivo de apriete circular. En el caso de tubos enterrados ocurre lo mismo.
- Todas las herramientas y máquinas usadas en las uniones por fusión deben ser las adecuadas para proceder correctamente en cada una de las operaciones. En ningún caso se debe proceder a realizar una soldadura sin disponer de todas las herramientas e instrumentos necesarios.
- La zona de soldadura debe protegerse contra influencias desfavorables de la intemperie, como la humedad, la temperatura ambiente, lluvia, viento, temperaturas inferiores a 0º C. En estos casos sólo se puede soldar bajo una caseta especial o con autorización de la compañía distribuidora en cuestión
- En los procedimientos que así lo exijan, se debe eliminar la capa de óxido de la superficie a soldar, ya sea mediante raspado o refrenado, según el tipo de soldadura.
- Las superficies de unión de las piezas a soldar no deben estar dañadas y deben estar exentas de suciedad y humedad inmediatamente antes de soldar.

Las piezas a unir, durante el proceso de soldadura y enfriamiento han de estar inmovilizadas.

- En todos los métodos de soldadura, la zona a soldar no debe someterse a esfuerzo alguno durante el proceso, hasta que se haya enfriado por completo.
- Antes de poner en carga o someter a esfuerzos o movimientos una soldadura, esta debe estar completamente fría.
- Los procesos de soldadura se han de seguir escrupulosamente en todos los aspectos, tiempos, presiones, etc.…
- El desengrasado y la eliminación de humedad en los tubos y accesorios se efectuará con papel celulósico y utilizando como líquido limpiador Isopropanol. La utilización de otro tipo de líquido limpiador ha de ser previamente autorizada por la compañía distribuidora de gas
- Se vigilará especialmente la realización de los trabajos con guantes de protección adecuada y con ventilación suficiente.

Medidas preventivas generales para la soldadura a tope del polietileno (Termofusión):

- Verificar que las caras del calefactor están limpias y no tienen ningún daño en el revestimiento (teflón).
- Verificar que la máquina se encuentra en perfecto estado de funcionamiento y las abrazaderas de sujeción son adecuadas para el diámetro a soldar.
- Verificar que ambos tubos, o tubo y accesorio son del mismo diámetro y espesor, se encuentran en buen estado y el corte es perpendicular al eje del tubo.
- Limpiar los extremos interiores y exteriores con un paño limpio o papel celulósico.
- Colocar los elementos a soldar en las abrazaderas de sujeción y la refrentadora, de tal manera que esta última quede en la zona central y los extremos de los tubos y accesorios toquen con las cuchillas de la misma.

- Poner en marcha la refrentadora y aplicar una ligera presión con la bomba hasta que se observe arranque de viruta. Mantener presionado el tubo con la refrentadora hasta que la viruta que se obtiene en cada extremo del tubo continúa.
- Medidas preventivas generales para la soldadura por electrofusión del polietileno:
- Verificar que los elementos a unir se encuentran en buen estado, y en el caso de tubo que el corte sea perpendicular al eje del mismo.
- Marcar sobre cada tubo la longitud de la mitad del manguito con un lápiz o rotulador indeleble.
- Raspar toda la zona del tubo que va a soldarse, en una extensión algo superior a la mitad de la longitud del manguito, utilizando un raspador.
- Limpiar las superficies a soldar con un líquido limpiador y papel celulósico.
- Colocar el manguito sobre el extremo de uno de los elementos a soldar y unir éstos a tope sujetándolos y alineándolos con la ayuda del alineador.
- Conectar los bornes de los cables de la máquina de soldar con las conexiones del accesorio, sin quedar sometidos a esfuerzo alguno.
- Confirmar el tiempo de soldadura.
- Una vez soldado, comprobar que el tiempo de soldadura real coincide con el de las tablas.
- Desconectar los cables de la máquina de soldar y dejar enfriar la zona de soldadura el tiempo indicado en las tablas.
- Una vez enfriada por la soldadura, retirar el soporte de fijación.

LOCALIZACIÓN E IDENTIFICACIÓN DE TRABAJOS QUE IMPLICAN RIESGOS *CATASTRÓFICOS*

FUEGO EN EL RECINTO DE LA OBRA

Operaciones a desarrollar previstas en el proyecto

Las obras pueden arder por causas diversas, que van desde la negligencia simple, a los riesgos por "vicios adquiridos" en la realización de los trabajos, o también, a causas fortuitas. No obstante es el único riesgo catastrófico previsto en el recinto de la obra.

Normalmente los restantes riesgos: Inundaciones, frío intenso, fuertes nevadas, movimientos sísmicos, vendavales, etc. no pueden ser previstos. Los procedimientos que se deberán seguir son los protocolizados en las "Actuaciones de Emergencia" en caso de incendio.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo	Probabilidad	Consecuencias	Calificación	Estado	Val. Eficacia	Maternidad
- Incendio	Baja	Dañino	Tolerable	Evitado	99,5	No afecta

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Guantes

Manoplas

Trajes ignífugos para el personal de emergencia

Calzado especial contra incendios

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

En cualquier caso, ante el riesgo de incendio deberá suspenderse toda actividad de la obra, previo aseguramiento en la medida de lo posible y siempre dependiendo del factor sorpresa, de que la maquinaria de obra, andamios y demás elementos estén debidamente anclados, sujetos y/o protegidos, garantizando la imposibilidad de los mismos de provocar accidentes directos e indirectos sobre las personas y bienes.

Riesgo de incendio.

- El riesgo considerado posible se cubrirá con las siguientes medidas:
    - Realización de revisiones periódicas a la instalación eléctrica de la obra.
    - Cuando se carezca normalmente de agua a presión o ésta sea insuficiente, se instalarán depósitos con agua suficiente para combatir los posibles incendios.
    - En los incendios provocados por líquidos, grasas o pinturas inflamables o polvos orgánicos, sólo deberá emplearse agua muy pulverizada.
    - No se empleará agua para extinguir fuegos en polvos de aluminio o magnesio o en presencia de carburo de calcio u otras sustancias que al contacto con el agua produzcan explosiones, gases inflamables o nocivos.
    - En incendios que afecten a instalaciones eléctricas con tensión, se prohibirá el empleo de extintores de espuma química, soda ácida o agua.

Para evitar el incendio en la obra, deberán controlarse las operaciones y manipulaciones de los siguientes productos:

- Las hogueras de obra.
- La madera.
- El desorden de la obra.
- La suciedad de la obra.
- El almacenamiento de objetos impregnados en combustibles.
- La falta o deficiencias de ventilación de los almacenes.
- El poliestireno expandido.
- El PVC.

- Pinturas.
- Barnices.
- Disolventes.
- Desencofrantes.
- Productos bituminosos.
- La soldadura eléctrica
- La soldadura oxiacetilénica y el oxicorte. Los explosivos.

EVALUACIÓN DE RIESGOS CON REGLAMENTACIÓN SECTORIAL ESPECÍFICA

Conforme a la Ley 8 de noviembre, de Prevención de Riesgos Laborales: Protección de trabajadores se especialmente sensibles a determinados riesgos:

Esta empresa garantizará de manera específica la protección de los trabajadores que, por sus propias características personales o estado biológico conocido, incluidos aquellos que tengan reconocida la situación de discapacidad física, psíquica o sensorial, sean especialmente sensibles a los riesgos derivados del trabajo.

Personas con capacidades físicas, psíquicas o sensoriales reducidas.

Antes de la incorporación al puesto de trabajo un trabajador con discapacidad física, psíquica o sensorial debidamente reconocida, el responsable de la actuación realizará un comunicado al Servicio de Prevención para que tenga en cuenta dichos aspectos en las evaluaciones de los riesgos y, en función de éstas, proponga la adopción de las medidas preventivas y de protección necesarias.

Los trabajadores no serán empleados en aquellos puestos de trabajo en los que, a causa de sus características personales, estado biológico o por su discapacidad física, psíquica o sensorial debidamente reconocida, puedan ellos, los demás trabajadores u otras personas relacionadas con la empresa ponerse en situación de peligro o, en general, cuando se encuentren manifiestamente en estados o situaciones transitorias que no respondan a las exigencias psicofísicas de los respectivos puestos de trabajo.

Trabajadoras embarazadas, que hayan dado a luz o en período de lactancia natural

En cumplimento de lo dispuesto sobre la evaluación de riesgos en el artículo 26.1 de la Ley 31/1995, de 8 de noviembre, de Prevención de Riesgos Laborales y en el Real Decreto 39/1997, de 17 de enero, por el que se aprueba el Reglamento de los Servicios de Prevención el artículo 4.1.b) modificado por el Real Decreto 298/2009, esta evaluación de riesgos tiene en cuenta la posibilidad de que el trabajador que lo ocupe o vaya a ocuparlo sea especialmente sensible, por sus características personales o estado biológico conocido, y en concreto, cuando se trate de trabajadoras embarazadas o en periodo de lactancia.

LIMPIEZA Y LABORES DE FIN DE OBRA

Las operaciones de entrega de obra llevan consigo determinadas operaciones de retirada de residuos y escombros, ordenación de espacios, retirada de medios auxiliares y limpieza general de espacios.

Identificación de riesgos

- Atropellos y/o colisiones
- Caídas de personas al mismo nivel
- Caída de objetos
- Caídas de personas a distinto nivel
- Golpes y/o cortes con objetos y/o maquinas
- Ambiente pulvígeno
- Ruido

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Medidas preventivas

Para la limpieza se deben usar las herramientas adecuadas a lo que se va a limpiar.

Se deben retirar todos los restos de materiales, áridos, palets, escombros, etc. O bien a lugares de acopios o bien a vertederos autorizadas.

Si se interfiere con el tráfico rodado o tránsito de personas, en estas actividades se tendrá que mantener la señalización.

Equipos de protección individual

- Casco de seguridad
- Botas de seguridad con puntera reforzada Guantes

Protecciones colectivas

- Vallado perimetral de la obra

Señalización de seguridad

- Señales de obligatoriedad de uso de casco, botas, guantes.
- Señales de prohibición de paso a toda persona ajena a las obras

SERVICIOS SANITARIOS Y COMUNES DE LOS QUE ESTÁ DOTADO ESTE CENTRO DE TRABAJO

Relación de los servicios sanitarios y comunes de los está dotado este centro de trabajo de la obra, en función del número de trabajadores que vayan a utilizarlos, aplicando las especificaciones contenidas en los apartados 14, 15, 16 y 19 apartado b) de la parte A del Anexo IV del R.D. 1627/97.

SERVICIOS HIGIÉNICOS

Operaciones a desarrollar previstas en el proyecto

- Dispondrá de instalación de agua caliente en duchas y lavabos.
- Los suelos, techos y paredes serán lisos e impermeables, permitiendo la limpieza necesaria; asimismo dispondrán de ventilación independiente y directa.
- La altura libre de suelo a techo no será inferior a 2,30 metros, siendo las dimensiones mínimas de las cabinas de los retretes de 1 x 1,20 metros. Las puertas irán provistas de cierre interior e impedirán la visibilidad desde el exterior.
- Dispondrá de abastecimiento suficiente de agua potable en proporción al número de trabajadores, fácilmente accesible a todos ellos y distribuidos en lugares próximos a los puestos de trabajo.
- Se indicará mediante carteles si el agua es o no potable.
- En los retretes que hayan de ser utilizados por mujeres se instalarán recipientes especiales y cerrados.

- Se instalará un lavabo de agua corriente, provisto de jabón, por cada 10 empleados o fracción de esta cifra.
- Existirá un retrete con descarga automática, de agua y papel higiénico, por cada 25 trabajadores o fracción o para 15 trabajadoras o fracción.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

- Infección por falta de higiene.

- Peligro de incendio.

- Cortes con objetos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

- A los trabajadores que realicen trabajos marcadamente sucios o manipulen sustancias tóxicas se les facilitarán los medios especiales de limpieza necesarios en cada caso.
- Se mantendrá limpio y desinfectado diariamente.
- Tendrán ventilación independiente y directa.
- Se cuidará que las aguas residuales se alejen de las fuentes de suministro de agua potable.
- Los inodoros y urinarios se instalarán y conservarán en debidas condiciones de desinfección, desodorización y supresión de emanaciones.
- Se limpiarán diariamente con desinfectante.
- Cuando los retretes comuniquen con los lugares de trabajo estarán completamente cerrados y tendrán ventilación al exterior, natural o forzada.
- Habrá extintores.

- Antes de conectar el termo eléctrico comprobar que está lleno de agua.
- Nunca atornillar, clavar o remachar en las paredes.
- No realizar ningún tipo de pintadas en el interior y/o exterior.
- No pisar sobre el techo de la misma, ni depositar ningún tipo de objetos.
- Enganchar la caseta de las cuatro esquinas para el montaje/desmontaje.
- No levantar la caseta con material lleno.

VESTUARIO

Operaciones a desarrollar previstas en el proyecto

- La superficie mínima de los mismos será de 2.00 m2 por cada trabajador que haya de utilizarlos, instalándose tantos módulos como sean necesarios para cubrir tal superficie.
- La altura mínima del techo será de 2.30 m.
- Se habilitará un tablón conteniendo el calendario laboral, Ordenanza General de Seguridad e Higiene en el Trabajo (en aquellos capítulos que no han sido derogados), Ordenanza Laboral de la Construcción, Vidrio y Cerámica y las notas informativas de régimen interior que la Dirección Técnica de la obra proporcione.
- Se dispondrá de cuartos de vestuarios y de aseo para uso del personal, debidamente separados para los trabajadores de uno u otro sexo.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

- Infección por falta de higiene.

- Peligro de incendio.

- Cortes con objetos.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

- Los suelos, paredes y techos serán lisos e impermeables, permitiendo la limpieza necesaria. Así mismo dispondrán de ventilación independiente y directa.
- Los vestuarios estarán provistos de armarios o taquillas individuales con el fin de poder dejar la ropa y efectos personales. Dichos armarios estarán provistos de llaves.
- Deberán ser de fácil acceso, tener las dimensiones suficientes y disponer de asientos e instalaciones que permitan a cada trabajador poner a secar, si fuese necesario la ropa de trabajo.
- Cuando las circunstancias lo exijan, la ropa de trabajo deberá de poder guardarse separada de la ropa de calle y de los efectos personales.
- Habrá extintores.
- Nunca atornillar, clavar o remachar en las paredes.
- No realizar ningún tipo de pintadas en el interior y/o exterior.
- No pisar sobre el techo de la misma, ni depositar ningún tipo de objetos.
- Enganchar la caseta de las cuatro esquinas para el montaje/desmontaje.
- No levantar la caseta con material lleno.

COMEDOR

Operaciones a desarrollar previstas en el proyecto

- Para cubrir las necesidades se dispondrá en obra de un comedor a razón de 1.20 m2 como mínimo necesario por cada trabajador.
- El local contará con las siguientes características:
- Suelos, paredes y techos lisos e impermeables, permitiendo la limpieza necesaria.
- Iluminación natural y artificial adecuada.
- Ventilación directa, y renovación y pureza del aire.
- Dispondrá de mesas y sillas, menaje, calienta-comidas, pileta con agua corriente y recipiente para recogida de basuras.
- La altura mínima será de 2.60 m.
- Dispondrá de agua potable para la limpieza de utensilios y vajilla.
- Deberá de instalarse un comedor siempre que haya un mínimo de 25 trabajadores que coman en la obra.
- Existirán unos aseos próximos a estos locales.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

- Infección por falta de higiene.

- Peligro de incendio.

- Cortes con objetos.

Relación de Epis necesarios y cuya eficacia ha sido evaluada

- Guantes goma para limpieza

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

- No se permitirá sacar o trasegar agua para la bebida por medio de vasijas, barriles, cubos u otros recipientes abiertos o cubiertos provisionalmente.
- Quedará prohibido comer, beber, introducir alimentos o bebidas en los locales de trabajo, que representen peligro para el obrero, o posibles riesgos de contaminación de aquellos o éstos.
- Se indicará mediante carteles si el agua es o no potable.
- Se cuidará que las aguas residuales se alejen de las fuentes de suministro de agua potable.
- Deberán de reunir las condiciones suficientes de higiene, exigidas por el decoro y dignidad del trabajador.
- Habrá extintores.
- Nunca atornillar, clavar o remachar en las paredes.
- No realizar ningún tipo de pintadas en el interior y/o exterior.
- No pisar sobre el techo de la misma, ni depositar ningún tipo de objetos.
- Enganchar la caseta de las cuatro esquinas para el montaje/desmontaje.
- No levantar la caseta con material lleno.

BOTIQUÍN

Operaciones a desarrollar previstas en el proyecto

- Se dispondrá de un botiquín en sitio visible y de fácil acceso, colocándose junto al mismo la dirección y teléfono de la compañía aseguradora, así como el del centro asistencial más

próximo, médico, ambulancias, protección civil, bomberos y policía, indicándose en un plano la vía más rápida que comunica la obra en el centro asistencial más próximo.

- Los botiquines estarán a cargo de personas capacitadas designadas por la empresa.
- Se revisará mensualmente su contenido y se repondrá inmediatamente lo usado.
- El botiquín portátil, tendrá un contenido mínimo (conforme anexo VI.A.3 del Real Decreto 486/97) que aquí se especifica:
    - Desinfectantes y antisépticos autorizados
    - Gasas estériles
    - Algodón hidrófilo
    - Venda
    - Esparadrapo
    - Apósitos adhesivos
    - Tijeras
    - Pinzas
    - Guantes desechables
- La Orden TAS/2947/2007, establece el contenido mínimo del botiquín, siendo los siguientes:
    - Botella de agua oxigenada
    - Botella de alcohol
    - Paquete de algodón arrollado
    - Sobres de gasas estériles
    - Vendas

- Caja de tiritas
- Caja de bandas protectoras
- Esparadrapo Hipo Alérgico
- Tijera 11 cm cirugía
- Pinza 11 cm disección
- Povidona Yodada
- Suero fisiológico 5 ml
- Venda Crepe 4 m × 5 cm .
- Venda Crepe 4 m × 7 cm
- Pares de guantes látex

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

- Infecciones.

Relación de Epis necesarios y cuya eficacia ha sido evaluada

- Guantes goma para limpieza y reposición de productos

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

- En la obra siempre habrá un vehículo para poder hacer el traslado al hospital.
- En la caseta de obra existirá un plano de la zona donde se identificarán las rutas a los hospitales más próximos.
- Se colocará junto al botiquín un rótulo con todos los teléfonos de emergencia, servicios médicos, bomberos, ambulancias, etc.
- Se proveerá un armarito conteniendo todo lo nombrado anteriormente, como instalación fija y que con idéntico contenido, provea a uno o dos maletines-botiquín portátiles, dependiendo de la gravedad del riesgo y su frecuencia prevista.

ALMACENES

Relación de los almacenes que a lo largo de la ejecución de la obra se van a establecer en determinadas áreas de la misma, conforme se especifica en los planos.

Materiales

Con la distribución de las áreas de trabajo se preverá una buena organización, en la que predomine el orden y limpieza en los lugares del almacenamiento cubierto del material.

El almacén se compondrá de las siguientes áreas: De almacenamiento del material, embalado.

De almacenamiento del material, suelto.

Señalización del Almacén.

- Señalización de acceso solo a personal autorizado.
- Marcación de los accesos al almacén.
- Señalización luminosa de emergencia.
- Se vallará de almacén.

Identificación de riesgos

- Caída de objetos por desplome.
- Caída de objetos por derrumbamiento.
- Caída de personas al mismo nivel.
- Exposiciones a las radiaciones peligrosas que se por determinados materiales.
- Golpes, cortes, etc., durante la manipulación o transporte del material a almacenar.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

- Se mantendrá el orden y la limpieza en el almacén y sus alrededores.
- El almacén tendrá iluminación bien sea natural o en su ausencia de ésta artificial.
- El almacén tendrá ventilación bien sea natural o en su ausencia de ésta artificial, para evacuar las emanaciones y vapores de ciertos materiales.
- Los operarios dispondrán de los EPIS correspondientes.
- Las zonas de almacenamiento, carga, descarga y movimiento de material, se encontrará delimitadas, cada una de ellas.

- Comprobar que las instalaciones se adaptan al material a almacenar.
- Su ubicación permitirá una fácil comunicación para facilitar la carga y descarga del material.
- Se colocará la adecuada señalización.
- Se dispondrá de extintores en el interior del almacén.

Acopios - Acopio de escombros

Con la distribución de las áreas de trabajo deberá haber una buena organización, en la que predomine el orden y limpieza en los lugares de acopio de escombros.

Señalización del Acopio.

- Señalización de acceso solo a personal autorizado.
- Marcación de la zona de acopio de escombros.
- Se vallará la zona de acopio de escombros.

Identificación de riesgos

- Caída de objetos por desplome.
- Caída de objetos por derrumbamiento.
- Caída de personas al mismo nivel.
- Golpes, cortes, etc., durante la manipulación o transporte de los escombros.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

- Se mantendrá el orden y la limpieza en la zona de acopios y sus alrededores.
- Los operarios dispondrán de los EPIS correspondientes.
- La zona de acopio, carga, descarga y movimiento de material, se encontrará delimitadas, cada una de ellas.
- Su ubicación permitirá una fácil comunicación para facilitar la carga y descarga de los escombros.
- Se colocará la adecuada señalización.

12.1.17. PREVENCIÓN EN LOS EQUIPOS TÉCNICOS

Relación de máquinas, herramientas, instrumentos o instalación empleados en la obra que cumplen las condiciones técnicas y de utilización que se determinan en el Anexo IV del R.D. 1627/97 así como en su reglamentación específica y que van a utilizarse o cuya utilización está prevista en esta obra, con identificación de los riesgos laborales indicando las medidas preventivas y protecciones técnicas tendentes a controlar y reducir dichos riesgos, incluyendo la identificación de riesgos en relación con el entorno de la obra en que se encuentran.

MAQUINARIA DE OBRA

AUTO GRÚA O GRÚA MÓVIL AUTOPROPULSADA

RIESGOS Y CAUSAS

- Caída de personas a distinto nivel

- Caídas al acceder a las partes altas del vehículo como la cabina y caídas al acceder a las partes altas de la grúa (plumas, plumines, accesorios, etc.)
- Caída desde el asiento elevado
- Elevar operarios con el gancho, eslingas o cargas. Uso de cestas acopladas a las grúas

- Caída de objetos por desplome o derrumbamiento

- Fallos en el sistema hidráulico del equipo
- Corona de orientación

- Caída de objetos en manipulación

- Mal estado de los ganchos y de los pestillos
- Rotura de los elementos usados para izar las cargas (eslingas, cuerdas, etc.) Posible Ausencia de un programa de almacenamiento, mantenimiento y sustitución de eslingas.
- Caída de la carga por condiciones climatológicas adversas durante su manipulación

- Caída de objetos durante el movimiento de cargas. Operaciones incorrectamente ejecutadas
- Caída de la carga por un incorrecto enganche o estrobaje de las mismas

- Proyección de fragmentos o partículas

- Manipulación de las conducciones hidráulicas

- Golpes / cortes con objetos o herramientas

- Manipulación de elementos auxiliares para el desarrollo del trabajo como plataformas auxiliares de nivelación que pueden ser chapas , troncos , etc.

- Atrapamientos por vuelco de máquinas o vehículo

- Desconocimiento del área de trabajo
- Vuelco de la grúa por condiciones inseguras de terreno
- Utilización de los apoyos
- Utilización de contrapesos
- Deterioro de los diagramas de cargas y de los pesos máximos de las grúas móviles autopropulsadas y en las grúas acopladas a los camiones.
- Maniobrar de forma inadecuada o insegura
- Nivelación defectuosa de la grúa. Trabajo en pendiente.
- Desplazamientos de la grúa móvil autopropulsada durante los trabajos
- Sobrepasar el máximo momento de carga admisible. Sistemas de seguridad

- Atropellos o golpes con vehículos

Circulación por las obras y centros de trabajo

- Contactos eléctricos directos

Trabajos en presencia de Líneas Eléctricas Aéreas

- Riesgos diversos

- Incorrecta ejecución del trabajo o incorrectas maniobras por no existir una dirección correcta de la misma. No señalizar correctamente las maniobras. Falta de conocimiento del código de señalización
- Posibilidad de golpear a algún operario u obstáculo con la carga durante el movimiento de esta
- Desconocimiento o no señalización del radio de acción de la grúa
- Zona de visión del operario encargado del manejo de la grúa móvil autopropulsada
- Abandono de la máquina de forma insegura. Posibilidad de que alguien no autorizado acceda a los controles del equipo.
- Incumplimiento por alguna de las partes implicadas durante las operaciones de acuerdo con lo establecido en la ITC MIE – AEM-4 del reglamento de aparatos de elevación , aprobada por el R.D. 837/2003
- Ausencia de programa de control antes de comenzar a trabajar.
- Adecuación individualizada del parque móvil de grúas móviles autopropulsadas
- Inspecciones oficiales a las grúas móviles autopropulsadas
- Mantenimiento y revisiones
- Formación de los operadores

EQUIPOS DE PROTECCIÓN INDIVIDUAL

Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.

- Casco de seguridad.
- Chaleco de alta visibilidad CE Cat. II EN 471.

- Guantes de cuero.
- Protectores auditivos.
- Ropa de protección frente a agresiones mecánicas.

MEDIDAS PREVENTIVAS

- Las cabinas estarán provistas de accesos fáciles y seguros desde el suelo . Las escaleras, asideros y superficies de la máquina deben estar limpios de obstáculos, grasas, etc.
- Los trabajadores accederán a las partes altas del vehículo y todos sus componentes (grúa, cabina, etc.) usando los medios instalados por el fabricante que en caso. En caso de que no existan o sean insuficientes, se utilizarán escaleras normalizadas o equipos auxiliares homologados como plataformas elevadoras.
- Cuando el trabajador/a deba permanecer realizando alguna tarea sobre el vehículo o algunos de sus componentes (grúa, pluma, plumines, etc.) a más de 2 metros de altura, el trabajador deberá utilizar un cinturón de seguridad anclado a un punto estable y seguro que elimine el riesgo de caída a distinto nivel.
- Se prohíbe el transporte y manipulación de cargas por o desde escaleras de mano cuando su peso o dimensiones puedan comprometer la seguridad del trabajador.
- El asiento irá dotado de un cinturón de seguridad que en caso de vuelco del vehículo mantenga al trabajador pegado al asiento. En el caso de asientos sobre plataforma que no disponga de cabina , éste descansará sobre una plataforma de anchura libre de paso mínima de 60 cm. y rodeada en todo su perímetro de una barandilla de material rígido y de una altura mínima de 90 cm. con barra intermedia.
- Las escaleras de acceso a los asientos elevados serán de una anchura mínima de 40 cm. y de una separación máxima entre peldaños de 30 cm.
- El operario deberá de utilizar el cinturón de seguridad en aquellos equipos que dispongan del mismo para evitar el salir despedido en caso de vuelco .

- Está TERMINANTEMENTE PROHIBIDO elevar personas con el GANCHO de la grúa. En caso de que alguna persona de la obra solicite una operación de este tipo , el operario que esté autorizado a manipular el citado equipo , deberá de ponerse en contacto con el responsable de la obra y con el responsable de la empresa titular de la grúa para no permitir este tipo de operaciones por ninguna circunstancia.

- Una operación que se puede realizar esporádicamente es la del uso de una cesta unida al gancho de la grúa para la realización de algún trabajo puntual en altura . Para la realización de dichos trabajos , se deberá de utilizar equipos de trabajo que sean seguros . De esta forma , SOLAMENTE se podrán utilizar para este tipo de operaciones equipos de trabajo que se encuentren homologados para el mismo lo que afecta al conjunto grúa – cesta . Esto se consigue bien con plataformas elevadoras destinadas a tal fin o con la unión de cestas preparadas en grúas especiales que disponen de los elementos de seguridad necesarios para desempeñar estas tareas como acoples homologados , posibilidad de manejo de la grúa desde los mandos de la cesta , etc.

- Instalar señalización en un lugar bien visible que prohíba usar este equipo para elevar a personas.

- Los cilindros hidráulicos de extensión e inclinación de la pluma y los verticales de los gatos estabilizadores deberán ir provistos de válvulas de retención que eviten su recogida accidental en caso de rotura o avería en las tuberías flexibles de conexión.

- Los trabajadores no podrán puentear ninguno de estos sistemas de seguridad

- En el circuito de giro deberá de instalarse un sistema de frenado que amortigüe la parada del movimiento de giro y evite , asimismo los esfuerzos laterales que accidentalmente puedan producirse.

- Las coronas de orientación que se instalen en las grúas móviles autopropulsadas , así como los sistemas utilizados para su unión a las partes de aquéllas (base y estructura) , serán de capacidad suficiente para resistir los esfuerzos producidos por el funcionamiento de la grúa.

- En cualquier caso y siempre que sea posible , deberá de asegurarse el acceso de los útiles necesarios para verificar o , en su caso , aplicar los pares de apriete que correspondan a la calidad de la tornillería establecida por el fabricante de la corona.
- Se revisarán todos los ganchos de las grúas ya que los pestillos pueden encontrarse oxidados y atascarse. Ganchos: En la norma UNE 58-515-82 se define su modo de sujeción, forma y utilización. Así mismo todo gancho debe llevar incorporado el correspondiente cierre de seguridad que impida la salida de los cables.
- Las eslingas se almacenarán en lugar seco, bien ventilado y libre de atmósferas corrosivas o polvorientas. No estarán en contacto directo con el suelo, suspendiéndolas de soportes de madera con perfil redondeado o depositándolas sobre estacas o paletas. No exponer las eslingas al rigor del sol o al efecto de temperaturas elevadas.
- Las eslingas deberán ser inspeccionadas diariamente por el personal que las utilice.
- Las eslingas se deberán revisar trimestralmente como máximo por personal especializado.
- Las eslingas que tengan fecha de caducidad, deberán ser sustituidas cuando lo indique dicha fecha. Además serán utilizadas y mantenidas según indicaciones del fabricante.
- Las eslingas metálicas se deben engrasar con una frecuencia que dependerá de las condiciones de trabajo, pudiéndose determinar a través de las inspecciones. Para el engrase deberán seguirse las instrucciones del fabricante, poniendo especial cuidado para que el alma del cable recupere la grasa perdida. Como norma general, para que la lubricación sea eficaz, se tendrá en cuenta: Limpiar previamente el cable mediante cepillo o con aire comprimido, siendo aconsejable la utilización de un disolvente para eliminar los restos de grasa vieja. Utilizar el lubricante adecuado. Engrasar el cable a fondo
- La eslinga será necesario retirarla del servicio y sustituirla por otra nueva cuando: Más del 10% de los mismos contados a lo largo de dos tramos del cableado, separados entre sí por una distancia inferior a ocho veces su diámetro. Por rotura de un cordón. Cuando la pérdida de sección de un cordón del cable, debido a rotura de sus alambres visibles en un paso de cableado, alcance el 40% de la sección total del cordón. Cuando la disminución de

diámetro del cable en un punto cualquiera del mismo alcance el 10% en los cables de cordones o el 3% los cables cerrados. Cuando la pérdida de sección efectiva, por rotura de alambres visibles, en dos pasos de cableado alcance el 20% de la sección total.

- Además de los criterios señalados para la sustitución de un cable, también deberá retirarse si presenta algún otro defecto considerado como grave, como por ejemplo aplastamiento, formación de nudos, cocas, etc. También cuando presente deficiencias graves en los accesorios y terminales, tales como: Puntos de picadura u oxidación avanzada. Deformaciones permanentes (doblados, aplastamientos, alargamientos, etc.). Zonas aplanadas debido al desgaste. Grietas. Deslizamiento del cable respecto a los terminales. Tuercas aflojadas.

- A fin de evitar roturas imprevistas, es necesario inspeccionar periódicamente el estado de todos los elementos que constituyen la eslinga. La frecuencia de las inspecciones estará en relación con el empleo de las eslingas y la severidad de las condiciones de servicio.

- La elección de la eslinga deberá ser adecuada a la carga y a los esfuerzos que ha de soportar. En ningún caso deberá superarse la carga de trabajo de la eslinga, debiéndose conocer, por tanto, el peso de las cargas a elevar. Para cuando se desconozca, el peso de una carga se podrá calcular multiplicando su volumen por la densidad del material de que está compuesta. A efectos prácticos conviene recordar las siguientes densidades relativas: Madera: 0,8. Piedra y hormigón: 2,5. Acero, hierro, fundición: 8. En caso de duda, el peso de la carga se deberá estimar por exceso.

- Cuando se eleven cargas con eslingas inclinadas, se deberá verificar la carga efectiva que van a soportar multiplicando la carga que soporta cada ramal por el coeficiente que corresponde al ángulo (por ejemplo para 0 º le corresponde el coeficiente 1, 00. Al considerar el ángulo de los ramales para determinar la carga máxima admitida por las eslingas, debe tomarse el ángulo mayor. Es recomendable que el ángulo entre ramales no sobrepase los 90º y en ningún caso deberá sobrepasar los 120º, debiéndose evitar para ello las eslingas cortas. Cuando se utilice una eslinga de tres o cuatro ramales, el ángulo mayor que es preciso tener en cuenta es el formado por los ramales opuestos en

diagonal. La carga de maniobra de una eslinga de cuatro ramales debe ser calculada partiendo del supuesto de que el peso total de la carga es sustentado por: Tres ramales, si la carga es flexible. Dos ramales, si la carga es rígida.

- En la carga a elevar, los enganches o puntos de fijación de la eslinga no permitirán el deslizamiento de ésta, debiéndose emplear, de ser necesario, distanciadores, etc. Al mismo tiempo los citados puntos deberán encontrarse convenientemente dispuestos en relación al centro de gravedad. En la elevación de piezas de gran longitud es conveniente el empleo de pórticos.
- Los cables de las eslingas no deberán trabajar formando ángulos agudos, debiéndose equipar con guardacabos adecuados.
- Las eslingas no se apoyarán nunca sobre aristas vivas, para lo cual deberán intercalarse cantoneras o escuadras de protección.
- Los ramales de dos eslingas distintas no deberán cruzarse, es decir, no montarán unos sobre otros, sobre el gancho de elevación, ya que uno de los cables estaría comprimido por el otro pudiendo, incluso, llegar a romperse.
- Antes de la elevación completa de la carga, se deberá tensar suavemente la eslinga y elevar aquélla no más de 10 cm. para verificar su amarre y equilibrio. Mientras se tensan las eslingas no se deberán tocar la carga ni las propias eslingas. Cuando haya de moverse una eslinga, aflojarla lo suficiente para desplazarla sin que roce contra la carga. Nunca se tratará de desplazar una eslinga situándose bajo la carga. Nunca deberá permitirse que el cable gire respecto a su eje. En caso de empalmarse eslingas, deberá tenerse en cuenta que la carga a elevar viene limitada por la menos resistente. La eslinga no deberá estar expuesta a radiaciones térmicas importantes ni alcanzar una temperatura superior a los 60 ºC. Si la eslinga está constituida exclusivamente por cable de acero, la temperatura que no debería alcanzarse sería de 80º.
- Se deberán de paralizar los trabajos de movimiento de cargas mediante grúas móviles autopropulsadas cuando las condiciones meteorológicas existentes dificulten la operación

y pongan en riesgo a los operarios y equipos implicados en la misma como por ejemplo bajo régimen de vientos superiores a 60 Km/h , lluvia , nieve , etc.

- Para evitar la caída de objetos que pudieran desprenderse durante su manipulación , el puesto de control de la misma deberá de encontrarse situado en una cabina que disponga de una estructura de protección en el techo y laterales que evite la caída de objetos sobre el operario.

- Cuando el trabajador deba abandonar el vehículo, lo hará provisto de un casco contra impactos mecánicos. En caso de que no haya cabina en el puesto de control de la grúa, el trabajador irá equipado en todo momento con un casco contra impactos mecánicos.

- Deberá de evitarse por todos los medios el movimiento de cargas suspendidas sobre operarios , en caso de no poder evitarse por motivos de fuerza mayor , se emitirán señales previamente establecidas , generalmente sonoras , con el fin de que puedan ponerse a salvo de desprendimientos de aquéllas.

- Antes de comenzar con la elevación el operario que maneja la grúa móvil autopropulsada deberá de comprobar que el estrobado de la pieza está realizado de forma que el reparto de cargas es homogéneo para que la pieza suspendida quede en equilibrio estable , evitándose el contacto de estrobos con aristas vivas mediante la utilización de salvacables. El ángulo que forman los estrobos entre sí no superará en ningún caso 120 º debiéndose procurar que sea inferior a 90 º . En todo caso deberá de comprobarse en las correspondientes tablas , que la carga útil para el ángulo formado , es superior a la real.

- No se deberán de improvisar elementos de agarre si no utilizar aquellos que sean adecuados a la operación o sean suministrados por el fabricante de los elementos a transportar.

- Antes de desconectar los circuitos hidráulicos bajar la presión de los mismos.

- Para evitar, o al menos reducir, daño alguno causado por la manipulación de elementos cortantes se facilitará a los trabajadores guantes contra las agresiones mecánicas para proteger las manos, según indica el R.D. 773/1997, siendo estos certificados y cumpliendo

los requisitos indicados en la norma UNE-EN 388. Se señalizará su uso obligatorio. De igual forma y haciendo extensiva esta protección a todo el cuerpo, se utilizará ropa de protección contra agresiones mecánicas, cumpliendo los requisitos indicados en la norma UNE-EN 340.

- Uso OBLIGATORIO de guantes de protección mecánica para la manipulación de herramientas , elementos auxiliares como las chapas y los troncos , piezas cortantes y el acceso a los puntos de operación durante las labores de mantenimiento
- Antes de empezar cualquier trabajo analizar las maniobras a realizar. Conocer las posibilidades y los límites de la máquina particularmente el espacio necesario para maniobrar. Cuando se circula hacia atrás estar muy atentos o mejor hacerse guiar. Guardar distancias a las zanjas, taludes y toda alteración del terreno que pueda posibilitar el vuelco de la máquina. Se evitará el trabajo junto a entibaciones o apuntalamientos de cuya resistencia no se tenga seguridad.
- Se debe conocer el plan de circulación de la obra y cada día informarse de los trabajos realizados que puedan constituir riesgo: zanjas abiertas, tendido de cables, etc. NTP - 122.
- Con el tren de rodadura de ruedas de goma, circular con precaución a velocidad lenta en zonas de polvo, barro o suelo helado. NTP - 122.
- Vigilar la posición, la función, el sentido de funcionamiento de cada uno de los mandos, de los dispositivos de señalización y de los dispositivos de seguridad. NTP - 122.
- El operador de la grúa móvil autopropulsada antes de comenzar los trabajos , deberá de comprobar que el terreno tiene consistencia suficiente para que los apoyos (orugas ,ruedas o estabilizadores) no se hundan en el mismo durante la ejecución de las maniobras
- El emplazamiento de la máquina se efectuará evitando las irregularidades del terreno y explanando su superficie si fuera preciso al objeto de conseguir que la grúa quede perfectamente nivelada , nivelación que deberá ser verificada antes de iniciarse los

trabajos que serán detenidos de forma inmediata si durante su ejecución se observa el hundimiento de algún apoyo.

- Si la transmisión de la carga se realiza a través de estabilizadores y el terreno es de constitución arcillosa o no ofrece garantías , es preferible aumentar el reparto de cargas sobre el mismo aumentando la superficie de apoyo mediante bases constituidas por una o más capas de traviesas de ferrocarril , chapas o tablones de al menos 80 mm de espesor y 1000 mm de longitud que se interpondrán entre el terreno y estabilizadores cruzando ordenadamente cada capa sobre la anterior en el último de los casos.

- Las grúas deberán de disponer de elementos auxiliares para mejorar el apoyo de los estabilizadores en terrenos que no ofrezca garantías como tablones , chapas , etc.

- Al trabajar con la grúa sobre ruedas trasmitiendo los esfuerzos al terreno a través de los neumáticos , se tendrá presente que en estas condiciones los constructores recomiendan , generalmente mayor presión de inflado que la que deberán de tener circulando , por lo que antes de pasar de una situación a otra es de gran importancia la corrección de presión con el fin de que en todo momento se adecuen a las normas establecidas por el fabricante.

- Así mismo en casos de transmisión de cargas a través de neumáticos , la suspensión del vehículo portante debe ser bloqueada con el objeto de que , al mantenerse rígida , se conserve la horizontalidad de la plataforma base en cualquier posición que adopte la flecha y para evitar movimientos intempestivos de aquel , además de mantenerse en servicio y bloqueado al freno de mano , se calzaran las ruedas de forma adecuada.

- Cuando la grúa móvil trabaja sobre estabilizadores , que es lo recomendable aun cuando el peso de la carga a elevar permita hacerlo sobre neumáticos , los brazos soportes de aquellos deberán de encontrarse extendidos en su máxima longitud y , manteniéndose la correcta horizontalidad de la máquina , se darán a los gatos de elevación necesaria para que los neumáticos queden totalmente separados del suelo.

- Aquellas grúas en que sea necesaria la utilización de un contrapeso constituido en uno o varios bloques desmontables , dispondrán de las fijaciones necesarias del contrapeso a la estructura para evitar su desprendimiento.
- En el interior de las cabinas, se instalarán diagramas de cargas y alcances , rótulos e indicativos necesarios para la correcta identificación de todos los mandos e iluminación.
- Se deberá repintar los diagramas de cargas y los pesos máximos en las plumas y plumines en los equipos en que no se vean claramente.
- La ejecución segura de una maniobra exige el conocimiento del peso de la carga por lo que , de no ser previamente conocido , deberá de obtenerse una aproximación por exceso sumándole al peso de la carga el de los elementos auxiliares.
- Conocido el peso de la carga , el gruista verificará en las tablas de trabajo , propias de cada grúa , que los ángulos de elevación y el alcance de la flecha seleccionados son correctos , de no ser así deberá modificar alguno de dichos parámetros.
- En cualquier caso , cuando el viento es excesivo el gruista interrumpirá temporalmente su trabajo y asegurará la flecha en posición de marcha del vehículo portante.
- En operaciones tales como rescate de vehículos , desmantelamiento de estructuras , etc. , la maniobra debe realizarse poniendo en ella una gran atención pues si la carga está aprisionada y la tracción no se ejerce verticalmente , el propio ángulo de tiro puede ser causa de que sobre la arista de trabajo se produzca un momento de carga superior al máximo admisible.
- Por otra parte deben de evitarse oscilaciones pendulares que , cuando la masa de la carga es grande , pueden adquirir amplitudes que pondrían en peligro la estabilidad de la máquina , por lo que en la ejecución de toda la maniobra se adoptará como NORMA GENERAL que el movimiento de la carga a lo largo de aquella se realice de forma armoniosa , es decir sin movimientos bruscos pues la suavidad de movimientos o pasos que se siguen en su realización inciden más directamente en la estabilidad que la lentitud o rapidez con que se ejecuten.

- No trabajar en pendientes superiores a 50 %. NTP - 79.
- Siempre que sea posible, colocar el equipo sobre una superficie llana, preparada y situada lo suficientemente lejos de zonas con riesgo de derrumbamiento. NTP - 126.
- Una pendiente se baja a la misma velocidad que se sube. No bajar nunca una pendiente con el motor parado o en punto muerto, bajar con una marcha puesta. NTP - 126.
- Para cualquier desplazamiento que deba de realizar la grúa móvil autopropulsada durante la realización de los trabajos sin carga , el operario antes del mismo deberá de recoger los estabilizadores laterales hasta su posición inicial al igual que la pluma y hasta entonces no podrá iniciar el cambio de posición.
- Las grúas móviles autopropulsadas, cuya puesta en el mercado no se haya hecho de conformidad con lo señalado en el R.D. 1435/1992 sobre Máquinas, deberán estar provistas y en correcto funcionamiento, como mínimo, de los elementos de seguridad siguientes :

A Grúas de hasta 80 Tn o de longitud de pluma con o sin plumín menor o igual de 60 m:

Final de carrera del órgano de aprehensión

Indicador del ángulo de pluma

Limitador de cargas

B Grúas de más de 80 Tn o de longitud de pluma con o sin plumín mayor de 60 m.:

Final de carrera del órgano de aprehensión

Indicador del ángulo de pluma

Indicador de carga en ganchos o indicador de momento de cargas

Limitador de cargas

- Limitador del momento de cargas . Dispositivo automático de seguridad para grúas telescópicas de todo tipo, que previene contra los riesgos de sobrecarga o de vuelco por sobrepasarse el máximo momento de carga admisible.
- La finalidad de este dispositivo es impedir que se sobrepase la curva de carga a seguir indicada por el fabricante. Generalmente actúa emitiendo una señal de alarma , luminosa o sonora , cuando el momento de carga llega a ser el 75 % del máximo admisible y bloqueando los circuitos hidráulicos al alcanzarse el 85% del valor de aquél.
- Final de carrera del órgano de aprehensión (Gancho) Dispositivo eléctrico que corta automáticamente el suministro de fuerza cuando el gancho se encuentra a la distancia mínima admisible del extremo de la pluma.
- La empresa deberá de proporcionar chalecos reflectantes a los trabajadores que se desplacen en obras o zonas de trabajo donde se produzca tránsito de maquinaria o vehículos y en especial en jornada nocturna
- Todo personal que realice trabajos en las proximidades de zonas de tránsito de maquinaria o vehículos y en especial en trabajos nocturnos , deberá estar provisto de prendas reflectantes adecuadas (equipos de protección individual certificados, con marcado CE).
- Antes de realizar tareas en presencia de líneas eléctricas aéreas, la empresa responsable de la obra deberá de tomar las medidas preventivas necesarias para eliminar la posibilidad de que se genere este riesgo y deberá de informar a la empresa propietaria de la grúa móvil autopropulsada. Las medidas técnicas y organizativas se encuentran especificadas en la parte específica del informe denominado trabajos en presencia de líneas eléctricas.
- Los operarios encargados del manejo de la grúa móvil autopropulsada , deberá de conocer previamente las medidas preventivas adoptadas para poder cumplirlas , así como conocer la forma de actuar en caso de accidente o contacto accidental.

- En toda maniobra debe existir un encargado con formación y capacidad necesaria para poder dirigirla , que será responsable de su correcta ejecución , el cual podrá estar auxiliado por uno o varios ayudantes de maniobra , si su complejidad así lo requiere.
- El gruista solamente deberá obedecer las órdenes del encargado de maniobra y de los ayudantes , en su caso, quienes serán fácilmente identificables por distintivos o atuendos que los distingan de los restantes operarios.
- Las ordenes serán emitidas mediante un código de ademanes que deberá de conocer perfectamente tanto el encargado de la maniobra y sus ayudantes como el gruista , quién a su vez responderá por medio de señales acústicas o luminosas. Generalmente se utiliza el código de señales definido por la norma UNE 003
- Durante el izado de la carga se evitará que el gancho alcance la mínima distancia admisible al extremo de la flecha , con el fin de reducir lo máximo posible la actuación del dispositivo Fin de carrera , evitando así el desgaste prematuro de contactos que pueden originar averías y accidentes.
- Cuando la maniobra requiere de desplazamiento del vehículo-grúa con la carga suspendida, es necesario que los maquinistas estén muy atentos a las condiciones del recorrido (terreno no muy seguro o con desnivel , cercanías líneas eléctricas , etc.) , mantengan las cargas lo más bajas posible , den numerosas y eficaces señales a su paso y estén atentos a la combinación de los efectos de la fuerza de inercia que puede imprimir el balanceo o movimiento de péndulo de la carga
- Se entenderá por zona de maniobra todo el espacio que cubra la pluma en su giro o trayectoria , desde el punto de amarre de la carga hasta el de colocación. Esta zona deberá de estar libre de obstáculos y previamente se deberá de comprobar que ha sido señalizada y acotada para evitar el paso de personal , en tanto dure la maniobra.
- Cuando la maniobra se realiza en un lugar de acceso público , tal como una carretera , el vehículo grúa dispondrá de luces intermitentes o giratorias de color amarillo – auto , situadas en un plano superior , que deberán permanecer encendidas únicamente durante

el tiempo necesario para su ejecución y con el fin de hacerse visible a distancia , especialmente durante la noche.

- Las cabinas, será de construcción cerrada y se instalarán de modo que el operador tenga durante las maniobras el mayor campo de visibilidad posible , tanto en las puertas de acceso como en los laterales y ventanas.
- Cuando se abandone el vehículo el operario deberá de llevarse la llave de contacto consigo.
- La máquina no se abandonará mientras penda una carga de ella. Cuando se vaya a abandonar el vehículo, se recogerá la pluma y el cable y se dejará con los seguros puestos, frenada y en posición horizontal.
- De acuerdo con lo establecido en la ITC MIE – AEM-4 del reglamento de aparatos de elevación , aprobada por el R.D. 837/2003 :
- Corresponderá al operador de la empresa alquiladora o titular de la grúa las operaciones de montaje y de manejo de ésta, y especialmente a) En el montaje: La conducción de la grúa móvil. La instalación y comprobación del funcionamiento del indicador de capacidad/limitador de capacidad, así como de todos los dispositivos de seguridad de la grúa. El emplazamiento de la grúa a partir de los datos sobre resistencia del terreno, pesos, balance de cargas y distancias, alturas y profundidades a operar durante las maniobras, debidamente aportadas por el arrendatario.
- Corresponderá al operador de la empresa alquiladora o titular de la grúa las operaciones de montaje y de manejo de ésta, y especialmente b) En el manejo: La conducción de la grúa móvil. Conocer las instrucciones del fabricante para las operaciones de elevación y mantenimiento de la grúa. La aplicación de la información contenida en registros y tablas de cargas relativas al rango de usos y de un uso seguro de la grúa. Comprobar el funcionamiento del limitador de cargas y el indicador de cargas. El uso correcto y seguro de los gatos de apoyo y de la colocación de las placas de apoyo de éstos. El

funcionamiento de la grúa, teniendo en cuenta los efectos del viento y otros efectos climáticos sobre la carga y sobre la grúa.

- Igualmente será responsabilidad de la empresa usuaria de la grúa móvil autopropulsada especialmente la elección de la grúa de/con capacidad adecuada a/para los servicios que se solicitan. La designación del jefe de maniobra, responsable de la supervisión y dirección de la maniobra. La eliminación de obstáculos que impliquen riesgos, incluidas las líneas eléctricas de alta y baja tensión con conductores desnudos, o, en caso de ser imposible su eliminación, la toma de las medidas preventivas oportunas. La comprobación de que el terreno sobre el que va a trabajar y circular la grúa tenga la resistencia suficiente. Ejecutar, con personas debidamente formadas, las técnicas y labores de estrobaje y señalización.
- La empresa deberá autorizar por escrito el uso de la maquinaria.
- Los trabajadores antes de comenzar a trabajar deberán de realizar una comprobación de las luces de frenos, intermitentes, marcha atrás, etc., comprobación de las luces de gálibo, comprobación del freno de inmovilización y el de servicio y el estado y presión de inflado de los neumáticos. También deberá de verificar el perfecto estado y funcionamiento de todos los sistemas de seguridad del equipo de elevación y movimiento de cargas.
- Los vehículos utilizados deben de estar en perfecto estado operacional. Para ello, deberá de pasar periódicamente las revisiones indicadas por el fabricante y la ITV. Además deberá de informar a los trabajadores que antes de iniciar la marcha se deberá hacer una comprobación rápida del correcto hinchado de los neumáticos, todas las luces, frenos y pilotos de seguridad del vehículo así como de los sistemas de seguridad del equipo de elevación y manipulación de cargas.
- Las grúas móviles autopropulsadas deberán cumplir con todo lo establecido en la Instrucción Técnica Complementaria (ITC) <<MIE-AEM-4>>, referente a grúas móviles autopropulsadas aprobado por el R. D. 837/2003, de 27 de junio.

- Para todas las grúas móviles autopropulsadas antes de su primer uso, a partir del 27/06/03, su titular deberá presentar por duplicado, ante el órgano competente de la comunidad autónoma en que radique su domicilio social, una declaración de adecuación individualizada del parque de grúas móviles autopropulsadas que integren la empresa. Esta declaración contendrá como mínimo, lo siguiente: a) Nombre y dirección del propietario de la grúa, o de su representante legal. b) Datos identificativos de la grúa (marca, tipo, número de serie, etc.), acompañada por las descripciones, planos, fotografías, etc., necesarios para definirla. c) Certificado de adecuación de la grúa a las prescripciones técnicas correspondientes del anexo I de la ITC MIE-AEM-4 (Equipo Hidráulico, Cables, Ganchos, Contrapesos, Cabinas de mando, Corona de orientación y Otros elementos de seguridad), firmado por el organismo de control, con indicación de las soluciones adoptadas para su cumplimiento. d) Manual de instrucciones de la grúa.

- Las grúas móviles autopropulsadas serán revisadas por un organismo de control, facultado para la aplicación del Reglamento de aparatos de elevación y manutención. Toda grúa móvil autopropulsada, conforme con las prescripciones establecidas en la ITC MIE-AEM-4, deberá colocar en parte fácilmente visible de la cabina de la grúa, y bajo la responsabilidad del organismo de control que realice la inspección, una placa adhesiva de color verde en la que figuren los siguientes datos: Nombre de la comunidad autónoma. ITGA. R.A.E.-4: 0001 etc. Nº Serie o en su caso el de bastidor.

- Fecha de la próxima inspección (mes y año).

    - Las grúas de hasta seis años de antigüedad serán revisadas cada tres años.

    - Las grúas de más de seis años y hasta 10 años de antigüedad serán revisadas cada dos años.

    - Las grúas de más de 10 años de antigüedad o que no acrediten la fecha de acreditación serán revisadas cada año.

- Las grúas móviles autopropulsadas objeto de la ITC MIE-AEM-4 serán revisadas de acuerdo con lo establecido por el fabricante de la grúa móvil o de los conjuntos

incorporados a ésta, en los manuales específicos para revisión y mantenimiento, cumpliendo con lo establecido en el capítulo cinco de la norma UNE 58-508-78. El mantenimiento y revisiones de las grúas serán responsabilidad del propietario. Las revisiones serán realizadas por las empresas conservadoras que cumplan con lo establecido en los artículos 10 y 12 del reglamento de aparatos de elevación y manutención.

Control

- Las revisiones que deba efectuar la empresa conservadora se realizarán, como mínimo, cada seis meses, conforme a las prescripciones de la norma UNE 58-508-78, y deberá quedar reflejado el resultado de esta revisión en el libro historial de la grúa móvil autopropulsada.
- Para el correcto montaje y manejo de las grúas móviles autopropulsadas, la persona que trabaja con ella, deberá contar con un carné oficial de operador de grúa móvil autopropulsada de, al menos, categoría igual o superior a la correspondiente a su carga nominal. Cat. A: Habilita para el montaje y manejo de grúas móviles autopropulsadas de hasta 130 t. de carga nominal inclusive. Cat. B: Habilita para el montaje y manejo de grúas móviles autopropulsadas de más de 130 t. de carga nominal. Para la obtención del carné deberá cumplir:
    - 1) Poseer el título de estudios primarios.
    - 2) Tener cumplidos 18 años en el momento de solicitud del curso.
    - 3) Superar un curso teórico- práctico impartido por una entidad acreditada por el órgano competente de la comunidad autónoma.
    - 4) La superación de un examen teórico- práctico realizado por el órgano competente de la comunidad autónoma en al que se impartió el curso.

- 5) Superar un examen médico, psicotécnico y físico, específico para este tipo de actividades, que incluye examen sobre agudeza visual, sentido de la orientación, equilibrio y agudeza auditiva.

- El carné de operador de grúa móvil autopropulsada tendrá una validez de cinco años, transcurridos los cuales podrá ser objeto de renovación por periodos quinquenales.
- Las personas que antes de seis meses desde la entrada en vigor de esta disposición (27/06/03) acrediten experiencia profesional en el manejo de grúas móviles autopropulsadas durante un mínimo de 12 meses continuos o 18 meses discontinuos, siempre dentro de los 5 años anteriores a la entrada en vigor de esta norma, quedarán exceptuadas de la realización del módulo práctico del curso de la categoría correspondiente a la carga nominal de la grúa móvil autopropulsada cuyo manejo se acredite, así como del requisito de poseer el título de estudios primarios. La acreditación de experiencia estará formada por al menos:
    - 1) Vida laboral del trabajador, expedida por el INSS.
    - 2) Certificación de las empresas titulares de las grúas móviles autopropulsadas, con las que se ejerció la actividad o, en su caso, por la correspondiente sociedad estatal de estiba y desestiba.

RECURSO PREVENTIVO – GRÚA MÓVIL AUTOPROPULSADA

ACTIVIDADES DE VIGILANCIA DEL RECURSO PREVENTIVO

En esta unidad de obra, estas actividades de vigilancia servirán para garantizar el cumplimiento de los métodos de trabajo, de las medidas preventivas y del control del riesgo.

Los Recursos Preventivos vigilaran que el operador de esta máquina durante los desplazamientos, trabajos y demás operaciones por la obra, cumple con todas las -Actividades de Prevención y Protecciones Colectivas- establecidas anteriormente, utilizando los -Equipos de Protección Individual previstos.

CAMIÓN TRANSPORTE

Operaciones a desarrollar previstas en el proyecto

Utilizaremos el camión de trasporte en diversas operaciones en la obra, por la capacidad de la cubeta, utilizándose en transporte de materiales, tierras, y otras operaciones de la obra, permitiendo realizar notables economías en tiempos de transporte y carga.

Permiten obtener un rendimiento óptimo de la parte motriz reduciendo los tiempos de espera y de maniobra junto a la excavadora.

La pista que una los puntos de carga y descarga debe ser lo suficientemente ancha para permitir la circulación incluso el cruce de ellos.

Este tipo de transporte ha sido elegido porque se considera que para la naturaleza de las operaciones a realizar en la obra es el más apropiado desde el punto de vista de la seguridad.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Atropello de personas

Choques contra otros vehículos

Vuelcos por fallo de taludes

Vuelcos por desplazamiento de carga

Atrapamientos, por ejemplo al bajar la caja

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad (de uso obligatorio para abandonar la cabina).

Ropa de trabajo.

Guantes de cuero.

Cinturón elástico antivibratorio.

Calzado antideslizante.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

La máquina dispondrá de marcado CE, declaración de conformidad y manual de instrucciones o en su defecto se habrá sometido a puesta en conformidad de acuerdo con lo que especifica el RD 1215/97.

Los operadores de esta máquina deberán estar debidamente acreditados y haber sido instruidos en las tareas a realizar en la obra.

Antes de iniciar los trabajos, comprobar que todos los dispositivos de la máquina responden correctamente y están en perfecto estado.

Si se tratase de un vehículo de marca y tipo que previamente no ha manejado, solicite las instrucciones pertinentes. Antes de subir a la cabina para arrancar, inspeccionar alrededor y debajo del vehículo, por si hubiera alguna anomalía. Se deberá hacer sonar el claxon inmediatamente antes de iniciar la marcha.

Se comprobarán los frenos después de un lavado o de haber atravesado zonas de agua. No se podrá circular por el borde de excavaciones o taludes.

Quedará totalmente prohibido la utilización de móviles (teléfono móvil particular) durante el manejo de la maquinaria. No se deberá circular nunca en punto muerto.

No se deberá circular demasiado próximo al vehículo que lo preceda. No se deberá transportar pasajeros fuera de la cabina.

Se deberá bajar el basculante inmediatamente después de efectuar la descarga, evitando circular con el levantado. No se deberá realizar revisiones o reparaciones con el basculante levantado, sin haberlo calzado previamente.

Todos los camiones que realicen labores de transporte en esta obra estarán en perfectas condiciones de mantenimiento y conservación.

Antes de iniciar las labores de carga y descarga estará el freno de mano puesto y las ruedas estarán inmovilizadas con cuñas.

El izado y descenso de la caja se realizará con escalera metálica sujeta al camión.

Si hace falta, las maniobras de carga y descarga serán dirigidas por el encargado de seguridad. La carga se tapará con una lona para evitar desprendimientos.

Las cargas se repartirán uniformemente por la caja, y si es necesario se atarán.

A) Medidas Preventivas a seguir en los trabajos de carga y descarga.

El encargado de seguridad o el encargado de obra, entregará por escrito el siguiente listado de medidas preventivas al Jefe de la cuadrilla de carga y descarga. De esta entrega quedará constancia con la firma del Jefe de cuadrilla al pie de este escrito.

Pedir guantes de trabajo antes de hacer trabajos de carga y descarga, se evitarán lesiones molestas en las manos. Usar siempre calzado de seguridad, se evitarán golpes en los pies.

Subir a la caja del camión con una escalera.

Seguir siempre las indicaciones del Jefe del equipo, es un experto que vigila que no haya accidentes. Las cargas suspendidas se han de conducir con cuerdas y no tocarlas nunca directamente con las manos. No saltar a tierra desde la caja, peligro de fractura de los talones.

GENERADORES Y COMPRESORES - COMPRESOR

Operaciones a desarrollar previstas en el proyecto

Utilizaremos en esta obra el compresor para la alimentación de los diferentes martillos neumáticos que en diferentes tajos vamos a necesitar.

Aunque el compresor es una parte del grupo, por extensión consideraremos como compresor al grupo moto-compresor completo.

La misión es producir aire comprimido, generalmente a 7 Bares, que es lo que necesitan para su funcionamiento los martillos o perforadores neumáticos que se van a utilizar en esta obra.

El grupo moto-compresor está formado por dos elementos básicos: El compresor, cuya misión es conseguir un caudal de aire a una determinada presión; El motor, que con su potencia a un determinado régimen transmite el movimiento al compresor.

Los factores a tener en cuenta para determinar el compresor adecuado a las necesidades de esta obra son: la presión máxima de trabajo y el caudal máximo de aire.

La presión de trabajo se expresa en Atmósferas. (La fija el equipo, máquina o herramienta que trabaja conectada a él) y es la fuerza por unidad de superficie (Kg. /cm2) que necesitan las herramientas para su funcionamiento.

El caudal de aire es la cantidad que debe alimentar a la herramienta, a una determinada presión, para el buen funcionamiento de ésta y se mide en m3/minuto.

Si el motor alimenta varios equipos que trabajan a diferentes presiones el compresor deberá tener la presión del equipo de mayor presión. Protegiéndose con un mano-reductor los equipos que trabajen a una presión excesiva.

Para calcular el caudal de aire libre que necesita la obra, hemos sumado el consumo de aire de todos los equipos, en litros por minuto. Al valor obtenido se le ha aplicado un factor de simultaneidad. También hemos tenido en cuenta una reserva para posibles ampliaciones.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Vuelcos

Atrapamientos de personas

Desprendimiento durante su transporte en suspensión

Ruido y vibraciones

Rotura de la manguera de presión

Los derivados de la emanación de gases tóxicos del motor

Incendio y/o explosión del motor

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

El compresor no se colocará ni se arrastrará a menos de 2 metros del borde superior de los taludes. El transporte por suspensión se realizará con 2 cables y con cuatro puntos de anclaje.

El compresor se quedará en el lugar previsto, firmemente sujetado de manera que no se pueda desplazar por sí solo. Mientras funcione, las carcasas estarán en todo momento en posición de cerrado.

A menos de 4 metros de distancia será obligatorio el uso de protectores auditivos.

Si es posible, los compresores se situarán a una distancia mínima de 15 metros del lugar de trabajo. El combustible se pondrá con la máquina parada.

Las mangueras de presión estarán en todo momento en perfecto estado. El encargado de seguridad o el encargado de obra vigilará el estado de las mangueras y se preocupará de su sustitución.

Los mecanismos de conexión se harán con los racores correspondientes, nunca con alambres. Se dispondrá siempre de ventilación apropiada, debiendo de colocarse en sitios a la intemperie.

MEDIOS AUXILIARES

ANDAMIOS

Andamios en general

Operaciones a desarrollar previstas en el proyecto

Los andamios deberán proyectarse, montarse y mantenerse convenientemente de manera que se evite que se desplomen o se desplacen accidentalmente.

Cuando no se disponga de la nota de cálculo del andamio elegido, o cuando las configuraciones estructurales previstas no estén contempladas en ella, deberá efectuarse un cálculo de resistencia y estabilidad, a menos que el andamio esté montado según una configuración tipo generalmente reconocida.

Sin embargo, cuando se trate de andamios que dispongan del marcado CE, por serles de aplicación una normativa específica en materia de comercialización, el citado plan podrá ser sustituido por las instrucciones específicas del fabricante, proveedor o suministrador, sobre el montaje, la utilización y el desmontaje de los equipos, salvo que estas operaciones se realicen de forma o en condiciones o circunstancias no previstas en dichas instrucciones.

En función de la complejidad del andamio elegido, deberá elaborarse un plan de montaje, de utilización y de desmontaje. Este plan y el cálculo a que se refiere el apartado anterior deberán ser realizados por una persona con una formación universitaria que lo habilite para la realización de estas actividades. Este plan podrá adoptar la forma de un plan de aplicación generalizada, completado con elementos correspondientes a los detalles específicos del andamio de que se trate.

Las dimensiones de las diversas piezas y elementos auxiliares (cables, cuerdas, alambres, etc.) serán las suficientes para que las cargas de trabajo a las que, por su función y destino, vayan a estar sometidas no sobrepasen las establecidas para cada clase de material.

Los elementos y sistemas de unión de las diferentes piezas constitutivas del andamio, además de cumplir con la condición precedente, asegurarán perfectamente su función de enlace con las debidas condiciones de fijeza y permanencia.

El andamio se organizará y armará en forma constructivamente adecuada para que quede asegurada su estabilidad y al mismo tiempo para que los trabajadores puedan estar en él con las debidas condiciones de seguridad, siendo también extensivas estas últimas a los restantes trabajadores de la obra.

Las plataformas de trabajo, las pasarelas y las escaleras de los andamios deberán construirse, dimensionarse, protegerse y utilizarse de forma que se evite que las personas caigan o estén expuestas a caídas de objetos. A tal efecto, sus medidas se ajustarán al número de trabajadores que vayan a utilizarlos.

En cualquier caso las plataformas tendrán una anchura no menor a:

- 0,60 metros cuando se utilice únicamente para sostener personas y no para depositar, sobre ella, materiales.
- 0,80 metros cuando en la plataforma se depositen materiales.
- 1,10 metros cuando se la utilice para sostener otra plataforma más elevada.
- 1,30 metros cuando se la utilice para el desbaste e igualado de piedras.
- 1,50 metros cuando se utilice para sostener otra plataforma más elevada, usada para el desbaste e igualado de piedras.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas a distinto nivel

Caídas al mismo nivel

Desplome del andamio

Desplome o caída de objetos (tablones, herramienta, materiales)

Golpes por objetos o herramientas

Atrapamientos

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Ropa de trabajo.

Guantes de cuero.

Calzado de seguridad.

Arnés de seguridad.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los andamios sólo podrán ser montados, desmontados o modificados sustancialmente bajo la dirección de una persona con una formación universitaria o profesional que lo habilite para ello, y por trabajadores que hayan recibido una formación adecuada y específica para las operaciones previstas, que les permita enfrentarse a riesgos específicos de conformidad con las disposiciones del artículo 5, destinada en particular a:

La comprensión del plan de montaje, desmontaje o transformación del andamio de que se trate.

La seguridad durante el montaje, el desmontaje o la transformación del andamio de que se trate.

Las medidas de prevención de riesgos de caída de personas o de objetos.

Las medidas de seguridad en caso de cambio de las condiciones meteorológicas que pudiesen afectar negativamente a la seguridad del andamio de que se trate.

Las condiciones de carga admisible.

Cualquier otro riesgo que entrañen las mencionadas operaciones de montaje, desmontaje y transformación.

Tanto los trabajadores afectados como la persona que supervise dispondrán del plan de montaje y desmontaje mencionado en el apartado 4.3.3, incluyendo cualquier instrucción que pudiera contener.

Cuando no sea necesaria la elaboración de un plan de montaje, utilización y desmontaje, las operaciones previstas en este apartado podrán también ser dirigidas por una persona que disponga de una experiencia

certificada por el empresario en esta materia de más de dos años y cuente con la formación preventiva correspondiente, como mínimo, a las funciones de nivel básico, conforme a lo previsto en el apartado 1 del artículo 35 del Reglamento de los Servicios de Prevención, aprobado por el Real Decreto 39/1997, de 17 de enero.

Para garantizar técnicamente en la obra que los andamios utilizados no se desplomen o se desplacen accidentalmente se deberán utilizar -Andamios normalizados- :

a) Estos andamios normalizados deberán cumplir las especificaciones del fabricante respecto al proyecto de obra, montaje, utilización, mantenimiento y desmontaje de los mismos.

En el supuesto de utilizar - Andamios no normalizados - Se requerirá una nota de cálculo en la que se justifique la estabilidad y solidez del andamio, así como incluirá las instrucciones de montaje, utilización, mantenimiento y desmontaje de los mismos.

a) A estos efectos se entenderá que cuando un andamio normalizado se instale o modifique componiendo sus elementos de manera no prevista por el fabricante (por ejemplo soldando componentes), el mismo se tratará a efectos como - No Normalizado -.

Además se deberán tener siempre en cuenta las siguientes medidas preventivas:

Los andamios siempre se arriostrarán para evitar los movimientos indeseables que pueden hacer perder el equilibrio a los trabajadores.

Antes de subirse a una plataforma andamiada deberá revisarse toda su estructura para evitar las situaciones inestables.

Los tramos verticales (módulos o pies derechos) de los andamios, se apoyarán sobre tablones de reparto de cargas.

Los pies derechos de los andamios en las zonas de terreno inclinado, se suplementarán mediante tacos o porciones de tablón, trabadas entre sí y recibidas al durmiente de reparto.

Las plataformas de trabajo tendrán un mínimo de 60 cm. de anchura y estarán firmemente ancladas a los apoyos de tal forma que se eviten los movimientos por deslizamiento o vuelco.

Las plataformas de trabajo, poseerán barandillas. Las barandillas deberán ser resistentes, de una altura mínima de 90 centímetros y de una protección intermedia y de un rodapié. Resultan aconsejables en obra las barandillas de 1 metro de altura.

Las plataformas de trabajo permitirán la circulación e intercomunicación necesaria para la realización de los trabajos.

Los tablones que formen las plataformas de trabajo estarán sin defectos visibles, con buen aspecto y sin nudos que mermen su resistencia. Estarán limpios, de tal forma, que puedan apreciarse los defectos por uso y su canto será de 7 cm. como mínimo.

Se prohibirá abandonar en las plataformas sobre los andamios, materiales o herramientas. Pueden caer sobre las personas o hacerles tropezar y caer al caminar sobre ellas.

Se prohibirá arrojar escombros directamente desde los andamios. El escombro se recogerá y se descargará de planta en planta, o bien se verterá a través de trompas.

Se prohibirá fabricar morteros (o similares) directamente sobre las plataformas de los andamios.

La distancia de separación de un andamio y el paramento vertical de trabajo no será superior a 30 cm (recomendable 20 cm) en prevención de caídas.

Se prohibirá expresamente correr por las plataformas sobre andamios, para evitar los accidentes por caída.

Se prohibirá -saltar- de la plataforma andamiada al interior del edificio; el paso se realizará mediante una pasarela instalada para tal efecto.

Los elementos de apoyo de un andamio deberán estar protegidos contra el riesgo de deslizamiento, ya sea mediante sujeción en la superficie de apoyo, ya sea mediante un dispositivo antideslizante, o bien mediante cualquier otra solución de eficacia equivalente, y la superficie portante deberá tener una capacidad suficiente. Se deberá garantizar la estabilidad del andamio. Deberá impedirse mediante dispositivos adecuados el desplazamiento inesperado de los andamios móviles durante los trabajos en altura.

Las dimensiones, la forma y la disposición de las plataformas de un andamio deberán ser apropiadas para el tipo de trabajo que se va a realizar, ser adecuadas a las cargas que hayan de soportar y permitir que se

trabaje y circule en ellas con seguridad. Las plataformas de los andamios se montarán de tal forma que sus componentes no se desplacen en una utilización normal de ellos. No deberá existir ningún vacío peligroso entre los componentes de las plataformas y los dispositivos verticales de protección colectiva contra caídas.

Cuando algunas partes de un andamio no estén listas para su utilización, en particular durante el montaje, el desmontaje o las transformaciones, dichas partes deberán contar con señales de advertencia de peligro general, con arreglo al Real Decreto 485/1997, de 14 de abril, sobre señalización de seguridad y salud en el centro de trabajo, y delimitadas convenientemente mediante elementos físicos que impidan el acceso a la zona de peligro.

La altura libre entre los distintos niveles de plataforma debe ser 1,90 m.

Se determinarán e instalarán previamente al montaje del andamio los puntos de anclaje a los que irá sujeto.

Los arriostramientos se efectuarán correctamente con barras rígidas abrazaderas, quedando absolutamente prohibido hacerlo con cuerdas, alambres, etc.

Los andamios deberán ser inspeccionados por una persona con una formación universitaria o profesional que lo habilite para ello:

Antes de su puesta en servicio.

A continuación, periódicamente.

Tras cualquier modificación, período de no utilización, exposición a la intemperie, sacudidas sísmicas, o cualquier otra circunstancia que hubiera podido afectar a su resistencia o a su estabilidad.

Cuando no sea necesaria la elaboración de un plan de montaje, utilización y desmontaje, las operaciones previstas en este apartado podrán también ser dirigidas por una persona que disponga de una experiencia certificada por el empresario en esta materia de más de dos años y cuente con la formación preventiva correspondiente, como mínimo, a las funciones de nivel básico, conforme a lo previsto en el apartado 1 del artículo 35 del Reglamento de los Servicios de Prevención, aprobado por el Real Decreto 39/1997, de 17 de enero.

Los elementos que denoten algún fallo técnico o mal comportamiento se desmontarán de inmediato para su reparación (o sustitución).

Los reconocimientos médicos previos para la admisión del personal que deba trabajar sobre los andamios de esta obra, intentarán detectar aquellos trastornos orgánicos (vértigo, epilepsia, trastornos cardiacos, etc.), que puedan padecer y provocar accidentes al operario. Los resultados de los reconocimientos se presentarán al Coordinador de Seguridad y Salud en ejecución de obra

ANDAMIOS METÁLICOS TUBULARES EUROPEOS

Operaciones a desarrollar previstas en el proyecto

El andamio metálico tubular está comercializado con todos los sistemas de seguridad que lo hacen seguro (escaleras, barandillas, pasamanos, rodapiés, superficies de trabajo, bridas y pasadores de anclaje de los tablones, etc.) debiéndose por lo tanto hacer uso de ellos en caso de necesidad.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas a distinto nivel

Caídas al mismo nivel

Atrapamientos durante el montaje y desmontaje

Caída de objetos

Golpes por objetos

Sobreesfuerzos

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Ropa de trabajo.

Guantes de cuero.

Calzado de seguridad.

Arnés de seguridad.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Los andamios deberán proyectarse, montarse y mantenerse convenientemente de manera que se evite que se desplomen o se desplacen accidentalmente. Las plataformas de trabajo, las pasarelas y las escaleras de los andamios deberán construirse, dimensionarse, protegerse y utilizarse de forma que se evite que las personas caigan o estén expuestas a caídas de objetos. A tal efecto, sus medidas se ajustarán al número de trabajadores que vayan a utilizarlos.

Cuando no se disponga de la nota de cálculo del andamio elegido, o cuando las configuraciones estructurales previstas no estén contempladas en ella, deberá efectuarse un cálculo de resistencia y estabilidad, a menos que el andamio esté montado según una configuración tipo generalmente reconocida.

En función de la complejidad del andamio elegido, deberá elaborarse un plan de montaje, de utilización y de desmontaje. Este plan y el cálculo a que se refiere el apartado anterior deberán ser realizados por una persona con una formación universitaria que lo habilite para la realización de estas actividades. Este plan podrá adoptar la forma de un plan de aplicación generalizada, completado con elementos correspondientes a los detalles específicos del andamio de que se trate.

Cuando se trate de andamios que dispongan del marcado CE, por serles de aplicación una normativa específica en materia de comercialización, el citado plan podrá ser sustituido por las instrucciones específicas del fabricante, proveedor o suministrador, sobre el montaje, la utilización y el desmontaje de los equipos, salvo que estas operaciones se realicen de forma o en condiciones o circunstancias no previstas en dichas instrucciones.

Los elementos de apoyo de un andamio deberán estar protegidos contra el riesgo de deslizamiento, ya sea mediante sujeción en la superficie de apoyo, ya sea mediante un dispositivo antideslizante, o bien mediante cualquier otra solución de eficacia equivalente, y la superficie portante deberá tener una capacidad suficiente. Se deberá garantizar la estabilidad del andamio.

Las dimensiones, la forma y la disposición de las plataformas de un andamio deberán ser apropiadas para el tipo de trabajo que se va a realizar, ser adecuadas a las cargas que hayan de soportar y permitir que se trabaje y circule en ellas con seguridad. Las plataformas de los andamios se montarán de tal forma que sus componentes no se desplacen en una utilización normal de ellos. No deberá existir ningún vacío peligroso entre los componentes de las plataformas y los dispositivos verticales de protección colectiva contra caídas.

Cuando algunas partes de un andamio no estén listas para su utilización, en particular durante el montaje, el desmontaje o las transformaciones, dichas partes deberán contar con señales de advertencia de peligro general, con arreglo al Real Decreto 485/1997, de 14 de abril, sobre señalización de seguridad y salud en el centro de trabajo, y delimitadas convenientemente mediante elementos físicos que impidan el acceso a la zona de peligro.

Los andamios sólo podrán ser montados, desmontados o modificados sustancialmente bajo la dirección de una persona con una formación universitaria o profesional que lo habilite para ello, y por trabajadores que hayan recibido una formación adecuada y específica para las operaciones previstas, que les permita enfrentarse a riesgos específicos de conformidad con las disposiciones del artículo 5, destinada en particular a:

La comprensión del plan de montaje, desmontaje o transformación del andamio de que se trate.

La seguridad durante el montaje, el desmontaje o la transformación del andamio de que se trate.

Las medidas de prevención de riesgos de caída de personas o de objetos.

Las medidas de seguridad en caso de cambio de las condiciones meteorológicas que pudiesen afectar negativamente a la seguridad del andamio de que se trate.

Las condiciones de carga admisible.

Cualquier otro riesgo que entrañen las mencionadas operaciones de montaje, desmontaje y transformación.

Tanto los trabajadores afectados como la persona que supervise dispondrán del plan de montaje y desmontaje mencionado, incluyendo cualquier instrucción que pudiera contener.

Cuando no sea necesaria la elaboración de un plan de montaje, utilización y desmontaje, las operaciones previstas en este apartado podrán también ser dirigidas por una persona que disponga de una experiencia certificada por el empresario en esta materia de más de dos años y cuente con la formación preventiva correspondiente, como mínimo, a las funciones de nivel básico, conforme a lo previsto en el apartado 1 del artículo 35 del Reglamento de los Servicios de Prevención, aprobado por el Real Decreto 39/1997, de 17 de enero.

Los andamios deberán ser inspeccionados por una persona con una formación universitaria o profesional que lo habilite para ello:

Antes de su puesta en servicio.

A continuación, periódicamente.

Tras cualquier modificación, período de no utilización, exposición a la intemperie, sacudidas sísmicas, o cualquier otra circunstancia que hubiera podido afectar a su resistencia o a su estabilidad.

Para garantizar técnicamente en la obra que los andamios utilizados no se desplomen o se desplacen accidentalmente se deberán utilizar - Andamios normalizados -. Estos andamios normalizados deberán cumplir las especificaciones del fabricante respecto al proyecto de obra, montaje, utilización, mantenimiento y desmontaje de los mismos.

La empresa a cuyo cargo se instale el andamio deberá establecer el procedimiento necesario para que una persona competente realice las inspecciones y pruebas correspondientes.

Los resultados de estas inspecciones deberán documentarse mediante un Acta, conservándose durante el tiempo que permanezca instalado el andamio.

Durante el montaje de los andamios metálicos tubulares se tendrán presentes las siguientes especificaciones preventivas: No se iniciará un nuevo nivel sin antes haber concluido el nivel de partida con todos los elementos de estabilidad (cruces de San Andrés, y arriostramientos).

El izado del material que forma el andamio (barras, módulos tubulares, tablones, etc.) se realizará mediante eslingas normalizadas, a ser posible con el auxilio de un cabrestante mecánico cuando la altura supere las cuatro plantas.

La seguridad alcanzada en el nivel de partida ya consolidada será tal, que ofrecerá las garantías necesarias como para poder amarrar a él el fiador del arnés de seguridad.

Las plataformas de trabajo se consolidarán inmediatamente tras su formación, mediante las abrazaderas de sujeción contra basculamientos o los arriostramientos correspondientes.

Las uniones entre tubos se efectuarán mediante los -nudos- o -bases- metálicas, o bien mediante las mordazas y pasadores previstos, según los modelos comercializados.

Las plataformas de trabajo tendrán un mínimo de 60 cm. de anchura.

Las plataformas de trabajo se limitarán delantera, lateral y posteriormente, por un rodapié de 15 cm.

Las plataformas de trabajo estarán protegidas por medio de una barandilla metálica de un mínimo de un metro de altura, barra intermedia y rodapié de altura mínima de 15 centímetros en todos los lados de su contorno, con excepción de los lados que disten de la fachada menos de 20 centímetros.

Las plataformas de trabajo, se inmovilizarán mediante las abrazaderas y pasadores clavados a los tablones.

Los módulos de fundamento de los andamios tubulares, estarán dotados de las bases nivelables sobre tornillos sin fin (husillos de nivelación), con el fin de garantizar una mayor estabilidad del conjunto.

Los módulos de base de los andamios tubulares, se apoyarán sobre tablones de reparto de cargas en las zonas de apoyo directo sobre el terreno.

El entablado que forma el piso de las plataformas se compondrán preferentemente de planchetas metálicas; si fuesen tablones de madera éstos se sujetará a la estructura firmemente para evitar el deslizamiento y caída.

Los montadores cuidarán especialmente que las diferentes piezas queden adecuadamente enlazadas y sujetas mediante la aplicación segura de las bridas o juntas, de acuerdo con las indicaciones del fabricante.

La altura libre entre los distintos niveles de plataforma debe ser 1,90 m.

Los módulos de base de diseño especial para el paso de peatones, se complementarán con entablados y viseras seguras a

-nivel de techo- en prevención de golpes a terceros.

La comunicación vertical del andamio tubular quedará resuelta mediante la utilización de escaleras prefabricadas (elemento auxiliar del propio andamio).

Se prohibirá expresamente en esta obra el apoyo de los andamios tubulares sobre suplementos formados por bidones, pilas de materiales diversos, -torretas de maderas diversas- y similares.

Las plataformas de apoyo de los tornillos sin fin (husillos de nivelación), de base de los andamios tubulares dispuestos sobre tablones de reparto, se clavarán a éstos con clavos de acero, hincados a fondo y sin doblar.

Todos los componentes de los andamios deberán mantenerse en buen estado de conservación desechándose aquellos que presenten defectos, golpes o acusada oxidación.

Los andamios tubulares sobre módulos con escalerilla lateral, se montarán con ésta hacia la cara exterior, es decir, hacia la cara en la que no se trabaja.

Es práctica corriente el -montaje de revés- de los módulos en función de la operatividad que representa, la posibilidad de montar la plataforma de trabajo sobre determinados peldaños de la escalerilla. Evite estas prácticas por inseguras.

Se prohibirá en esta obra el uso de andamios sobre borriquetas (pequeñas borriquetas), apoyadas sobre las plataformas de trabajo de los andamios tubulares.

Los andamios tubulares se montarán a una distancia igual o inferior a 30 cm (recomendable 20 cm) del paramento vertical en el que se trabaja.

Se determinarán e instalarán previamente al montaje del andamio los puntos de anclaje a los que ira sujeta.

Los andamios tubulares se arriostrarán a los paramentos verticales, anclándolos sólidamente a los puntos fuertes de seguridad- previstos en fachadas o paramentos.

Los arriostramientos se efectuarán correctamente con barras rígidas abrazaderas, quedando absolutamente prohibido hacerlo con cuerdas, alambres, etc.

Las cargas se izarán hasta las plataformas de trabajo mediante garruchas montadas sobre horcas tubulares sujetas mediante un mínimo de dos bridas al andamio tubular.

Se prohibirá hacer -pastas- directamente sobre las plataformas de trabajo en prevención de superficies resbaladizas que pueden hacer caer a los trabajadores.

Los materiales se repartirán uniformemente sobre las plataformas de trabajo en prevención de accidentes por sobrecargas innecesarias.

Los materiales se repartirán uniformemente sobre un tablón ubicado a media altura en la parte posterior de la plataforma de trabajo, sin que su existencia merme la superficie útil de la plataforma.

ESCALERA DE MANO

Operaciones a desarrollar previstas en el proyecto

Utilizaremos este medio auxiliar en diferentes tajos de la obra.

Aunque suele ser objeto de -prefabricación rudimentaria- en especial al comienzo de la obra o durante la fase de estructura, las escaleras utilizadas en esta obra serán homologadas y si son de madera no estarán pintadas.

Las escaleras prefabricas con restos y retales son prácticas contrarias a la Seguridad de esta obra. Debe por lo tanto impedirse la utilización de las mismas en la obra.

Las escaleras de mano deberán tener la resistencia y los elementos necesarios de apoyo o sujeción, para que su utilización en las condiciones para las que han sido diseñados no suponga un riesgo de caída por rotura o desplazamiento.

La utilización de una escalera de mano como puesto de trabajo en altura deberá limitarse a las circunstancias en que, habida cuenta de lo dispuesto en el apartado 4.1.1 del RD 1215/1997, la utilización de otros equipos de trabajo más seguros no esté justificada por el bajo nivel de riesgo y por las características de los emplazamientos que el empresario no pueda modificar.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas al mismo nivel

Caídas a distinto nivel

Caída de objetos sobre otras personas

Contactos eléctricos directos o indirectos

Atrapamientos por los herrajes o extensores

Deslizamiento por incorrecto apoyo (falta de zapatas, etc.)

Vuelco lateral por apoyo irregular

Rotura por defectos ocultos

Los derivados de los usos inadecuados o de los montajes peligrosos (empalme de escaleras, formación de plataformas de trabajo, escaleras -cortas- para la altura a salvar, etc.)

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Ropa de trabajo.

Guantes de cuero.

Calzado de seguridad.

Arnés de seguridad (cuando sea necesario).

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

De aplicación al uso de escaleras de madera.

- Las escaleras de madera a utilizar en esta obra, tendrán los largueros de una sola pieza, sin defectos ni nudos que puedan mermar su seguridad.
- Los peldaños (travesaños) de madera estarán ensamblados, no clavados.
- Las escaleras de madera estarán protegidas de la intemperie mediante barnices transparentes, para que no oculten los posibles defectos. Se prohíbe la utilización de escaleras de madera que estén pintadas.
- Se guardarán a cubierto.

De aplicación al uso de escaleras metálicas.

- Los largueros serán de una sola pieza y estarán sin deformaciones o abolladuras que puedan mermar su seguridad.
- Las escaleras metálicas estarán pintadas con pintura antioxidación que las preserven de las agresiones de la intemperie. Las escaleras metálicas a utilizar en esta obra, no estarán suplementadas con uniones soldadas.
- De aplicación al uso de escaleras de tijera.

Son de aplicación las condiciones enunciadas en los apartados 1 y 2 para las calidades de -madera o metal-
.

Las escaleras de tijera a utilizar en esta obra, estarán dotadas en su articulación superior, de topes de seguridad de apertura.

Las escaleras de tijera estarán dotadas hacia la mitad de su altura, de cadenilla (o cable de acero) de limitación de apertura máxima que impidan su apertura al ser utilizadas.

Las escaleras de tijera se utilizarán siempre como tales abriendo ambos largueros para no mermar su seguridad.

Las escaleras de tijera en posición de uso, estarán montadas con los largueros en posición de máxima apertura par no mermar su seguridad.

Las escaleras de tijera nunca se utilizarán a modo de borriquetas para sustentar las plataformas de trabajo.

Las escaleras de tijera no se utilizarán, si la posición necesaria sobre ellas para realizar un determinado trabajo, obliga a ubicar los pies en los 3 últimos peldaños.

Las escaleras de tijera se utilizarán montadas siempre sobre pavimentos horizontales.

Para el uso y transporte por obra de escaleras de mano, independientemente de los materiales que las constituyen. No deben utilizar las escaleras personas que sufran algún tipo de vértigo o similares.

Las escaleras de mano deberán utilizarse de forma que los trabajadores puedan tener en todo momento un punto de apoyo y de sujeción seguros.

Para subir a una escalera se debe llevar un calzado que sujete bien los pies. Las suelas deben estar limpias de grasa, aceite u otros materiales deslizantes, pues a su vez ensucian los escalones de la propia escalera.

Se prohibirá la utilización de escaleras de mano en esta obra para salvar alturas superiores a 5 m.

Los trabajos a más de 3,5 metros de altura, desde el punto de operación al suelo, que requieran movimientos o esfuerzos peligrosos para la estabilidad del trabajador, sólo se efectuarán si se utiliza un equipo de protección individual anticaídas o se adoptan otras medidas de protección alternativas.

Las escaleras de mano a utilizar en esta obra, se colocarán de forma que su estabilidad durante su utilización esté asegurada.

Se impedirá el deslizamiento de los pies de las escaleras de mano durante su utilización ya sea mediante la fijación de la parte superior o inferior de los largueros, ya sea mediante cualquier dispositivo antideslizante o cualquier otra solución de eficacia equivalente.

Las escaleras de mano a utilizar en esta obra, estarán dotadas en su extremo inferior de zapatas antideslizantes de seguridad.

Los puntos de apoyo de las escaleras de mano deberán asentarse sólidamente sobre un soporte de dimensión adecuada y estable, resistente e inmóvil, de forma que los travesaños queden en posición horizontal.

Las escaleras compuestas de varios elementos adaptables o extensibles deberán utilizarse de forma que la inmovilización recíproca de los distintos elementos esté asegurada.

Las escaleras de mano a utilizar en esta obra, estarán firmemente amarradas en su extremo superior al objeto o estructura al que dan acceso.

Las escaleras de mano a utilizar en esta obra para fines de acceso deberán tener la longitud necesaria para sobresalir al menos un metro del plano de trabajo al que se accede.

Las escaleras de mano a utilizar en esta obra, se instalarán de tal forma, que su apoyo inferior diste de la proyección vertical del superior, 1/4 de la longitud del larguero entre apoyos.

Las escaleras de mano con ruedas deberán haberse inmovilizado antes de acceder a ellas.

Se prohibirá en esta obra transportar pesos a mano (o a hombro), iguales o superiores a 25 Kg. sobre las escaleras de mano.

En general se prohíbe el transporte y manipulación de cargas por o desde escaleras de mano cuando por su peso o dimensiones puedan comprometer la seguridad del trabajador.

El transporte a mano de una carga por una escalera de mano se hará de modo que ello no impida una sujeción segura.

Se prohibirá apoyar la base de las escaleras de mano de esta obra, sobre lugares u objetos poco firmes que pueden mermar la estabilidad de este medio auxiliar (montones de tierra, materiales, etc.).

El acceso de operarios en esta obra, a través de las escaleras de mano, se realizará de uno en uno. Se prohíbe la utilización al unísono de la escalera a dos o más operarios.

El ascenso, descenso y trabajo a través de las escaleras de mano de esta obra, se efectuará frontalmente, es decir, mirando directamente hacia los peldaños que se están utilizando.

El transporte de escaleras por la obra a brazo se hará de tal modo que se evite el dañarlas, dejándolas en lugares apropiados y no utilizándolas a la vez como bandeja o camilla para transportar materiales.

El transporte de escaleras a mano por la obra y por una sola persona se hará cuando el peso máximo de la escalera, supere los 55 Kg.

Las escaleras de mano por la obra y por una sola persona no se transportará horizontalmente. Hacerlo con la parte delantera hacia abajo.

Durante el transporte por una sola persona se evitará hacerla pivotar ni transportarla sobre la espalda, entre montantes, etc. En el caso de escaleras transformables se necesitan dos personas para trasladarla por la obra y se deberán tomar las siguientes precauciones:

Transportar plegadas las escaleras de tijera.

Las escaleras extensibles se transportarán con los paracaídas bloqueando los peldaños en los planos móviles y las cuerdas atadas a dos peldaños vis a vis en los distintos niveles.

Durante el traslado se procurará no arrastrar las cuerdas de las escaleras por el suelo. Para la elección del lugar donde levantar la escalera deberá tenerse presente:

No situar la escalera detrás de una puerta que previamente no se ha cerrado. No podrá ser abierta accidentalmente.

Limpiar de objetos las proximidades del punto de apoyo de la escalera.

No situarla en lugar de paso para evitar todo riesgo de colisión con peatones o vehículos y en cualquier caso balizarla o situar una persona que avise de la circunstancia.

Deberán tenerse en cuenta las siguientes consideraciones de situación del pie de la escalera:

Las superficies deben ser planas, horizontales, resistentes y no deslizantes. La ausencia de cualquiera de estas condiciones puede provocar graves accidentes.

No se debe situar una escalera sobre elementos inestables o móviles (cajas, bidones, planchas, etc.).

Deberán tenerse en cuenta las siguientes consideraciones relativas a la inclinación de la escalera:

La inclinación de la escalera deber ser tal que la distancia del pie a la vertical pasando por el vértice esté comprendida entre el cuarto y el tercio de su longitud, correspondiendo una inclinación comprendida entre 75,5º y 70,5º.

El ángulo de abertura de una escalera de tijera debe ser de 30º como máximo, con la cuerda que une los dos planos extendidos o el limitador de abertura bloqueado.

Deberán tenerse en cuenta las siguientes consideraciones relacionadas al apoyo, fricción con el suelo y zapatas de apoyo:

- Suelos de cemento: Zapatas antiderrapantes de caucho o neopreno (ranuradas o estriadas)
- Suelos secos: Zapatas abrasivas.
- Suelos helados: Zapata en forma de sierra.
- Suelos de madera: Puntas de hierro

Las cargas máximas de las escaleras a utilizar en esta obra serán:

- Madera: La carga máxima soportable será de 95 Kg., siendo la carga máxima a transportar de 25 Kg.
- Metálicas: La carga máxima será de 150 Kg. e igualmente la carga máxima a llevar por el trabajador es de 25 Kg.

Las escaleras de mano a utilizar en esta obra, sobrepasarán en 1 m. la altura a salvar. 5º) Las normas básicas del trabajo sobre una escalera son:

- No utilizar una escalera manual para trabajar. En caso necesario y siempre que no sea posible utilizar una plataforma de trabajo se deberán adoptar las siguientes medidas:

- Si los pies están a más de 2 m del suelo, utilizar arnés de seguridad anclado a un punto sólido y resistente.
- Para trabajos de cierta duración se pueden utilizar dispositivos tales como reposapiés que se acoplan a la escalera. En cualquier caso sólo la debe utilizar una persona para trabajar.
- No trabajar a menos de 5 m de una línea de A.T. y en caso imprescindible utilizar escaleras de fibra de vidrio aisladas.
- Una norma común es la de situar la escalera de forma que se pueda acceder fácilmente al punto de operación sin tener que estirarse o colgarse. Para acceder a otro punto de operación no se debe dudar en variar la situación de la escalera volviendo a verificar los elementos de seguridad de la misma.
- Nunca deben utilizarse las escaleras para otros fines distintos de aquellos para los que han sido construidas. Así, no se deben utilizar las escaleras dobles como simples. Tampoco se deben utilizar en posición horizontal para servir de puentes, pasarelas o plataformas. Por otro lado no deben utilizarse para servir de soportes a un andamiaje.

Almacenamiento de las escaleras:

- Las escaleras de madera deben almacenarse en lugares al amparo de los agentes atmosféricos y de forma que faciliten la inspección.
- Las escaleras no deben almacenarse en posición inclinada.
- Las escaleras deben almacenarse en posición horizontal, sujetas por soportes fijos, adosados a paredes.

Inspección y mantenimiento:

- Las escaleras deberán inspeccionarse como máximo cada seis meses contemplando los siguientes puntos:
- Peldaños flojos, mal ensamblados, rotos, con grietas, o indebidamente sustituidos por barras o sujetos con alambres o cuerdas.

- Mal estado de los sistemas de sujeción y apoyo.
- Defecto en elementos auxiliares (poleas, cuerdas, etc.) necesarios para extender algunos tipos de escaleras.
- Ante la presencia de cualquier defecto de los descritos se deberá retirar de circulación la escalera. Esta deberá ser reparada por personal especializado o retirada definitivamente.

Conservación de las escaleras en obra:

Madera

- No deben ser recubiertas por productos que impliquen la ocultación o disimulo de los elementos de la escalera. Se pueden recubrir, por ejemplo, de aceites de vegetales protectores o barnices transparentes.
- Comprobar el estado de corrosión de las partes metálicas.

Metálicas

- Las escaleras metálicas que no sean de material inoxidable deben recubrirse de pintura anticorrosiva. Cualquier defecto en un montante, peldaño, etc. no debe repararse, soldarse, enderezarse, etc., nunca.

CONTENEDORES

Operaciones a desarrollar previstas en el proyecto

Los contenedores son elementos que permiten la acumulación y evacuación de escombros de la obra.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas de personas al mismo nivel

Caídas de material

Cortes

Golpes

Emanación de polvo

Proyección de partículas

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Ropa de trabajo.

Guantes de cuero.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

Antes de proceder a la instalación de los contenedores, se debería hacer un estudio del lugar o lugares más idóneos para ello, debiéndose tener en cuenta que:

El número de contenedores, si en el desembocan bajantes de escombros, vendrá determinado por el número de bajantes de escombros existentes en la obra.

Fácil accesibilidad desde cualquier punto.

Facilidad para emplazar el camión.

Máxima duración en el mismo emplazamiento, a ser posible hasta que finalicen los trabajos a realizar.

Alejado de los lugares de paso.

Una vez instalado y antes de empezar a dar servicio el contenedor, deberá asegurarse que la bajante de escombros que desemboca este perfectamente fijadas al contenedor.

El tramo inferior de la bajante que desemboca en el contenedor tendrá menor pendiente que el resto, con la finalidad de reducir la velocidad de los escombros evacuados y evitar la proyección de los mismos, al llegar al contenedor.

La distancia de la embocadura inferior de la bajante al contenedor de recogida de escombros deberá ser la mínima posible que permita el llenado del mismo y su extracción.

Cuando se vaya a arrojar los escombros, el operario se cerciorará de que nadie esté cerca del contenedor. Deberá asegurarse de que la lona que cubre el contenedor y la bajante estén perfectamente unidas.

BAJANTES DE ESCOMBROS

Operaciones a desarrollar previstas en el proyecto

Las bajantes de escombros de elementos cerrados y prefabricados, se instalarán en aberturas en paredes de fachadas (exteriores o interiores) o en aberturas existentes en los forjados de los pisos.

Utilizaremos las bajantes de escombros como un medio seguro de verter los escombros desde las diferentes plantas. Suelen haber de distintos tipos:

- Trompas de elefante.
- De tubo espiral en forma de elefante.
- Telescópico, adaptable a diferentes medidas entre forjados.
- Cualquiera de ellos utilizado en la obra será válido.

Identificación y evaluación de riesgos evaluados con la valoración de la eficacia de la prevención adoptada y aplicada.

Riesgo

Caídas de personas al mismo nivel

Caídas de personas a distinto nivel

Caídas de material

Cortes

Golpes

Emanación de polvo

Proyección de partículas

Relación de Epis necesarios y cuya eficacia ha sido evaluada

Casco de seguridad.

Ropa de trabajo.

Guantes de cuero.

Arnés de seguridad.

Medidas preventivas y protecciones técnicas adoptadas, tendentes a controlar y reducir los riesgos anteriores

A Antes de proceder a la instalación de las bajantes, se debería hacer un estudio del lugar o lugares más idóneos para ello, debiéndose tener en cuenta que:

- El número de bajantes vendrá determinado por la distancia máxima desde cualquier punto hasta su ubicación la cual no debería ser mayor de 25/30m.
- Fácil accesibilidad desde cualquier punto.
- Facilidad para emplazar debajo del bajante el contenedor o camión.
- Máxima duración en el mismo emplazamiento, a ser posible hasta que finalicen los trabajos a realizar.
- Alejado de los lugares de paso.

B Para su instalación se tendrán en cuenta las siguientes medidas:

- Una vez instalada y antes de empezar a dar servicio, deberá asegurarse que todas las tolvas estén perfectamente unidas entre sí.
- Cuando la bajante se instale a través de aberturas en los pisos, el tramo superior deberá sobrepasar al menos 0,90 m el nivel del piso, de modo que se evite la caída de personas por el mismo, o bien al mismo nivel, e incluso la caída accidental de materiales.
- La embocadura de vertido en cada planta deberá pasar a través de la protección (barandilla y rodapié) existente en la abertura junto a la que se instale el bajante, debiendo la altura de aquélla con respecto al nivel del piso ser tal que permita el vertido directo de los escombros desde la carretilla, debiéndose disponer en el suelo un tope para la rueda con objeto de facilitar la operación.
- El tramo inferior de la bajante deberá tener menor pendiente que el resto, con la finalidad de reducir la velocidad de los escombros evacuados y evitar la proyección del mismo. Dicho tramo podrá ser giratorio con objeto de facilitar el llenado del recipiente.
- La distancia de la embocadura inferior del bajante al recipiente de recogida deberá ser la mínima posible que permita el llenado del mismo y su extracción.
- La bajante para escombros se sujetará convenientemente a elementos resistentes de su lugar de emplazamiento, de forma que quede garantizada su estabilidad.
- Cuando se lleve a cabo el derribo de un edificio por plantas, la bajante para escombros se instalará hasta una planta por debajo a aquella que se derriba, debiéndose ir desmontando a medida que se lleve a cabo el derribo de las mismas

C Durante su utilización:

- Cuando vaya a arrojar los escombros, el operario se cerciorará de que nadie esté cerca del contenedor. Deberá asegurarse de que la lona que cubre el contenedor y la tolva estén perfectamente unidas.

Se hará una revisión periódica de la bajante de escombros por si hubiese defectos, embozamientos o alguna otra anomalía. No se verterán los escombros en grandes cantidades, se hará de manera moderada ya que se podría romper y embozar la bajante de escombros.

ANDAMIO PLATAFORMA ELEVADORA

DESCRIPCIÓN

- Para la realización de la fachada de esta obra puede optarse por la utilización de un andamio tipo plataforma elevadora o andamio mecánico de los que se encuentran en el mercado y que está homologado de acuerdo con la normativa actual.
- Para evitar riesgos innecesarios en los Planos de este Estudio de seguridad y salud se indican aquellos aspectos más importantes de Seguridad que se pueden presentar durante los trabajos como puede ser : Cerramiento mediante vallado de las patas y estabilizadores del andamio, señalización de acceso y salida única desde cada planta al andamio, sistemas de seguridad complementarios como líneas de vida ancladas al edificio a posteriori mediante un anclaje para evitar caídas de los trabajadores en caso de desplome del andamio, recubrimiento de los huecos de la fachada como ventanas y balcones mediante cerramiento de mallazo asegurando con puntales para evitar atrapamientos, dispositivos auxiliares del propio andamio para poder ampliar con todas las medidas de seguridad la zona de trabajo en las plataformas, zonas reservadas a paso de peatones por la acera debajo del propio andamio y protegidas mediante marquesina con visera y por último todos los elementos de seguridad que lleva el propio equipo.

RIESGOS Y CAUSAS

Caída de personas a distinto nivel

- Actos inseguros por parte de los trabajadores por un inadecuado manejo u operación incorrecta con el andamio plataforma elevadora sobre carriles por cremallera

- Ausencia de protecciones colectivas o individuales durante los trabajos en altura con andamios tipo plataforma elevadora sobre carriles por cremallera
- Trabajo bajo las inclemencias del tiempo

Caídas al mismo nivel

- Inadecuadas condiciones del suelo de la plataforma o falta de orden y limpieza en la misma

Caída por desplome o derrumbamiento

- Incorrecta ubicación del andamio plataforma elevadora sobre carriles por cremallera. Falta de estabilidad de la plataforma debido a las características del terreno donde se apoya
- Sobrecarga del andamio tipo plataforma elevadora sobre raíles por cremallera

Caída de objetos desprendidos

- Caída de herramientas, objetos, etc. desde la parte superior de la plataforma durante la realización de los trabajos

Choques contra objetos inmóviles

- Falta de control de elementos estructurales que se encuentren en el radio de elevación de la plataforma .
- Exceso de confianza
- Despistes del operario.

Atrapamientos por o entre objetos

- Atrapamiento durante el movimiento vertical de la plataforma o en el radio de acción de la misma durante los desplazamientos.
- Acto inseguro por parte de los trabajadores

Contactos eléctricos directos e indirectos

- Trabajos cercanos a líneas eléctricas
- Contactos con el equipo o su parte eléctrica

Riesgos diversos

- Falta de aptitudes, preparación y formación de los operarios que manejan la plataforma elevadora o realizan el montaje
- Falta de mantenimiento de los equipos de trabajo
- Inadecuadas condiciones de los equipos de trabajo y maquinaria

PROTECCIONES COLECTIVAS

- Puntos para anclajes de líneas de vida
- Recubrimiento con mallazo de los huecos existentes en las fachadas
- Protección mediante vallado perimetral de la base de los andamios
- Pasos seguros de peatones con marquesina y visera

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Arnés de seguridad.
- Botas de seguridad con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.
- Ropa de trabajo de protección frente a agresiones mecánicas.

MEDIDAS PREVENTIVAS

- El Encargado de seguridad antes de comenzar con los trabajos deberá comprobar que el andamio se encuentra perfectamente montado y todos los sistemas de seguridad y protecciones colectivas necesarias se encuentran activadas o colocadas.
- Queda terminantemente prohibido el aumentar la altura de trabajo máxima utilizando escaleras, andamios o algún dispositivo encima de la plataforma.
- Sólo se podrán retirar las barandillas interiores de protección siempre y cuando la distancia de la fachada al andamio sea menor de 30 cm.
- Está prohibido asomarse por las barandillas perimetrales de protección de la plataforma. Antes del uso controlar que las barandillas estén sólidamente fijadas y verificar el correcto cierre de la puerta de acceso a la plataforma.
- Queda terminantemente prohibido puentear el dispositivo de enclavamiento que dispone la puerta de acceso y que no permite trabajar con el andamio si la puerta no está perfectamente cerrada.
- Los trabajadores utilizaran obligatoriamente las escaleras de acceso a la plataforma para subir o bajar a la misma. No deberán de hacerlo apoyándose sobre alguna pieza o saltando desde la plataforma
- La empresa deberá de proporcionar a los trabajadores que realicen trabajos con riesgo de caída a distinto nivel (trabajos en altura) arneses de seguridad con cable de sujeción. Dichos equipos deberán de estar certificados (marcado CE) y se informará a los trabajadores de su uso obligatorio así como su cuidado y mantenimiento.
- Los andamios tipo plataforma elevadora sobre carriles por cremallera deberán de disponer en la zona destinada a trabajar en altura de cerramiento perimetral mediante barandillas que serán de materiales rígidos, tendrán una altura mínima de 90 cm. y dispondrán de listón intermedio y un rodapié o protección que impida el paso o deslizamiento por debajo de las mismas o la caída

- Será obligatorio el uso del arnés de seguridad anclados a puntos fijos cuando las condiciones de trabajo así lo requieran y no exista otro tipo de protección colectiva a utilizar e incluso con dichas protecciones cuando lo exija el encargado de seguridad. En este caso en particular debido a que las plataformas tienen una perfecta estabilidad y están diseñadas para aguantar pesos elevados, los trabajadores deberán de anclar el arnés a los enganches de que disponen las plataformas
- Se deberán de paralizar los trabajos con la plataforma bajo régimen de vientos superiores a lo establecido en las especificaciones técnicas del equipo, lluvia, helada, nieve así como a ciertas horas de la mañana donde todavía podrían quedar restos de escarcha.
- Los trabajadores solamente acopiaran los materiales necesarios para el trabajo a realizar y los situaran en lugares adecuados. La chapa del suelo de la plataforma deberá de ser de material antideslizante y los trabajadores deberán de mantenerla lo más limpia y ordenada posible en todo momento.
- El andamio plataforma elevadora sobre carriles por cremallera dispondrá de un dispositivo de seguridad que impida la elevación de la misma en el caso de que no se encuentre totalmente nivelada. Este tipo de equipos suele llevar un sistema de autonivelación para evitar dicha circunstancia durante la subida y la bajada.
- El andamio tipo plataforma elevadora sobre carriles por cremallera debe de apoyarse sobre terreno sólido y plano. No utilizar el equipo sobre terrenos deslizantes, helados, fangosos, irregulares o con hoyos. Antes de comenzar a trabajar el operario deberá de asegurarse que el equipo se encuentra perfectamente inmovilizado y que no puede moverse intempestivamente para ello éste dispone de 4 ruedas en cada base para poder mover el equipo cómodamente además de un gato de apoyo central sobre el que descansa la mayor parte del peso del mástil, pero lo más importante son los estabilizadores giratorios en sus extremos para la correcta nivelación.
- El andamio tipo plataforma elevadora sobre carriles por cremallera deberá de estar perfectamente fijado a la fachada en la cual se va a trabajar. Para ello los mástiles disponen

de puntos de anclaje en cada tramo que se unen con la fachada de acuerdo con las instrucciones del fabricante. Antes de comenzar los trabajos se deberá de comprobar las uniones y la perfecta estabilidad del conjunto

- Los trabajadores deberán de extremar las precauciones a la hora de llegar a los límites tanto inferior como superior del mástil. Si bien el equipo dispone de detectores de final de recorrido en los mástiles y que se encuentran duplicados en caso de que alguno falle podría ocurrir un accidente muy grave si no se revisan periódicamente y el equipo se utiliza con extremo cuidado aunque también en el final del mástil se dispone de un tramo sin cremallera y pintado de rojo. Durante el montaje del andamio se deberá de mantener todavía mayor atención aunque se dispone de enclavamientos de contacto con el mástil.
- En caso de pérdida del fluido eléctrico los trabajadores deberán de utilizar el sistema de bajada de emergencia manual que dispone el equipo de acuerdo a las instrucciones de utilización del equipo.
- El equipo deberá de llevar perfectamente indicado (bien mediante placa o bien pintado) la carga máxima capaz de soportar teniendo en cuenta los posibles desplazamientos de la plataforma. Además los trabajadores conocerán las características técnicas y resistencia que se encuentran en el manual de uso
- Queda terminantemente prohibido el sobrecargar la plataforma por encima de la capacidad de carga nominal que viene reflejado en el manual y en la placa o indicación de la plataforma teniendo en cuenta además los posibles desplazamientos de la misma.
- La zona superior de trabajo de la plataforma deberá de disponer de rodapié para evitar la caída accidental de material, herramientas, etc.
- Los trabajadores deberán de utilizar el Casco de Seguridad durante la utilización del equipo o durante la permanencia en las cercanías del mismo

- Durante la realización de trabajos con la plataforma se deberá de acotar una zona de seguridad alrededor de la misma para evitar que permanezca ningún trabajador propio o ajeno en la zona con riesgo de caída de objetos.
- Se puede utilizar uno de los accesorios como son redes anticaída de objetos.
- Durante los desplazamientos verticales de la plataforma del andamio, el operario debe de mantener siempre el control del radio de acción y el espacio ocupado por la máquina. En caso de poca visibilidad el trabajador deberá de pedir ayuda a algún compañero para que le guíe o le avise de algún obstáculo dejado en el radio de desplazamiento por alguna persona.
- Todas las operaciones de reparación y mantenimiento de la plataforma deberán de ser realizados por personal cualificado y autorizado. Todas las operaciones que sean posible se deberán de realizar con la plataforma en la posición más baja.
- Siempre se debe de comprobar el perfecto estado de las medidas de seguridad de la plataforma para evitar accidentes de este tipo. Los operarios comprobarán que se encuentra activo el protector que dispone todo el mástil y en especial en la parte de la cremallera
- Deben mantenerse en todo momento las siguientes distancias a las líneas de alta o media tensión en función de su voltaje. * Hasta 1000V: 3 m. de distancia. * De 1 a 66 KV: 5 m. de distancia. * De 66 a 450 KV: 6 m. de distancia.
- El equipo deberá de conectarse de acuerdo con las instrucciones del fabricante y siempre por una persona cualificada. Se deberá de revisar que no existan partes activas descubiertos, cables lacerados, etc.
- Queda terminantemente prohibido utilizar cualquier parte del equipo como toma de tierra durante las operaciones de soldadura.
- Para trabajos cercanos a líneas eléctricas aéreas se deberá de planificar perfectamente los trabajos que se encuentren situados cerca de líneas eléctricas aéreas. Dicha planificación consistirá en disponer de todos los datos sobre conducciones eléctricas antes del comienzo de los trabajos. Se calculará la zona de prohibición de la línea eléctrica aérea y la zona de alcance

de la maquinaria o elemento de altura, valorando la posibilidad de contacto y determinando la situación de riesgo. Con todos estos datos se optará por las medidas preventivas existentes para no poner en ningún momento en peligro a los operarios ni a la maquinaria o elementos de altura. Dichas medidas preventivas podrán ser: descargo de la línea, retirada de la línea o conversión en subterránea, aislamiento de conductores, instalar resguardos en torno a la línea o colocar obstáculos en el área de trabajo. En cualquier caso mantener siempre las distancias de seguridad contempladas en el reglamento eléctrico

- En caso de contacto accidental con líneas eléctricas:
- A) El operario - Permanecerá en la plataforma y maniobrará haciendo que cese el contacto - Si no es posible es posible cesar el contacto ni mover el vehículo, permanecerá en la plataforma indicando a todas las personas que se alejen del lugar, hasta que confirmen que la línea ha sido desconectada.
- B) Las personas presentes - Se alejarán del lugar no intentando socorrer de inmediato a los accidentados si los hubiera - Si el contacto con la línea persiste o se ha roto algún cable, avisaran a la Compañía eléctrica para que desconecte la línea. - Si hay accidentados solicitarán ayuda médica y ambulancia
- Queda terminantemente prohibido el manejo y trabajo de la plataforma elevadora de tijera para trabajadores menores de 18 años.
- Evitar el dejarse las llaves o elementos de contacto activos para evitar que personas no autorizadas puedan utilizar el andamio tipo plataforma elevadora sobre raíles por cremallera. En caso de que el equipo se averíe se deberá de señalizar dicha circunstancia y poner el equipo fuera de servicio inutilizando los mandos.
- Autorizar a los trabajadores mediante documento del manejo del andamio tipo plataforma y entregarles una copia del manual de uso y normas de seguridad.
- La empresa antes de que los trabajadores utilicen estos equipos deberán de incidir y formar a los trabajadores en aspectos básicos como:

- Conocimiento de los elementos de la plataforma (protecciones, mandos, señalizaciones, etc.).
- Normas de manejo: Alturas de trabajo, pesos máximos a elevar, estabilidad de la plataforma.
- Inspección y mantenimiento básico del equipo: Frenos, niveles, etc.
- Riesgos principales y normas de seguridad en su manejo de acuerdo con el manual del equipo.
- Los trabajadores que detecten cualquier anomalía en el equipo tanto por inspección visual como durante el funcionamiento lo comunicaran inmediatamente a la persona responsable de subsanarlo y no utilizará el equipo hasta no estar en perfectas condiciones.
- De acuerdo con lo establecido en el R. D. 1215/1997, sobre disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo: Los equipos de trabajo deberán de estar certificados (marcado CE, el certificado de conformidad emitido por una OCA (organismo de control autorizado) o por un técnico competente) y en caso contrario el empresario deberá de realizar un estudio de verificación y adecuación al R. D. 1215/1997, de los equipos de trabajo de los que se dispone, procediendo a subsanar todas aquellas posibles no conformidades. El equipo de trabajo deberá llevar las advertencias y señalizaciones indispensables para garantizar la seguridad de los trabajadores. Cada máquina deberá disponer de un Manual de Instrucciones donde se indique como mínimo: Datos recogidos en las placas. Condiciones previstas de utilización del equipo de trabajo. Instrucciones para efectuar sin riesgo las distintas operaciones, puesta en servicio, utilización, manutención, reglaje, etc.

ANDAMIOS METÁLICOS TUBULARES

RIESGOS Y CAUSAS

Atrapamiento por o entre objetos

Posible derrumbamiento de la andamiada, al realizarse un montaje incorrecto.

Caída de objetos

Posibilidad de caídas de materiales, herramientas, etc.

Caída de personas a distinto nivel

Caídas al vacío producidas por un uso inadecuado de las protecciones colectivas.

Caída de personas al mismo nivel

Producidas por tropiezos con herramientas, materiales, etc.

Lesiones o golpes/cortes por objetos o herramientas

Producidos durante las operaciones de montaje, al realizar un uso inadecuado de las mismas..

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Arnés de seguridad.
- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- Todos los andamios a utilizar en esta obra deberán de ser homologados y cumplir con lo establecido en la norma UNE HD-1000 y el R.D. 2177/04 sobre disposiciones mínimas de seguridad para trabajos temporales en altura
- Correcta disposición de los accesos a los distintos niveles de trabajo.
- Deberán montarse bajo la supervisión de persona competente.

- La comunicación vertical del andamio tubular quedará resuelta mediante la utilización de escaleras prefabricadas (elemento auxiliar del propio andamio).
- Las barras, módulos tubulares y tablones se izarán mediante sogas de cáñamo con nudos de marinero o eslingas normalizadas.
- Las cargas se izarán hasta la plataforma de trabajo mediante garruchas montadas sobre horcas tubulares sujetas como mínimo de dos bridas del andamio tubular.
- Las cruces de San Andrés se colocarán por ambos lados.
- Las plataformas de trabajo se consolidarán tras su formación mediante abrazaderas de sujeción en los andamios tubulares.
- Las plataformas de trabajo tendrán un mínimo de 60 cm de ancho limitándose por delante, por detrás y lateralmente por un rodapié de 15 cm y una barandilla sólida de 90 cm como mínimo, montada sobre la vertical del rodapié posterior con pasamanos, listón intermedio y rodapié.
- Los andamios tubulares sobre módulos con escalerilla lateral se montarán con ésta hacia la cara exterior, es decir hacia la cara en donde no se trabaja.
- Los husillos en las bases del andamio se clavarán a los tablones de reparto con clavos de acero hincados hasta el fondo y sin doblar.
- Los módulos base de andamios tubulares se deberán arriostrar mediante travesaños tubulares a nivel, por encima de 1’90 m y con diagonales.
- Los tornillos de las mordazas se apretarán por igual.
- Prohibido el uso de borriquetas sobre andamios tubulares.
- Prohibido iniciar un nuevo nivel de andamio tubular sin haber concluido el nivel de partida con todos los elementos de estabilidad (cruces de San Andrés, arriostramientos).
- Prohibido trabajar bajo vientos fuertes.

- Prohibido trabajar sobre plataformas dispuestas sobre la coronación de andamios tubulares si no se ha cercado antes con barandillas sólidas de 90 cm de alto como mínimo formadas por pasamanos, listón intermedio y rodapié.
- Se deberá establecer viseras a nivel de techo de los módulos de paso de peatones y entablados para evitar daños a terceros.
- Se deberán tender redes tensas verticales de seguridad protegiendo las cotas de trabajo.
- Uso de cinturón de seguridad, durante el montaje y el desmontaje.
- Montaje de los andamios tubulares:
    - No se iniciará un nuevo nivel sin antes haber concluido el nivel de partida con todos los elementos de estabilidad (cruces de San Andrés y arriostramientos)
    - La seguridad alcanzada en el nivel de partida ya consolidada será tal que ofrezca las garantías necesarias como para poder amarrar a él el fijador del cinturón de seguridad.
    - Las barras, módulos tubulares y tablones se izarán mediante sogas atadas con nudos de marinero o mediante eslingas normalizadas.
    - Asegurar las plataformas de trabajo mediante abrazaderas de sujeción.
- Los módulos de base de los andamios tubulares:
    - Se apoyarán sobre durmientes de madera en las zonas de apoyo directo sobre el terreno.
    - De diseño especial para el paso de peatones se complementarán con entabladas y viseras seguras a nivel del techo en prevención de golpes a terceros.
    - Se arriostrarán mediante travesaños tubulares a nivel, por encima de 1'90 m y con los travesaños diagonales, con el fin de dar mayor rigidez al conjunto y garantizar su seguridad.

- Los andamios tubulares se montarán a una distancia igual o inferior a 30 cm del parámetro vertical en el que se trabaja. Éstos se arriostrarán a los parámetros verticales anclándolos a puntos fuertes de seguridad previstos en las fachadas, como pueden ser puntales de suelo a techo o en huecos de ventanas.
- Se prohíbe expresamente el apoyo de los andamios tubulares sobre suplementos formados por bidones o pilas de materiales diversos.
- Como pautas a seguir se aconseja instalar un amarre cada 24 m 2 cuando hay red y cada 12 m 2 cuando no hay red.

- En la instalación de los amarres se deben tomar las siguientes precauciones:
- No dejar ninguna fila de pies sin amarrar.
- Amarrar siempre todos los pies del primer y último nivel.

RECURSO PREVENTIVO DE ANDAMIOS METÁLICOS TUBULARES

ACTIVIDADES DE VIGILANCIA DEL RECURSO PREVENTIVO

- En esta unidad de obra, estas actividades de vigilancia servirán para garantizar el cumplimiento de los métodos de trabajo, de las medidas preventivas y del control del riesgo.
- Los Recursos Preventivos comprobaran que los operarios encargados del montaje, desmontaje y uso del andamio, realizan las operaciones mediante procedimientos de trabajo seguros.

ACTIVIDADES DE VIGILANCIA

- Comprobar que los operarios tienen los EPIS correspondientes para la realización las tareas, y que vienen definidos en el Plan de Seguridad.
- Vigilar que utilizan, y además correctamente, los EPIS definidos anteriormente.
- Comprobar que en general se mantiene la limpieza y orden.
- Comprobar que se ha instruido al personal sobre su utilización y sus riesgos.

- Comprobar si el andamio dispone de marcado CE y de las instrucciones específicas del fabricante, proveedor o suministrador, sobre el montaje, la utilización y el desmontaje del andamio. En caso de no disponer de marcado CE comprobar que existe un plan de montaje, de utilización y de desmontaje o un plan de aplicación generalizada, completado con elementos correspondientes a los detalles específicos del andamio de que se trate.
- Comprobar que los elementos de apoyo del andamio están protegidos contra el riesgo de deslizamiento y que la superficie portante tiene capacidad suficiente.
- Comprobar que el personal trabaja y circula en las plataformas de trabajo con seguridad.
- Comprobar que el andamio es montado, desmontado o modificado sustancialmente bajo la dirección de una persona con una formación universitaria o profesional que lo habilite para ello, y por trabajadores que hayan recibido una formación adecuada y específica para las operaciones previstas.
- Comprobar que el andamio es inspeccionado por una persona con una formación universitaria o profesional que lo habilite para ello.

Antes de su puesta en servicio.

- Tras cualquier modificación, periodo de no utilización, exposición a la intemperie, sacudidas sísmicas, o cualquier otra circunstancia que hubiera podido afectar a su resistencia o a su estabilidad.
- Comprobar que se han realizado reconocimientos médicos previos para la admisión del personal que deba trabajar sobre los andamios de esta obra, intentando detectar aquellos trastornos orgánicos (vértigo, epilepsia, trastornos cardiacos, etc.), que puedan padecer y provocar accidentes al operario, y que los resultados de los mismos se han presentado al Coordinador de Seguridad y Salud en ejecución de obra.
- Verificar que los operarios no realicen maniobras que puedan poner en peligro su integridad física.

- Comprobar que se incorporan protecciones colectivas, contra caída de materiales (redes, bandejas, etc.).
- Comprobar que no se modifican las protecciones colectivas de la obra sin autorización, bajo ningún concepto.
- Comprobar que cualquier modificación sobre el andamio está debidamente autorizada por la persona competente.
- Comprobar que los andamios siempre se arriostran para evitar los movimientos indeseables que pueden hacer perder el equilibrio a los trabajadores.
- Comprobar que los caballetes disponen de una pieza horizontal de arriostramiento (cadenilla o barra de limitación de apertura máxima).
- Comprobar que no se iniciara el montaje de nuevo nivel sin antes haber concluido el nivel de partida con todos los elementos de estabilidad (cruces de San Andrés, y arriostramientos).
- Comprobar que la seguridad alcanzada en el nivel de partida ya consolidada es tal, que ofrece las garantías necesarias para poder amarrar a él el fiador del arnés de seguridad.
- Comprobar que la estabilidad del conjunto está totalmente garantizada, (apoyos, nivelación, etc.).
- Comprobar que los tramos verticales (módulos o pies derechos) de los andamios, se apoyan sobre tablones de reparto de cargas.
- Comprobar que los pies derechos de los andamios en las zonas de terreno inclinado, se suplementan mediante tacos o porciones de tablón, trabadas entre sí y recibidas al durmiente de reparto.
- Comprobar que las barras, módulos tubulares y plataformas de trabajo, se izan mediante eslingas normalizadas (o mediante sogas de cáñamo de Manila atadas con nudos de marinero).

- Comprobar que las plataformas de trabajo se consolidan inmediatamente tras su formación, mediante las abrazaderas de sujeción contra basculamientos o los arriostramientos correspondientes.
- Comprobar que la separación entre soportes o puntos de apoyo es inferior a 3,5 m.
- Comprobar que a partir de 3 m. de altura se instalan crucetas para garantizar la indeformabilidad.
- Comprobar que las uniones entre tubos se efectúan mediante los nudos o bases metálicas, o bien mediante las mordazas y pasadores previstos, según los modelos comercializados.
- Verificar que antes de subir a una plataforma andamiada se revisa toda su estructura para evitar situaciones inestables.
- Comprobar que los andamios tubulares se arriostran horizontalmente cada 8 m. y verticalmente cada 6 m.
- Comprobar que las plataformas de trabajo tienen un ancho mayor o igual a 60 cm., una resistencia adecuada a la carga a soportar y con una superficie antideslizante.
- Comprobar que las plataformas de trabajo están firmemente ancladas e inmovilizadas a los apoyos de tal forma que se eviten los movimientos por deslizamiento o vuelco.
- Comprobar que los tablones que forman las plataformas de trabajo no tienen defectos visibles, y tienen buen aspecto, sin nudos que mermen su resistencia.
- Comprobar que los tablones están limpios, de forma, que se aprecie los defectos por uso.
- Comprobar que los tablones tienen un canto mínimo de 7 cm.
- Comprobar que las plataformas de trabajo se limitan delantera, lateral y posteriormente, por un rodapié de 15 cm.
- Comprobar que las plataformas de trabajo tienen montada sobre la vertical del rodapié una barandilla sólida de 90 cm. de altura, formada por pasamanos, listón intermedio y rodapié.

- Comprobar que el acceso a las plataformas de trabajo se realiza de una forma segura (escaleras interiores, abatibles e integradas en las plataformas de trabajo o exteriores).
- Comprobar que las plataformas de trabajo permiten la circulación e intercomunicación necesaria para la realización de los trabajos.
- Comprobar que durante el montaje del andamio, el acceso desde los diferentes forjados se hace a través de una mensura complementaria para tapar el posible hueco de caída en caso de que este existiera.
- Comprobar que el andamio se ajusta a las irregularidades de la fachada mediante plataformas suplementarias o sobre ménsulas especiales, lo más próximas a la fachada.
- Comprobar que los módulos de fundamento de los andamios tubulares, están dotados de las bases nivelables sobre tornillos sin fin (husillos de nivelación), con el fin de garantizar una mayor estabilidad del conjunto.
- Comprobar que las plataformas de apoyo de los tornillos sin fin (husillos de nivelación), de base de los andamios tubulares dispuestos sobre tablones de reparto, se clavan a estos con clavos de acero, hincados a fondo y sin doblar.
- Comprobar que los módulos de base de los andamios tubulares, se apoyan sobre tablones de reparto de cargas en las zonas de apoyo directo sobre el terreno.
- Comprobar que la estabilidad del conjunto está totalmente garantizada, (apoyos, nivelación, etc.).
- Comprobar que no se permite expresamente el apoyo de los andamios tubulares sobre suplementos formados por bidones, pilas de materiales diversos, -torretas de maderas diversas- y similares.
- Comprobar que los componentes del andamio tubular se mantienen en buen estado de conservación desechándose aquellos que presenten defectos, golpes o acusada oxidación.

- Comprobar que los elementos que denoten algún fallo técnico o mal comportamiento se desmontan de inmediato para su reparación (o sustitución).
- Comprobar que los andamios tubulares sobre módulos con escalerilla lateral, se montan con esta hacia la cara exterior, es decir, hacia la cara en la que no se trabaja.
- Comprobar que no se permite el uso de andamios sobre borriquetas (pequeñas borriquetas), apoyadas sobre las plataformas de trabajo de los andamios tubulares.
- Comprobar que la distancia de separación de un andamio al paramento vertical de trabajo no es superior a 30 cm. en prevención de caídas.
- Comprobar que los andamios tubulares se arriostran a los paramentos verticales, anclándolos sólidamente a los puntos fuertes de seguridad previstos en fachadas o paramentos.
- Comprobar que no se abandonan sobre las plataformas de los andamios, materiales o herramientas, ya pueden caer sobre las personas o hacerles tropezar y caer al caminar sobre ellas.
- Comprobar que no se acerca maquinaria de elevación o de transporte a los andamios.
- Comprobar que nunca se dejara por medio de maquinaria de elevación o de transporte, carga directamente sobre el andamio.
- Comprobar que las cargas se izan hasta las plataformas de trabajo mediante garruchas montadas sobre horcas tubulares sujetas mediante un mínimo de dos bridas al andamio tubular.
- Comprobar que no se fabrican morteros (o similares) directamente sobre las plataformas de los andamios.
- Comprobar que los materiales se reparten uniformemente sobre las plataformas de trabajo en prevención de accidentes por sobrecargas innecesarias.

- Comprobar que los materiales se reparten uniformemente sobre un tablón ubicado a media altura en la parte posterior de la plataforma de trabajo, sin que su existencia merme la superficie útil de la plataforma.
- Comprobar que no se arrojan escombros directamente desde los andamios, que el escombro se recoge y se descarga en planta en planta, o bien se vierte a través de trompas.
- Comprobar que no se permite expresamente correr por las plataformas sobre andamios, para evitar los accidentes por caída.
- Comprobar que se acotan e impide el paso de la vertical del andamio a niveles inferiores con peligro de caída de materiales.
- Comprobar que los módulos de base de diseño especial para el paso de peatones, se complementan con entablados y viseras seguras a nivel de techo en prevención de golpes a terceros.
- Comprobar que los andamios se inspeccionan diariamente, antes del inicio de los trabajos, para prevenir fallos o faltas de medidas de seguridad.
- Comprobar que el desmontaje del andamio se realiza en orden inverso al de montaje.
- Comprobar que no se permite lanzar desde cualquier altura los distintos elementos que componen el andamio. **Se deben utilizar mecanismos de elevación o descenso convenientemente sujetos.**

ANDAMIOS SOBRE BORRIQUETAS

RIESGOS Y CAUSAS

Caída de objetos

Producidas al dispersar la herramienta por la superficie de la plataforma de trabajo.

Caída de personas a distinto nivel

Caídas al vacío producidas al realizar un uso incorrecto de las protecciones colectivas.

Caída de personas al mismo nivel

Producidos por tropiezos con herramientas y materiales.

Lesiones o golpes/cortes por objetos o herramientas

Durante las operaciones de montaje, al realizar un uso inadecuado de las herramientas.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Arnés de seguridad.
- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- la norma UNE HD-1000 y el R.D. 2177/04 sobre disposiciones mínimas de seguridad para trabajos temporales en altura
- El andamio se organizará en forma constructivamente adecuada para que quede asegurada su estabilidad y al mismo tiempo para que los trabajadores puedan estar en él con las debidas condiciones de seguridad, siendo estas últimas extensivas a los restantes trabajadores de la obra.
- Se desecharán los tablones con nudos o defectos peligrosos que comprometan su resistencia.
- La separación entre dos borriquetas consecutivas se fijará teniendo en cuenta las cargas previstas y los tablones que constituyen el piso de la plataforma de trabajo.

- De manera general, esta distancia no deberá ser mayor de 1 m. para tablones de 40 mm. de espesor, de 1,50 m. para tablones de espesor comprendido entre 40 y 50 mm. y de 2 m. para tablones de 50 mm. o más de espesor.
- En cualquier caso la separación entre borriquetas no sobrepasará los 3,50 m.
- Si se emplearan tablones estandarizados de 4 m. de longitud, que son apropiados para una separación entre caballetes de 3,60 m., se deberá disponer un tercer caballete intermedio entre ambos, sobresaliendo por lo tanto los tablones 20 cm. a ambos extremos de los apoyos de las borriquetas.
- Los tablones que constituyen el piso del andamio deberán estar unidos entre sí, de forma que se impida la introducción de los pies de los trabajadores en posibles huecos intermedios.
- Los tablones que forman el piso del andamio se dispondrán de modo que no puedan moverse ni dar lugar a basculamiento, deslizamiento o cualquier movimiento peligroso.
- Sobrepasarán los puntos de apoyo (borriquetas) un mínimo de 10 cm. y un máximo de 20 cm.
- El solape entre dos tablones de una misma fila, sobre un mismo punto de apoyo, deberá ser como mínimo de 20 cm.
- Los tablones que constituyen el piso del andamio se sujetarán a las borriquetas por medio de atados con lías.
- La anchura del piso del andamio será la precisa para la fácil circulación de los trabajadores y el adecuado almacenamiento de los útiles, herramientas y materiales imprescindibles para el trabajo a realizar en tal lugar. En este sentido, el ancho de la plataforma nunca será menor de:
- 60 cm. cuando se la utilice únicamente para sostener personas y no para depositar materiales.
- 80 cm. cuando se la utilice para depositar materiales.
- Hasta 3 metros de altura podrán emplearse andamios de borriquetas fijas, sin arriostramiento. Entre 3 y 6 metros (máxima altura permitida en este tipo de andamio), se emplearán borriquetas armadas de bastidores móviles arriostrados.

- Cuando se trabaje sobre un andamio de borriquetas junto a un borde de forjado, hueco vertical o hueco horizontal, éstos estarán protegidos mediante barandillas de 90 cm de altura, con listón intermedio y rodapié de 15 cm o redes. También se deben colocar líneas de vida donde anclar los cinturones de seguridad.

- Los andamios de borriquetas cuya plataforma de trabajo esté a 2 m o más de altura dispondrán de barandilla de 90 cm de altura, listón intermedio y rodapié de 15 cm.

- No está permitido el montaje de andamios de borriquetas cuyas plataformas de trabajo deban ubicarse a 6 m o más de altura.

- Todo el material deberá ser revisado antes de su montaje.

- Las plataformas metálicas para sustentar plataformas de trabajo ubicadas a 2 m o más de altura, se arriostrarán entre sí para evitar los movimientos oscilatorios.

- No está permitido trabajar sobre plataformas sustentadas en borriquetas apoyadas a su vez sobre otro andamio de borriquetas.

- El orden y limpieza se cuidarán de manera especial alrededor de los andamios de borriquetas, evitándose el acopio de materiales, herramientas, etc.

- En ningún caso se desmontará parcialmente un andamio de forma que permita seguir siendo utilizado, salvo en el caso de que la parte que quede en pie siga cumpliendo las prescripciones de seguridad.

- En los trabajos sobre balcones, galerías, o en lugares abiertos, se deberá adoptar alguna de las siguientes medidas:

- Lograr un cerramiento perimetral mediante una serie de largueros o tablas dispuestas horizontalmente, a modo de barandillas, sujetas sobre soportes verticales y sólidamente fijados.

- Lograr un cerramiento perimetral mediante una red vertical que cubra en longitud toda la zona donde se encuentre ubicado el andamio, y en altura el vano existente entre forjados de pisos. Dicha red se sujetará a puntos resistentes, como pilares, etc.

- Todos los andamios a utilizar en esta obra deberán de ser homologados y cumplir con lo establecido en **RECURSO PREVENTIVO DE ANDAMIOS DE BORRIQUETAS**

RECURSO PREVENTIVO DE ANDAMIOS DE BORRIQUETAS

ACTIVIDADES DE VIGILANCIA DEL RECURSO PREVENTIVO

- En esta unidad de obra, estas actividades de vigilancia servirán para garantizar el cumplimiento de los métodos de trabajo, de las medidas preventivas y del control del riesgo.
- Los Recursos Preventivos comprobaran que los operarios encargados del montaje, desmontaje y uso del andamio de borriquetas, realizan las operaciones mediante procedimientos de trabajo seguros.

ACTIVIDADES DE VIGILANCIA

- Comprobar que los operarios tienen los EPIS correspondientes para la realización las tareas, y que vienen definidos en **el Plan de Seguridad.**
- Vigilar que utilizan, y además correctamente, los EPIS definidos anteriormente.
- Comprobar que en general se mantiene la limpieza y orden.
- Comprobar que se ha instruido al personal sobre su utilización y sus riesgos.
- Comprobar si el andamio dispone de marcado CE y de las instrucciones específicas del fabricante, proveedor o suministrador, sobre el montaje, la utilización y el desmontaje del andamio. En caso de no disponer de marcado CE comprobar que existe un plan de montaje, de utilización y de desmontaje o un plan de aplicación generalizada, completado con elementos correspondientes a los detalles específicos del andamio de que se trate.
- Comprobar que los elementos de apoyo del andamio están protegidos contra el riesgo de deslizamiento y que la superficie portante tiene capacidad suficiente.
- Comprobar que el personal trabaja y circula en las plataformas de trabajo con seguridad.

- Comprobar que el andamio es montado, desmontado o modificado sustancialmente bajo la dirección de una persona con una formación universitaria o profesional que lo habilite para ello, y por trabajadores que hayan recibido una formación adecuada y específica para las operaciones previstas.
- Comprobar que el andamio es inspeccionado por una persona con una formación universitaria o profesional que lo habilite para ello:
- Antes de su puesta en servicio.
- A continuación, periódicamente.
- Tras cualquier modificación, periodo de no utilización, exposición a la intemperie, sacudidas sísmicas, o cualquier otra circunstancia que hubiera podido afectar a su resistencia o a su estabilidad.
- Comprobar que se han realizado reconocimientos médicos previos para la admisión del personal que deba trabajar sobre los andamios de esta obra, intentando detectar aquellos trastornos orgánicos (vértigo, epilepsia, trastornos cardiacos, etc.), que puedan padecer y provocar accidentes al operario, y que los resultados de los mismos se han presentado al Coordinador de Seguridad y Salud en ejecución de obra.
- Comprobar que los andamios siempre se arriostran para evitar los movimientos indeseables que pueden hacer perder el equilibrio a los trabajadores.
- Comprobar que los caballetes disponen de una pieza horizontal de arriostramiento (cadenilla o barra de limitación de apertura máxima).
- Comprobar que la estabilidad del conjunto está totalmente garantizada, (apoyos, nivelación, etc.).
- Comprobar que los tramos verticales (módulos o pies derechos) de los andamios, se apoyan sobre tablones de reparto de cargas.

- Comprobar que los pies derechos de los andamios en las zonas de terreno inclinado, se suplementan mediante tacos o porciones de tablón, trabadas entre sí y recibidas al durmiente de reparto.
- Comprobar que la separación entre soportes o puntos de apoyo es inferior a 3,5 m.
- Comprobar que a partir de 3 m. de altura se instalan crucetas para garantizar la indeformabilidad.
- Comprobar que las plataformas de trabajo son mayor o igual a 60 cm. de anchura y están firmemente ancladas a los apoyos de tal forma que se eviten los movimientos por deslizamiento o vuelco.
- Comprobar que independientemente de la altura, las plataformas de trabajo poseen barandillas perimetrales de 90 cm. de altura, formadas por pasamanos, barra o listón intermedio y rodapiés.
- Comprobar que la distancia de separación de un andamio al paramento vertical de trabajo no es superior a 30 cm. en prevención de caídas.
- Verificar que antes de subir a una plataforma andamiada se revisa toda su estructura para evitar situaciones inestables.
- Comprobar que el acceso a la plataforma se efectúa de una forma segura, por medio de escaleras de mano, banquetas, etc.
- Comprobar que las plataformas de trabajo permiten la circulación e intercomunicación necesaria para la realización de los trabajos.
- Comprobar que los tablones que forman las plataformas de trabajo no tienen defectos visibles, y tienen buen aspecto, sin nudos que mermen su resistencia.
- Comprobar que los tablones están limpios, de forma, que se aprecie los defectos por uso.
- Comprobar que los tablones tienen un canto mínimo de 7 cm.

- Comprobar que no se abandonan sobre las plataformas de los andamios, materiales o herramientas, ya pueden caer sobre las personas o hacerles tropezar y caer al caminar sobre ellas.
- Comprobar que no se arrojan escombros directamente desde los andamios, que el escombro se recoge y se descarga en planta en planta, o bien se vierte a través de trompas.
- Comprobar que no se fabrican morteros (o similares) directamente sobre las plataformas de los andamios.
- Comprobar que no se permite expresamente correr por las plataformas sobre andamios, para evitar los accidentes por caída.
- Comprobar que no se permite saltar de la plataforma andamiada al interior del edificio; y que el paso se realiza mediante una pasarela instalada para tal efecto.
- Comprobar que los andamios se inspeccionan diariamente, antes del inicio de los trabajos, para prevenir fallos o faltas de medidas de seguridad.
- Comprobar que los elementos que denoten algún fallo técnico o mal comportamiento se desmontan de inmediato para su reparación (o sustitución).

HERRAMIENTAS

COMPRESOR

RIESGOS Y CAUSAS

Atrapamiento por o entre objetos

- Atrapamientos producidos con los elementos móviles.

Exposición a ambiente pulverulento

- Eliminación de sustancias tóxicas, por un mal mantenimiento de la máquina.

Exposición a ruido excesivo

- Debidos a un mal estado de la máquina, incorrecto mantenimiento.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Casco de seguridad.
- Guantes de cuero.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- El arrastre directo para ubicación del compresor por los operarios se realizará (siempre que sea posible) a una distancia nunca inferior a los 2 m. (como norma general), del borde de coronación de cortes y taludes.
- El compresor a utilizar en la obra, quedará en estación con la lanza de arrastre en posición horizontal, con las ruedas sujetas mediante tacos antideslizamientos. Si la lanza de arrastre carece de rueda o de pivote de nivelación, se le adaptará mediante un suplemento firme y seguro.
- El transporte en suspensión se efectuará mediante un eslingado a cuatro puntos del compresor, de tal forma, que quede garantizada la seguridad de la carga.
- La zona dedicada en la obra para la ubicación del compresor, quedará señalizada, instalándose señales de ''obligatorio el uso de protectores auditivos'' para sobrepasar la línea de limitación. Las carcasas protectoras de los compresores a utilizar en la obra, estarán siempre instaladas en posición de cerradas.
- Las mangueras de los compresores a utilizar en la obra, estarán siempre en perfectas condiciones de uso; es decir, sin grietas o desgastes que puedan producir un reventón.
- Las mangueras de presión se mantendrán elevadas a 4 o más metros de altura en los cruces sobre los caminos de obra.

- Las operaciones de abastecimiento de combustible se efectuarán con el motor parado.
- Los compresores (no silenciosos) a utilizar en la obra se ubicarán a una distancia mínima del tajo de martillos (o de vibradores) no inferior a 15 m. (como norma general).
- Los compresores a utilizar en la obra serán de los llamados ''silenciosos'' en la intención de disminuir la contaminación acústica.
- Los compresores se ubicarán en los lugares señalados para ello.
- Los mecanismos de conexión o de empalme estarán recibidos a las mangueras mediante racores de presión. Se controlará el estado de las mangueras de los compresores, comunicando los deterioros detectados diariamente con el fin de que sean subsanados.

RECURSO PREVENTIVO DE COMPRESOR

ACTIVIDADES DE VIGILANCIA DEL RECURSO PREVENTIVO

- En esta unidad de obra, estas actividades de vigilancia servirán para garantizar el cumplimiento de los métodos de trabajo, de las medidas preventivas y del control del riesgo.
- Los Recursos Preventivos vigilarán que el operador de esta máquina durante los desplazamientos, trabajos y demás operaciones por la obra, cumple con todas las -Actividades de Prevención y Protecciones Colectivas- establecidas anteriormente, utilizando los -Equipos de Protección Individual previstos.

HERRAMIENTAS MANUALES

RIESGOS Y CAUSAS

Lesiones o golpes/cortes por objetos o herramientas

- Utilización inadecuada de herramientas.
- Falta de atención.

Proyección de fragmentos o partículas

- Inadecuada utilización de herramientas.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Guantes de cuero.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- Los trabajadores seguirán las siguientes prescripciones en el uso de herramientas manuales.
- Usarán las herramientas adecuadas al tipo de trabajo a realizar.
- Las conservarán en buen estado y ausentes de materiales resbaladizos.
- Las mantendrán bien pulimentadas, afiladas, y con uniones firmes entre sus elementos.
- Comprobarán que los mangos y empuñaduras de las herramientas no tengan bordes agudos ni superficies resbaladizas y estarán protegidas contra contactos eléctricos y térmicos en aquellas operaciones en las que se prevea un riesgo de electrocución o quemadura.
- Las herramientas manuales a utilizar serán reparadas por personal especializado.
- Se ordenarán adecuadamente las herramientas manuales y útiles empleados, de modo que sean sustituidos aquellos que se encuentren en mal estado.
- Se adiestrará y formará a los trabajadores sobre el uso adecuado de herramientas, con el fin de evitar golpes, cortes e incluso sobreesfuerzos.
- Para evitar las lesiones producidas por el trabajo con herramientas manuales, se debe tener en cuenta:

- Las herramientas (manuales, eléctricas, neumáticas, etc.), deben tener asideros ergonómicos, que permitan una manipulación anatómica sin mayores esfuerzos y que sean de superficies suaves y no deslizantes.
- Cuando se vayan a adquirir las herramientas se tendrá en cuenta: que estas estén diseñadas ergonómicamente, de manera que se adapten tanto a la persona como a la tarea.
- Los más importante es formar a los trabajadores sobre la forma correcta de trabajar, para evitar lesiones producidas por este tipo de riesgos, siguiendo las siguientes recomendaciones:
- Es recomendable trabajar con los brazos junto al cuerpo y no separados de éste o elevados sobre el hombro.
- Es aconsejable evitar movimientos de torsión o rotación con fuerza del antebrazo o tronco.
- Siempre que se pueda, el trabajador, tendrá acceso a colocar la pieza que se va a cortar sobre una superficie sólida a la altura de la cintura.
- Cuando se trabaje con herramientas pesadas, se mantendrá una posición equilibrada haciendo pausas suficientes para recuperar la fuerza (1 ó 2 minutos cada pocos minutos).
- Los trabajadores seguirán las siguientes prescripciones en el uso de herramientas manuales.
- Usarán las herramientas adecuadas al tipo de trabajo a realizar.
- Las conservarán en buen estado y ausentes de materiales resbaladizos.
- Las mantendrán bien pulimentadas, afiladas, y con uniones firmes entre sus elementos.
- Comprobarán que los mangos y empuñaduras de las herramientas no tengan bordes agudos ni superficies resbaladizas y estarán protegidas contra contactos eléctricos y térmicos en aquellas operaciones en las que se prevea un riesgo de electrocución o quemadura.
- Las herramientas manuales a utilizar serán reparadas por personal especializado.
- Se ordenarán adecuadamente las herramientas manuales y útiles empleados, de modo que sean sustituidos aquellos que se encuentren en mal estado.

- Se adiestrará y formará a los trabajadores sobre el uso adecuado de herramientas, con el fin de evitar golpes, cortes e incluso sobreesfuerzos.
- Para evitar las lesiones producidas por el trabajo con herramientas manuales, se debe tener en cuenta:
- Las herramientas (manuales, eléctricas, neumáticas, etc.), deben tener asideros ergonómicos, que permitan una manipulación anatómica sin mayores esfuerzos y que sean de superficies suaves y no deslizantes.
- Cuando se vayan a adquirir las herramientas se tendrá en cuenta: que estas estén diseñadas ergonómicamente, de manera que se adapten tanto a la persona como a la tarea.
- Los más importante es formar a los trabajadores sobre la forma correcta de trabajar, para evitar lesiones producidas por este tipo de riesgos, siguiendo las siguientes recomendaciones:
- Es recomendable trabajar con los brazos junto al cuerpo y no separados de éste o elevados sobre el hombro.
- Es aconsejable evitar movimientos de torsión o rotación con fuerza del antebrazo o tronco.
- Siempre que se pueda, el trabajador, tendrá acceso a colocar la pieza que se va a cortar sobre una superficie sólida a la altura de la cintura.
- Cuando se trabaje con herramientas pesadas, se mantendrá una posición equilibrada haciendo pausas suficientes para recuperar la fuerza (1 ó 2 minutos cada pocos minutos).

MARTILLO NEUMÁTICO O ELÉCTRICO

RIESGOS Y CAUSAS

Atrapamiento por o entre objetos

- Destajo.
- Exceso de confianza.

Caída de objetos

- Rocas sueltas.

Caída de personas a distinto nivel

- Terreno irregular.
- Aproximación excesiva al borde de taludes.
- Medios auxiliares o plataformas inseguras

Contactos eléctricos directo

- Impericia.
- Falta de medidas contra contactos eléctricos

Exposición a ambiente pulverulento

- Perforación de los materiales.

Exposición a ruido excesivo

- Falta de protecciones.

Exposición a vibraciones

- Vibraciones en miembros y en órganos internos al utilizar el martillo.

Lesiones o golpes/cortes por objetos o herramientas

- Manipulación incorrecta

Proyección de fragmentos o partículas

- Ausencia de protecciones
- Proyección de partículas por reanudar el trabajo tras dejar hincado el martillo en el lugar.

Sobreesfuerzos

- Trabajos de duración muy prolongada o continuada.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.
- Mascarilla de papel filtrante.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- Antes del inicio del trabajo con martillos neumáticos se inspeccionará el terreno circundante, para detectar los posibles peligros de desprendimientos de tierra o rocas por la vibración transmitida al entorno.
- Cada tajo con martillo neumático, estará trabajado por dos cuadrillas que se turnarán cada hora, en previsión de lesiones por exposición continuada a vibraciones.
- El personal de esta obra, que deba manejar los martillos neumáticos será especialista en el uso de este tipo de maquinaria.
- En el acceso a un tajo en el que se utilice martillo neumático, se instalarán señales de ''uso obligatorio de protección auditiva''.
- En esta obra, a los operarios encargados de manejar los martillos neumáticos se les hará entrega de la siguiente normativa preventiva. Del recibí se dará cuenta al Coordinador en materia de Seguridad y Salud:
    - El trabajo que va a realizar puede desprender partículas que dañen su cuerpo por sus aristas cortantes y gran velocidad de proyección. Evita las posibles lesiones utilizando

ropa de trabajo cerrada, gafas antiproyecciones, mandil, manguitos y polainas de cuero.

- El trabajo que realiza comunica vibraciones a su organismo. Protéjase de lesiones internas utilizando faja elástica de protección y muñequeras bien ajustadas.
- Para evitar las lesiones en los pies utilice unas botas de seguridad.
- Considere que el polvillo que se desprende puede dañar seriamente sus pulmones. Utilice mascarilla con filtro mecánico recambiable.
- Si su martillo está provisto de culata de apoyo en el suelo, evite apoyarse a horcajadas sobre ella. Evite recibir más vibraciones de las inevitables.
- No deje su martillo hincado en el suelo, pared o roca. Piense que al querer después extraerlo puede ser muy difícil.
- Antes de accionar el martillo, asegúrese de que esté perfectamente amarrado el puntero.
- Si observa deteriorado o gastado, su puntero, pida que se lo cambien, evitará accidentes.
- No abandone nunca el martillo conectado al circuito de presión.
- No deje su martillo a compañeros inexpertos, piense que al utilizarlo pueden sufrir serias lesiones.
- Compruebe que las conexiones de la manguera están en correcto estado.
- Evite trabajar encaramado a muros, pilares y salientes. Pida que le monten plataformas de ayuda, evitará las caídas.

- Los trabajadores que de forma continuada realicen trabajos con martillo neumático, serán sometidos a un examen médico mensual para detectar posibles alteraciones (oídos, órganos internos, articulaciones...).

- Se prohíbe el uso del martillo al personal no autorizado.
- Se prohíbe expresamente aproximar el compresor a distancias inferiores a 8 m., como norma general, del lugar de manejo de los martillos neumáticos.
- Se prohíbe expresamente el uso del martillo neumático en excavaciones en presencia de líneas eléctricas enterradas a partir de ser encontrada la banda de señalización.
- Se prohíbe expresamente en esta obra, dejar los martillos neumáticos abandonados hincados en los paramentos que rompen.

ROZADORA ELÉCTRICA

RIESGOS Y CAUSAS

Contactos eléctricos directos

- Falta de doble aislamiento, anulación de la toma de tierra, cables y conexiones deterioradas.

Exposición a ambiente pulverulento

- Durante las operaciones de trabajo con la maquinaria.

Lesiones o golpes/cortes por objetos o herramientas

- Posibles roturas del disco, proyección violenta de los fragmentos

Vibraciones

Sobreesfuerzos

- Posturas forzadas durante largo tiempo

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.

- Faja de protección contra los sobreesfuerzos.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.
- Mascarilla de papel filtrante.
- Protectores auditivos.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- Compruebe que el aparato no carece de alguna de las piezas constituyentes de su carcasa de protección. En caso afirmativo, entrégueselo al Encargado para que sea reparado y no lo utilice.
- Compruebe el estado del cable y de la clavija de conexión; rechace el aparato si presenta repelones que dejen al descubierto hilos de cobre o si tiene empalmes rudimentarios cubiertos con cinta aislante.
- Elija siempre el disco adecuado para el material a rozar. Considere que hay un disco para cada menester; no los intercambie, en el mejor de los casos, los estropeará sin obtener buenos resultados y correrá riesgos innecesarios.
- No intente ''rozar'' en zonas poco accesibles ni en posición inclinada lateralmente; el disco puede fracturarse y producirle lesiones.
- No intente reparar las rozadoras, ni las desmonte. Déjelas a reparar a un especialista.
- No golpee con el disco al mismo tiempo que corta, por ello no va a ir más deprisa. El disco puede romperse y causarle lesiones.
- Evite recalentar los discos, podría ser origen de accidentes.
- Sustituya inmediatamente los discos gastados o agrietados.

- Evite depositar la rozadora aún en movimiento directamente en el suelo, es una posición insegura.
- No desmonte nunca la protección normalizada de disco ni corte sin ella.
- Desconéctelo de la red eléctrica antes de iniciar las manipulaciones de cambio de disco.
- Moje la zona a cortar previamente, disminuirá la formación de polvo. Use siempre la mascarilla con filtro mecánico antipolvo, evitará lesiones pulmonares.
- El Encargado de seguridad comprobará diariamente el buen funcionamiento de la conexión a tierra de las rozadoras a través del cable eléctrico de alimentación, retirando del servicio aquellas máquinas que la tengan anulada.
- El Encargado de seguridad de la empresa responsable revisará periódicamente mente los discos de corte, cerciorándose de que se cambian inmediatamente los deteriorados.
- El personal encargado del manejo de las rozadoras estará en posesión de una autorización expresa de la Jefatura de Obra para tal actividad. Esta autorización solo se entregará tras la comprobación de la necesaria pericia del operario. Del recibí se dará cuenta al Coordinador de Seguridad y Salud.
- El suministro eléctrico a la rozadora se efectuará mediante manguera antihumedad a partir del cuadro general (o de distribución), dotada con clavijas macho-hembras estancas.
- Las rozadoras a utilizar en la obra, estarán protegidas mediante doble aislamiento eléctrico.

SIERRA RADIAL

RIESGOS Y CAUSAS

Contactos eléctricos directos

- Anulación de protecciones.
- Conexiones directas sin clavija.

- Cables lacerados o rotos.

Contactos térmicos

- Por el disco de corte.
- Tocar objetos calientes.
- Impericia.

Exposición a ambiente pulverulento

- Polvo derivado del corte de los elementos.

Lesiones o golpes/cortes por objetos o herramientas

- Proyección de objetos.
- Corte con el disco.
- Impericia.

Proyección de fragmentos o partículas

- Proyección de materiales.
- Rotura de piezas móviles.

Sobreesfuerzos

- Trabajar largo tiempo en posturas obligadas.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.

- Mascarilla de papel filtrante.
- Protectores auditivos.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- El trabajador que utilice la sierra radia eléctrica deberá usar todos los equipos de protección individual recomendados.
- Las labores de mantenimiento y reparación de la sierra radial eléctrica, se llevarán a cabo siempre por personal experto.
- No utilizar la sierra radial eléctrica sin comprobar que la carcasa de protección del disco está en perfecto estado.
- Prohibido dejar la sierra abandonada en el suelo.
- Prohibido usar discos deteriorados o rotos.
- Todo trabajador que utilice la sierra radial eléctrica deberá estar autorizado para usarla.
- Usar siempre el disco adecuado al material que se va a cortar.
- Usar siempre en lugares ventilados.
- Está terminantemente prohibido eliminar los dispositivos de protección de la sierra radial.

SOLDADURA ELÉCTRICA.

RIESGOS Y CAUSAS

Caída de personas a distinto nivel

- Trabajos en el borde de forjados, balcones, aleros.
- Trabajos en el borde de estructuras de obra civil.

- Uso de guindolas artesanales.

Contactos eléctricos directos

- Anulación de protecciones.
- Conexiones directas sin clavija.
- Cables lacerados o rotos.

Exposición a radiaciones no ionizantes

- Radiaciones por arco voltaico.

Exposición a contaminantes químicos

- Inhalación de los gases producidos por la soldadura

Incendios y explosiones

- Soldar junto a materias inflamables.

Lesiones o golpes/cortes por objetos o herramientas

- Heridas en ojos por cuerpos extraños.
- Picado del cordón de soldadura.
- Esmerilado.
- Pisadas sobre objetos punzantes.

Proyección de fragmentos o partículas

- Picar cordones de soldadura.

Quemaduras

- Despiste.
- Impericia.

- Caída de gotas incandescentes sobre otros trabajadores.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Arnés de seguridad.
- Botas de seguridad de PVC -de media caña- con plantilla contra los objetos punzantes.
- Casco de seguridad.
- Filtro mecánico para máscaras autónomas.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes aislantes de la electricidad.
- Guantes de cuero.
- Mascarilla contra las partículas con filtro mecánico recambiable.
- Pantalla de seguridad para soldadura.
- Ropa de trabajo.

MEDIDAS PREVENTIVAS

- A cada soldador y ayudante a intervenir en la obra se le entregará la siguiente lista de medidas preventivas; del recibí se dará cuenta al Coordinador en materia de Seguridad y Salud.
- Las radiaciones del arco voltaico son perniciosas para su salud. Protéjase con el yelmo de soldar o la pantalla de mano siempre que suelde.
- No mire directamente al arco voltaico. La intensidad luminosa puede producirle lesiones graves en los ojos.
- No pique el cordón de soldadura sin protección ocular. Las esquirlas de cascarilla desprendida pueden producirle graves lesiones en los ojos.

- No toque las piezas recientemente soldadas; aunque le parezca lo contrario, pueden estar a temperaturas que podrían producirle quemaduras serias.
- Suelde siempre en un lugar bien ventilado, evitará intoxicaciones y asfixia.
- Antes de comenzar a soldar, compruebe que no hay personas en el entorno de la vertical de su puesto de trabajo. Les evitará quemaduras fortuitas.
- No se 'prefabrique'' la ''guindola de soldador''.
- No deje la pinza directamente en el suelo o sobre la perfilería. Deposítela sobre un portapinzas.
- Pida que le indiquen cual es el lugar más adecuado para tender el cableado del grupo.
- No utilice el grupo sin que lleve instalado el protector de clemas.
- Compruebe que su grupo está correctamente conectado a tierra antes de iniciar la soldadura.
- No anule la toma de tierra de la carcasa de su grupo de soldar porque ''salte'' el disyuntor diferencial. Avise al encargado para que se revise la avería. Aguarde a que le reparen el grupo o bien utilice otro.
- Desconecte totalmente el grupo de soldadura cada vez que haga una pausa de consideración (almuerzo o comida, o desplazamiento a otro lugar).
- Compruebe antes de conectar las mangueras eléctricas a su grupo que están empalmadas mediante conexiones estancas de intemperie. Evite las conexiones directas protegidas a base de cinta aislante.
- No utilice mangueras eléctricas con la protección externa rota o deteriorada seriamente. Solicite que se las cambien. Si debe empalmar las mangueras, proteja el empalme mediante ''forrillos termoretráctiles''.
- Cerciórese de que estén bien aisladas las pinzas portaelectrodos y los bornes de conexión.

- Utilice aquellas prendas de protección personal que se le recomienden, aunque le parezcan incómodas o poco prácticas. Considere que sólo se pretende que usted no sufra accidentes.
- El banco para soldadura fija tendrá aspiración forzada instalada junto al punto de soldadura.
- El personal encargado de la soldadura será especialista en montajes metálicos y soldadura eléctrica.
- El taller de soldadura de la obra estará dotado de un extintor de polvo químico seco y sobre la hoja de la puerta, señales normalizadas de ''riesgo eléctrico'' y ''riesgo de incendios''.
- El taller de soldadura se limpiará diariamente, eliminando del suelo, clavos, fragmentos y recortes.
- El taller de soldadura tendrá ventilación directa y constante.
- En todo momento los tajos estarán limpios y ordenados.
- Las operaciones de soldadura a realizar en la obra (en condiciones normales), no se realizarán con tensiones superiores a 150 voltios si los equipos están alimentados por corriente continua.
- Las operaciones de soldadura a realizar en zonas húmedas o muy conductoras de la electricidad no se realizarán con tensiones superiores a 50 voltios. El grupo de soldadura estará en el exterior del recinto en el que se efectúe la operación de soldar.
- Las vigas y pilares ''presentados'', quedarán fijados e inmovilizados mediante husillos de inmovilización, codales, eslingas, apuntalamiento, cuelgue del gancho de la grúa, etc., hasta concluido el ''punteo de soldadura'' para evitar situaciones inestables.
- Los portaelectrodos a utilizar en la obra, tendrán el soporte de manutención en material aislante de la electricidad. Se controlará que el soporte no esté deteriorado.
- No se elevará en la obra una nueva altura hasta haber concluido el cordón de soldadura de la cota punteada.

- Se prohíbe expresamente la utilización en la obra de portaelectrodos deteriorados.
- Se suspenderán los trabajos de soldadura a la intemperie bajo el régimen de lluvias.
- Se suspenderán los trabajos de soldadura en la obra (montaje de estructuras) con vientos iguales o superiores a 60 km/h.
- Se tenderán entre los pilares, de forma horizontal, cables de seguridad firmemente anclados, por los que se deslizarán los ''mecanismos paracaídas'' de los cinturones de seguridad, cuando se camine sobre las jácenas o vigas de la estructura.
- Se tenderán redes ignífugas horizontales entre las crujías que se estén montando, ubicadas por debajo de la cota de montaje.

TALADRO

RIESGOS Y CAUSAS

Contactos eléctricos directos

- Mangueras eléctricas peladas de forma que el cableado sale al exterior.
- Mala conexión de las mangueras, sin las clavijas hembra-macho adecuadas.

Contactos eléctricos indirectos

- Aislamiento deteriorado de la carcasa de la taladradora, mal funcionamiento de los diferenciales del cuadro de conexión.

Contactos térmicos

- Tocar la broca después de realizar un trabajo.

Exposición a ambiente pulverulento

- Polvo del material producido durante la realización del taladro.

Exposición a ruido excesivo

- Ruido producido por la taladradora y por el rozamiento de la broca con el material.

Lesiones o golpes/cortes por objetos o herramientas

- Manipulación inadecuada de la taladradora por impericia del operario y/o desconocimiento de la herramienta.
- Colocación de una broca de resistencia inferior a la necesaria por el material empleado.

Proyección de fragmentos o partículas

- Durante la realización de los taladros, por la velocidad de giro de la broca se desprenden fragmentos de material taladrado que salen despedidos. Puede salir desprendido un fragmento de la broca si llegara a romperse.

EQUIPOS DE PROTECCIÓN INDIVIDUAL

- Casco de seguridad.
- Gafas de seguridad contra proyecciones e impactos.
- Guantes de cuero.
- Mascarilla de papel filtrante.
- Protectores auditivos.
- Ropa de trabajo

MEDIDAS PREVENTIVAS

- Colocar la broca con la resistencia adecuada al material que se quiera taladrar, de lo contrario ésta puede romperse.
- Durante la realización del taladro el operario tendrá colocado en todo momento las gafas de seguridad contra proyecciones e impactos, protectores auditivos y la mascarilla de papel filtrante contra el polvo.

- El operario encargado de utilizar la taladradora demostrará su experiencia y pericia en su manejo.
- El operario no abandonará la taladradora sin haber accionado antes el seguro.
- El operario no tocara la broca, sin guantes de seguridad, después de haber realizado un taladro debido a la elevada temperatura que adquiere.
- La taladradora tendrá doble aislamiento eléctrico para evitar el contacto eléctrico indirecto.
- La taladradora tendrá doble separación de circuitos para evitar el contacto eléctrico indirecto.

12.1.18. APLICACIÓN DEL REAL DECRETO 396/2006, DE 31 DE MARZO, POR EL QUE SE ESTABLECEN LAS DISPOSICIONES MÍNIMAS DE SEGURIDAD Y SALUD APLICABLES A LOS TRABAJOS CON RIESGO DE EXPOSICIÓN AL AMIANTO.

No se plantea en este proyecto la realización de trabajos que afecten a elementos de fibrocemento y/o que puedan contener amianto en su composición.

Debido a la antigüedad del edificio objeto de este proyecto, y a sus características constructivas, es probable que existan elementos de fibrocemento con presencia de amianto que se desconocen en fase de proyecto, por lo que se tienen en cuenta en la elaboración de este Estudio de Seguridad y Salud los riesgos relativos a la exposición al amianto.

El Real Decreto 396/2006 establece las disposiciones mínimas de seguridad y salud aplicables a los trabajos con riesgo de exposición al amianto.

Antes del comienzo de cada trabajo con riesgo de exposición al amianto, el contratista elaborará su

correspondiente plan de trabajo, donde prevea que el amianto o los materiales que lo contengan se eliminarán antes de aplicar las técnicas de demolición y que se garantiza que no existen riesgos debidos a la exposición al amianto en el lugar de trabajo, una vez terminadas las obras de demolición o retirada de amianto.

Para la elaboración del plan de trabajo serán consultados los representantes de los trabajadores, y será conocido por todos los agentes intervinientes, en especial por los trabajadores y recursos preventivos, que velarán por el cumplimiento del mismo.

El plan deberá estar aprobado por la autoridad laboral en los plazos y términos indicados en el art 12 del R.D. 396/2006.

En caso de que el contratista subcontrate con otros la realización de los trabajos de desamiantado, comprobará que dichos subcontratistas cuentan con el correspondiente plan de trabajo, que remitirán a la empresa principal o contratista, una vez aprobado por la autoridad laboral correspondiente

APLICACIÓN DEL RD 396/2006

El RD 396/2016 es de aplicación, ya que se trata de ejecutar actuaciones donde existe la posibilidad de que los trabajadores estén expuestos a fibras de amianto o materiales que lo contengan:

"Artículo 3. Ámbito de aplicación.

1. Este real decreto es aplicable a las operaciones y actividades en las que los trabajadores estén expuestos o **sean susceptibles de estar expuestos** a fibras de amianto o de materiales que lo contengan, y especialmente en:

a) Trabajos de demolición de construcciones donde exista amianto o materiales que lo contengan.

b) Trabajos de desmantelamiento de elementos, maquinaria o utillaje donde exista amianto o materiales que lo contengan.

c) Trabajos y operaciones destinadas a la retirada de amianto, o de materiales que lo contengan, de equipos, unidades (tales como barcos, vehículos, trenes), instalaciones, estructuras o edificios.

d) Trabajos de mantenimiento y reparación de los materiales con amianto existentes en equipos, unidades (tales como barcos, vehículos, trenes), instalaciones, estructuras o edificios.

e) Trabajos de mantenimiento y reparación que impliquen riesgo de desprendimiento de fibras de amianto por la existencia y proximidad de materiales de amianto.

f) Transporte, tratamiento y destrucción de residuos que contengan amianto.

g) Vertederos autorizados para residuos de amianto.

h) Todas aquellas otras actividades u operaciones en las que se manipulen materiales que contengan amianto, siempre que exista riesgo de liberación de fibras de amianto al ambiente de trabajo.

OBLIGACIONES DEL EMPRESARIO

Límite de exposición y prohibiciones

Los empresarios deberán asegurarse de que ningún trabajador está expuesto a una concentración de amianto en el aire superior al valor límite ambiental de exposición diaria (VLA-ED) de 0,1 fibras por centímetro cúbico medidas como una media ponderada en el tiempo para un período de ocho horas.

Sin perjuicio de la aplicación de otras disposiciones normativas relativas a la comercialización y a la utilización del amianto, se prohíben las actividades que exponen a los trabajadores a las fibras de amianto en la extracción del amianto, la fabricación y la transformación de productos de amianto o la fabricación y transformación de productos que contienen amianto añadido deliberadamente.

Se exceptúan de esta prohibición el tratamiento y desecho de los productos resultantes de la demolición y de la retirada del amianto.

Evaluación y control del ambiente de trabajo.

Para todo tipo de actividad determinado que pueda presentar un riesgo de exposición al amianto o a materiales que lo contengan, la evaluación de riesgos a que hace referencia el artículo 16 de la Ley 31/1995, de 8 de noviembre, debe incluir la medición de la concentración de fibras de amianto en el aire del lugar de trabajo y su comparación con el valor límite establecido en el artículo 4.1 del RD 396/2006, de manera que se determine la naturaleza y el grado de exposición de los trabajadores.

Si el resultado de la evaluación pone de manifiesto la necesidad de modificar el procedimiento empleado para la realización de ese tipo de actividad, ya cambiando la forma de desarrollar el trabajo o ya adoptando medidas preventivas adicionales, deberá realizarse una nueva evaluación una vez que se haya implantado el nuevo procedimiento.

Cuando el resultado de la evaluación de riesgos a que se refiere este apartado lo hiciera necesario, y con vistas a garantizar que no se sobrepasa el valor límite establecido en el artículo 4 del RD 396/2006, el empresario realizará controles periódicos de las condiciones de trabajo.

Las evaluaciones se repetirán periódicamente. En cualquier caso, siempre que se produzca un cambio de procedimiento, de las características de la actividad o, en general, una modificación sustancial de las condiciones de trabajo que pueda hacer variar la exposición de los trabajadores, será preceptiva la inmediata evaluación de los puestos de trabajo afectados.

La periodicidad de las evaluaciones de riesgos y controles de las condiciones de trabajo se determinará teniendo en cuenta, al menos, la información recibida de los trabajadores, y atendiendo especialmente a los factores que puedan originar un incremento de las exposiciones respecto a las inicialmente evaluadas.

Las evaluaciones de riesgos deberán efectuarse por personal cualificado para el desempeño de funciones de nivel superior y especialización en Higiene Industrial, conforme a lo establecido en el capítulo VI del Real Decreto 39/1997, de 17 de enero.

El procedimiento para la toma de muestras y el análisis (recuento de fibras) se ajustará a los requisitos establecidos en el anexo I.

A efectos de este real decreto, se entenderá por fibras de amianto o asbestos: aquellas partículas de esta materia en cualquiera de sus variedades, cuya longitud sea superior a 5 micrómetros, su diámetro inferior a 3 micrómetros y la relación longitud-diámetro superior a 3.

- El análisis (recuento de fibras) de amianto sólo podrá realizarse por laboratorios especializados cuya idoneidad a tal fin sea reconocida formalmente por la autoridad laboral que corresponda al territorio de la comunidad autónoma donde se encuentre ubicado el laboratorio, con arreglo al procedimiento establecido en el anexo II.

MEDIDAS TÉCNICAS GENERALES DE PREVENCIÓN

En todas las actividades a que se refiere el artículo 3.1 del RD 396/2006, la exposición de los trabajadores a fibras procedentes del amianto o de materiales que lo contengan en el lugar de trabajo debe quedar reducida al mínimo y, en cualquier caso, por debajo del valor límite fijado en el artículo 4.1 del RD 396/2006, especialmente mediante la aplicación de las siguientes medidas:

a) **Los procedimientos de trabajo deberán concebirse de tal forma que no produzcan fibras de amianto o, si ello resultara imposible, que no haya dispersión de fibras de amianto en el aire**.

b) **Las fibras de amianto producidas se eliminarán, en las proximidades del foco emisor, preferentemente mediante su captación por sistemas de extracción, en condiciones que no supongan un riesgo para la salud pública y el medio ambiente.**

c) **Todos los locales y equipos utilizados deberán estar en condiciones de poderse limpiar y mantener eficazmente y con regularidad.**

d) **El amianto o los materiales de los que se desprendan fibras de amianto o que contengan amianto deberán ser almacenados y transportados en embalajes cerrados apropiados y con etiquetas reglamentarias que indiquen que contienen amianto.**

e) **Los residuos,** excepto en las actividades de minería que **se regirán por lo dispuesto en su normativa específica, deberán agruparse y transportarse fuera del lugar de trabajo lo antes posible en embalajes cerrados apropiados y con etiquetas que indiquen que contienen amianto. Posteriormente, esos desechos deberán ser tratados con arreglo a la normativa aplicable sobre residuos peligrosos.**

MEDIDAS ORGANIZATIVAS

El empresario, en todas las actividades a que se refiere el artículo 3.1 del RD 396/2006, deberá adoptar las medidas necesarias para que:

a) El número de trabajadores expuestos o que puedan estar expuestos a fibras de amianto o de materiales que lo contengan sea el mínimo indispensable.

b) Los trabajadores con riesgo de exposición al amianto no realicen horas extraordinarias ni trabajen por sistema de incentivos en el supuesto de que su actividad laboral exija sobreesfuerzos físicos, posturas forzadas o se realice en ambientes calurosos determinantes de una variación de volumen de aire inspirado.

c) Cuando se sobrepase el valor límite fijado en el artículo 4, se identifiquen las causas y se tomen lo antes posible las medidas adecuadas para remediar la situación.

No podrá proseguirse el trabajo en la zona afectada si no se toman medidas adecuadas para la protección de los trabajadores implicados.

Posteriormente, se comprobará la eficacia de dichas medidas mediante una nueva evaluación del riesgo.

d) Los lugares donde dichas actividades se realicen:

1.º estén claramente delimitados y señalizados por paneles y señales, de conformidad con la normativa en materia de señalización de seguridad y salud en el trabajo.

2.º no puedan ser accesibles a otras personas que no sean aquellas que, por razón de su trabajo o de su función, deban operar o actuar en ellos,

3.º sean objeto de la prohibición de beber, comer y fumar.

EQUIPOS DE PROTECCIÓN INDIVIDUAL DE LAS VÍAS RESPIRATORIAS

Cuando la aplicación de las medidas de prevención y de protección colectiva, de carácter técnico u organizativo, resulte insuficiente para garantizar que no se sobrepase el valor límite establecido en el artículo 4.1 del RD 396/2006, **deberán utilizarse equipos de protección individual para la protección de las vías respiratorias**, de conformidad con lo dispuesto en el Real Decreto 773/1997, de 30 de mayo, sobre disposiciones mínimas de seguridad y salud relativas a la utilización por los trabajadores de equipos de protección individual.

No obstante lo anterior, aun cuando no se sobrepase el indicado valor límite, el empresario pondrá dichos equipos a disposición de aquel trabajador que así lo solicite expresamente.

La utilización de los equipos de protección individual de las vías respiratorias no podrá ser permanente y su tiempo de utilización, para cada trabajador, deberá limitarse al mínimo estrictamente necesario sin que en ningún caso puedan superarse las 4 horas diarias. Durante los trabajos realizados con un equipo de protección individual de las vías respiratorias se deberán prever las pausas pertinentes en función de la carga física y condiciones climatológicas.

MEDIDAS DE HIGIENE PERSONAL Y PROTECCIÓN INDIVIDUAL

El empresario, en todas las actividades a que se refiere el artículo 3.1 del RD 396/2006, deberá adoptar las medidas necesarias para que:

a) los trabajadores dispongan de instalaciones sanitarias apropiadas y adecuadas;

b) los trabajadores dispongan de ropa de protección apropiada o de otro tipo de ropa especial adecuada, facilitada por el empresario; dicha ropa será de uso obligatorio durante el tiempo de permanencia en las zonas en que exista exposición al amianto y necesariamente sustituida por la ropa de calle antes de abandonar el centro de trabajo;

c) los trabajadores dispongan de instalaciones o lugares para guardar de manera separada la ropa de trabajo o de protección y la ropa de calle;

d) se disponga de un lugar determinado para el almacenamiento adecuado de los equipos de protección y se verifique que se limpien y se compruebe su buen funcionamiento, si fuera posible con anterioridad y, en todo caso, después de cada utilización, reparando o sustituyendo los equipos defectuosos antes de un nuevo uso;

e) los trabajadores con riesgo de exposición al amianto dispongan para su aseo personal, dentro de la jornada laboral, de, al menos, diez minutos antes de la comida y otros diez minutos antes de abandonar el trabajo.

El empresario se responsabilizará del lavado y descontaminación de la ropa de trabajo, quedando prohibido que los trabajadores se lleven dicha ropa a su domicilio para tal fin. Cuando contratase tales operaciones con empresas especializadas, estará obligado a asegurarse de que la ropa se envía en recipientes cerrados y etiquetados con las advertencias precisas.

De acuerdo con el artículo 14.5 de la Ley 31/1995, de 8 de noviembre, el coste de las medidas relativas a la seguridad y la salud en el trabajo establecidas por este real decreto no podrá recaer en modo alguno sobre los trabajadores.

DISPOSICIONES ESPECÍFICAS PARA DETERMINADAS ACTIVIDADES

Al plantearse la sustitución de bajantes actuales con alta probabilidad de presencia de amianto, se considerarán las siguientes disposiciones específicas:

- Para determinadas actividades, **como obras de demolición**, de retirada de amianto, de reparación y de mantenimiento, en las que puede preverse la posibilidad de que se sobrepase el valor límite fijado en el artículo 4, a pesar de utilizarse medidas técnicas preventivas tendentes a limitar el contenido de amianto en el aire, el empresario establecerá las medidas destinadas a garantizar la protección de los trabajadores durante dichas actividades, y en particular las siguientes:

a) los trabajadores recibirán un equipo de protección individual de las vías respiratorias apropiado y los demás equipos de protección individual que sean necesarios, velando el empresario por el uso efectivo de los mismos;

b) **se instalarán paneles de advertencia** para indicar que es posible que se sobrepase el valor límite fijado en el artículo 4;

c) deberá evitarse la dispersión de polvo procedente del amianto o de materiales que lo contengan fuera de los locales o lugares de acción.

d) la correcta aplicación de los procedimientos de trabajo y de las medidas preventivas previstas deberá supervisarse por una persona que cuente con los conocimientos, la cualificación y la experiencia necesarios en estas actividades y con la formación preventiva correspondiente como mínimo a las funciones del nivel básico.

- **Antes del comienzo de obras de demolición o mantenimiento, los empresarios deberán adoptar** –si es necesario, recabando información de los propietarios de los locales– **todas las medidas adecuadas para identificar los materiales que puedan contener amianto. Si existe la menor duda sobre la presencia de amianto en un material o una construcción, deberán observarse las disposiciones del Real Decreto 396/2006 que resulten de aplicación.**

- A estos efectos, la identificación deberá quedar reflejada en el estudio de seguridad y salud, o en el estudio básico de seguridad y salud, a que se refiere el Real Decreto 1627/1997, de 24 de octubre, por el que se establecen disposiciones mínimas de seguridad y salud en las obras de construcción, o en su caso en la evaluación de riesgos en aquellas obras en las que reglamentariamente no sea exigible la elaboración de dichos estudios.

DESCRIPCIÓN DEL PROCEDIMIENTO DEL TRABAJO CONCRETO A REALIZAR

En la ejecución de todos los trabajos, se seguirá lo establecido en la legislación de amianto R.D. 396/2006, de 31 de Marzo, sin perjuicio de cumplir en todo caso las normas de seguridad detalladas en el Plan de Seguridad y Salud de la obra, de acuerdo con el R.D. 1627/97 de 24 de Octubre.

El trabajo se desarrollará en tres etapas diferenciadas:

- Etapa preliminar: Preparación del área de trabajo.
- Etapa de intervención: Desamiantado. Retirada de los MCA.
- Etapa final: Limpieza y eliminación de los residuos.

PLANES DE TRABAJO

Antes del comienzo de cada trabajo con riesgo de exposición al amianto incluido en el ámbito de aplicación de este real decreto, el empresario deberá elaborar un plan de trabajo.

El contenido del Plan de Trabajo se ajustará al contenido expreso del Artículo 11 del RD 396/2006.

Los empresarios que contraten o subcontraten con otros la realización de los trabajos comprendidos en el ámbito de este real decreto deberán comprobar que dichos contratistas o subcontratistas cuentan con el correspondiente plan de trabajo. A tales efectos, la empresa contratista o subcontratista deberá remitir a la empresa principal del plan de trabajo, una vez aprobado por la autoridad laboral.

Para la elaboración del plan de trabajo deberán ser consultados los representantes de los trabajadores.

Tramitación de planes de trabajo.

El plan de trabajo se presentará para su aprobación ante la autoridad laboral correspondiente al lugar de trabajo en el que vayan a realizarse tales actividades. Cuando este lugar de trabajo pertenezca a una comunidad autónoma diferente a aquella en que se haya realizado la inscripción en el Registro de empresas con riesgo por amianto, el empresario deberá presentar, junto con el plan de trabajo, una copia de la ficha de inscripción en dicho Registro.

El plan de trabajo se someterá a la aprobación de la autoridad laboral correspondiente al territorio de la comunidad autónoma donde radiquen las instalaciones principales de la empresa que lo ejecute.

El plazo para resolver y notificar la resolución será de cuarenta y cinco días, a contar desde la fecha en que la solicitud haya tenido entrada en el registro de la autoridad laboral competente; si, transcurrido dicho plazo, no se hubiera notificado pronunciamiento expreso, el plan de trabajo se entenderá aprobado.

En la tramitación del expediente deberá recabarse el informe de la Inspección de Trabajo y Seguridad Social y de los órganos técnicos en materia preventiva de las correspondientes comunidades autónomas.

Cuando la autoridad laboral que apruebe un plan de trabajo sea diferente de la del territorio donde la empresa se encuentra registrada, remitirá copia de la resolución aprobatoria del plan a la autoridad laboral del lugar donde figure registrada.

En lo no previsto en este real decreto será de aplicación lo establecido en la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

LOS TRABAJADORES

Formación de los trabajadores.

De conformidad con el artículo 19 de la Ley 31/1995, de 8 de noviembre, el empresario deberá garantizar una formación apropiada para todos los trabajadores que estén, o puedan estar, expuestos a polvo que contenga amianto. Esta formación no tendrá coste alguno para los trabajadores y deberá impartirse antes de que inicien sus actividades u operaciones con amianto y cuando se produzcan cambios en las funciones que desempeñen o se introduzcan nuevas tecnologías o cambios en los equipos de trabajo, repitiéndose, en todo caso, a intervalos regulares.

El contenido de la formación deberá ser fácilmente comprensible para los trabajadores. Deberá permitirles adquirir los conocimientos y competencias necesarios en materia de prevención y de seguridad, acorde al contenido del artículo 13 del RD 396/2006.

Información de los trabajadores.

De conformidad con lo dispuesto en el artículo 18.1 de la Ley 31/1995, de 8 de noviembre, el empresario, en todas las actividades a que se refiere el artículo 3.1, deberá adoptar las medidas necesarias para que los trabajadores y sus representantes reciban información detallada y suficiente sobre:

a) los riesgos potenciales para la salud debidos a una exposición al polvo procedente del amianto o de materiales que lo contengan;

b) las disposiciones contenidas en el presente real decreto y, en particular, las relativas a las prohibiciones y a la evaluación y control del ambiente de trabajo;

c) las medidas de higiene que deben ser adoptadas por los trabajadores, así como los medios que el empresario debe facilitar a tal fin;

d) los peligros especialmente graves del hábito de fumar, dada su acción potenciadora y sinérgica con la inhalación de fibras de amianto;

e) la utilización y obligatoriedad, en su caso, de la utilización de los equipos de protección individual y de la ropa de protección y el correcto empleo y conservación de los mismos;

f) cualquier otra información sobre precauciones especiales dirigidas a reducir al mínimo la exposición al amianto.

Además de las medidas a que se refiere el apartado anterior, el empresario informará a los trabajadores y a sus representantes sobre:

a) los resultados obtenidos en las evaluaciones y controles del ambiente de trabajo efectuados y el significado y alcance de los mismos;

b) los resultados no nominativos de la vigilancia sanitaria específica frente a este riesgo.

Además, cada trabajador será informado individualmente de los resultados de las evaluaciones ambientales de su puesto de trabajo y de los datos de su vigilancia sanitaria específica, facilitándole cuantas explicaciones sean necesarias para su fácil comprensión.

Si se superase el valor límite fijado en el artículo 4 del Real Decreto 396/2006, los trabajadores afectados, así como sus representantes en la empresa o centro de trabajo, serán informados lo más rápidamente posible de ello y de las causas que lo han motivado, y serán consultados sobre las medidas que se van a adoptar o, en caso de urgencia, sobre las medidas adoptadas.

Se aconsejará e informará a los trabajadores en lo relativo a cualquier control médico que sea pertinente efectuar con posterioridad al cese de la exposición. En particular, sobre la aplicación a dichos trabajadores de lo establecido en el artículo 37.3.e) del Real Decreto 39/1997, de 17 de enero, en materia de vigilancia de la salud más allá de la finalización de la relación laboral.

El trabajador tendrá derecho a solicitar y obtener los datos que sobre su persona obren en los registros y archivos que los empresarios tengan establecidos en virtud de lo previsto en el presente real decreto. En todo caso, el empresario, con ocasión de la extinción del contrato de trabajo, al comunicar a los trabajadores la denuncia o, en su caso, el preaviso de la extinción del mismo, deberá entregar al trabajador certificado donde se incluyan los datos que sobre su persona consten en el apartado 3, referido a los datos de las evaluaciones, del anexo IV, y en el anexo V de este real decreto.

Los delegados de prevención o, en su defecto, los representantes legales de los trabajadores recibirán una copia de los planes de trabajo a que se refiere el artículo 11 de este real decreto.

Consulta y participación de los trabajadores.

La consulta y participación de los trabajadores o sus representantes sobre las cuestiones a que se refiere este real decreto se realizarán de conformidad con lo dispuesto en el artículo 18.2 de la Ley 31/1995, de 8 de noviembre.

Vigilancia de la salud de los trabajadores.

El empresario garantizará una vigilancia adecuada y específica de la salud de los trabajadores en relación con los riesgos por exposición al amianto, realizada por personal sanitario competente, según determinen las autoridades sanitarias en las pautas y protocolos elaborados, de conformidad con lo dispuesto en el

artículo 37.3 del Real Decreto 39/1997, de 17 de enero. Dicha vigilancia será obligatoria en los siguientes supuestos:

a) Antes del inicio de los trabajos incluidos en el ámbito de aplicación del presente real decreto con objeto de determinar, desde el punto de vista médico-laboral, su aptitud específica para trabajos con riesgo por amianto.

b) Periódicamente, todo trabajador que esté o haya estado expuesto a amianto en la empresa, se someterá a reconocimientos médicos con la periodicidad determinada por las pautas y protocolos a que se refiere el apartado 1.

Todo trabajador con historia médico-laboral de exposición al amianto será separado del trabajo con riesgo y remitido a estudio al centro de atención especializada correspondiente, a efectos de posible confirmación diagnóstica, y siempre que en la vigilancia sanitaria específica se ponga de manifiesto alguno de los signos o síntomas determinados en las pautas y protocolos a que se refiere el apartado 1 del Real Decreto 396/2006.

Equipos de protección individual.

En los trabajos de desamiantado se utilizarán los siguientes equipos de protección individual EPIS:

- Monos de trabajo: Monos desechables de sistema multicapa de polipropileno, categoría III Tipo 5, con capucha sin bolsillos ni costuras, para que no queden fibras en ellos. Podrán ser reutilizables cuando el lavado y la descontaminación de la ropa de trabajo la efectúen empresas especializadas, asegurándose que el envío se realiza en recipientes cerrados y etiquetados con las advertencias precisas
- Cinta americana para sellar el mono en pies y manos
- Protección de manos: Guantes de nitrilo con dorso descubierto y puño de algodón o guantes de látex o neopreno con extensión del brazo que quedará cubierto por el elástico de la manga del traje desechable
- Protección ocular: Gafas de protección con montura integral.

- Protección de pies: Botas de goma de seguridad con puntera y suela reforzada homologadas. El elástico del pantalón del traje cubrirá la parte alta de las botas.
- Protectores respiratorios: Mascarillas auto filtrantes FFP3 con filtro mecánico.
- La utilización de equipos de protección individual de las vías respiratorias no podrá ser permanente, y su tiempo de utilización, para cada trabajador, se limitará al mínimo estrictamente imprescindible, sin que en ningún caso puedan superarse las 4 horas diarias. Se preverán las pausas pertinentes en función de la carga física y las condiciones climatológicas.

Medidas de higiene personal.

Una vez finalizados los trabajos los operarios deberán quitarse el mono de trabajo, así como los EPIS desechables, quedando prohibido llevárselo al domicilio particular del operario.

Deben usar la unidad de descontaminación, que consiste en un conjunto de tres habitáculos:

- Vestuario sucio, donde deben disponer de recipientes adecuados para recoger la ropa y EPIS que hayan de ser recogidos como residuos.
- Ducha, que deberá estar equipada con agua caliente y un filtro para el agua.
- Vestuario limpio, que es la zona donde se localizan las taquillas para la ropa de calle.
- El agua utilizada en la ducha se filtrará antes de ser vertida, siendo el objetivo de todo el proceso que no salga del habitáculo ninguna fibra de amianto.

Mediciones en el ambiente de trabajo.

Con objeto de que un operario no esté sometido a un valor de exposición diaria superior a 0,1 fibras/cm^3, medida como media ponderada en el tiempo de 8 horas, se realizará un recuento de fibras durante la ejecución de los trabajos, mediante la toma de muestras personales y estáticas, según el Anexo I del R.D. 396/2006.

Las pruebas se realizarán en los lugares de trabajo donde pueda haber amianto, en el exterior de los lugares donde se trabaja con amianto y durante el proceso de retirada del amianto, para asegurar que el

lugar de trabajo quede totalmente limpio de restos de amianto. La toma de muestras y el análisis, recuento de fibras, se realizará preferentemente por el procedimiento descrito en el método MTA/MA-051 del Instituto Nacional de Seguridad e Higiene en el Trabajo, "Determinación de fibras de amianto y otras fibras en aire. Método del filtro de membrana/microscopía óptica de contraste de fases", según el método recomendado por la O.M.S en 1997.

OBLIGACIÓN DE INSCRIPCIÓN EN EL REGISTRO DE EMPRESAS CON RIESGO POR AMIANTO

Todas las empresas que vayan a realizar actividades u operaciones incluidas en el ámbito de aplicación de este real decreto deberán inscribirse en el Registro de empresas con riesgo por amianto existente en los órganos correspondientes de la autoridad laboral del territorio donde radiquen sus instalaciones principales, mediante la cumplimentación de la ficha recogida en el anexo III del RD 396/2006.

MEDIDAS PREVENTIVAS CONTEMPLADAS PARA LIMITAR LA GENERACIÓN Y DISPERSIÓN DE FIBRAS DE AMIANTO

- Las personas destinadas a efectuar los trabajos de retirada de tuberías de fibrocemento, estarán formadas en los riesgos y medidas preventivas en los trabajos con amianto, y habrán pasado una revisión médica según especifica el RD 396/2006.
- Se mantendrá en obra, a disposición de visitas dispuesta por la Autoridad laboral, buzos, guantes y mascarillas.
- En las zonas donde las bajantes de fibrocemento estén unidas o selladas a muros o pasos de forjado, se empleará una cantidad suficiente de agente humectante, para evitar que en su separación se disperse en el aire partículas de amianto.
- En las zonas de trabajo en donde se encuentren restos fracturados de fibrocemento se procederá a efectuar un riego con agente humectante previo a su retirada.
- Los residuos, tanto procedentes de la limpieza como los filtros, buzos, etc. que hubieran estado en contacto con partículas de amianto serán gestionados como material con amianto.
- Los trabajadores dispondrán de equipos de protección individual de las vías respiratorias, utilizarán las mascarillas desechables, así como de ropa de protección adecuada, que impida en lo posible la adherencia de las fibras con cubrición total del cuerpo, incluido

manos y cabeza. Dicha ropa será desechable, siendo su uso obligatorio durante el tiempo de permanencia del mismo.

- El tiempo de utilización de los medios de protección personal respiratoria se limitará al mínimo estrictamente necesario y en ningún caso podrá superar las cuatro horas diarias.
- Las prendas no desechables serán aspiradas diariamente a la finalización del trabajo, mediante un aspirador universal.
- Al acabar los períodos de trabajo la ropa será sustituida obligatoriamente por la ropa de calle.
- Será preceptivo el cambio de ropa antes de las comidas y lavarse la cara, manos y boca, así como la ducha en la unidad de descontaminación.
- En la zona de trabajo está prohibido, comer, beber y fumar.
- Durante este trabajo, los operarios dispondrán de una Unidad de Descontaminación modular
- (desmontable), compuesta por dos taquillas, una para ropa de calle y otra de trabajo, convenientemente separadas entre sí, por la zona de duchas. Dichas taquillas y ducha, estarán sometidas a un procedimiento de depresión con filtro absoluto para evitar que puedan salir al exterior partículas de amianto.
- El tránsito por la unidad de descontaminación es el siguiente:
    - El trabajador accede desde el exterior al primer compartimento (zona blanca) en el que se encuentra el vestuario donde se quita toda su ropa de calle, se coloca todos los equipos de protección individual necesarios para su trabajo. Una vez equipado, comprueba que todos los equipos están correctamente colocados y se dirige hacia la zona de trabajo, avanzando a través de los demás compartimentos.
    - Para salir de la zona de trabajo recorre la Unidad de descontaminación en sentido inverso, es decir, el trabajador sale de la zona de trabajo a través del último compartimento (zona negra). Antes de subir se procederá a la aspiración de todos los elementos de trabajo que no son desechables (botas, gafas…), a continuación accede a la zona sucia (zona negra) de la Unidad de descontaminación, procede a su primera ducha de descontaminación con todos los EPI puestos, se quita la ropa de trabajo desechable dejándola en un recipiente cerrado para su posterior

eliminación como residuo de amianto. El trabajador no se quitará la protección respiratoria hasta después de haber pasado por la ducha corporal de agua y jabón. Los trabajadores saldrán de la unidad de descontaminación por la puerta que comunicada con la Estancia Limpia, donde se vestirán, para luego descender por las escaleras de la Unidad de Descontaminación dirigiéndose al exterior de la zona de trabajo.

EQUIPOS UTILIZADOS PARA LA PROTECCIÓN DE LOS TRABAJADORES

La empresa contratada dotará a todos sus empleados con los E.P.I. adecuados a las tareas que desempeñan. El criterio adoptado para la asignación de prendas, ha sido el siguiente:

- BUZOS Desechables, sin botones, bolsillos o aberturas. Las mangas y bajos del pantalón dispondrán de medios elásticos para su correcto ajuste y llevarán capucha unida al buzo. La protección es desechable a la finalización de la jornada diaria, se considera material contaminado.
- GUANTES Se utilizarán guantes de nitrilo. Su extremo en el brazo queda cubierto con el traje buzo y se sellará con cinta adhesiva.
- GAFAS Para trabajos con riesgos de proyecciones de materiales.
- BOTAS DE SEGURIDAD

Todos los E.P.I. utilizados por los empleados poseerán su correspondiente marcado CE según los R.D. 1407/92 de 20 de Noviembre y R.D. 159-95 de 3 de Febrero. Se conservará acta de entrega de EPIS a cada trabajador.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL
El Arquitecto:

D. José Moriana Pericet
Arquitecto Colegiado nº 375 COACo
Fecha: noviembre de 2024

12.2. PLIEGO DE CONDICIONES

12.2.1. DEFINICIÓN Y ALCANCE DEL PLIEGO DE CONDICIONES

DOCUMENTOS QUE DEFINEN EL ESTUDIO DE SEGURIDAD Y SALUD:

Los documentos que integran el estudio de seguridad y salud a los que les son aplicables este pliego de condiciones son: Memoria. Pliego de condiciones particulares. Presupuesto. Planos. Todos ellos se entienden documentos contractuales para la ejecución de la obra.

COMPATIBILIDAD Y RELACIÓN ENTRE DICHOS DOCUMENTOS:

Todos los documentos que integran este estudio de seguridad y salud son compatibles entre sí; se complementan unos a otros formando un cuerpo inseparable, forma parte del proyecto de ejecución de la obra y que debe llevarse a la práctica mediante el plan de seguridad y salud en el trabajo que elaborará el Contratista, y en el que deben analizarse desarrollarse y complementarse las previsiones contenidas en este estudio de seguridad y salud.

DEFINICIONES Y FUNCIONES DE LAS FIGURAS PARTICIPANTES EN EL PROCESO:

Se describen a continuación de forma resumida las misiones que deben desarrollar los distintos participantes en el proceso para conseguir con eficacia los objetivos propuestos.

En este trabajo, a título descriptivo, se entiende por promotor, la figura expresamente definida en el artículo 2, definiciones de Real Decreto 1.627/1.997 disposiciones mínimas de seguridad y salud de las obras de construcción.

Promotor

Inicia la actividad económica, y designa al proyectista, Dirección facultativa, coordinador de seguridad y salud y contratista o contratistas en su caso. En los contratos a suscribir con cada uno de ellos, puede establecer condiciones restrictivas o exigencias contractuales para la relación coherente entre todos ellos. Especial importancia puede tener las que se introduzcan en el contrato con el contratista en relación con:

1. El establecimiento de las limitaciones para la subcontratación evitando la sucesión de ellas.
2. Exigencias sobre la formación que deben disponer los trabajadores que accedan en función de la complejidad de los trabajos.
3. Exigencia sobre la solvencia técnica de las empresas subcontratadas por el contratista o contratistas en su caso, y forma de acreditarlo, con el objetivo de reforzar la posición de los técnicos para conseguir el cumplimiento de la Ley.

4. Disposición de la organización tanto de medios humanos o materiales a implantar en obra, así como la maquinaria o medios auxiliares más adecuados al proceso.

5. Respaldar las exigencias técnicas que se traten en los documentos a elaborar por el proyectista y el coordinador en materia de seguridad y salud.

El promotor, tiene la opción de designar uno o varios proyectistas para elaborar el proyecto, debiendo conocer que tal elección puede conllevar la exención o la obligatoriedad de designar a un coordinador en materia de seguridad y salud durante la elaboración del proyecto. Es evidente que en todo caso, siempre puede optar por designar coordinador de seguridad y salud.

También puede condicionar o propiciar la fluida relación y la necesaria cooperación entre el proyectista y el coordinador para la coherencia documental entre las prescripciones que establezcan el proyecto y el estudio de seguridad y salud a redactar por cada uno de ellos.

La designación de los agentes cuya contratación ha de procurar, debe realizarla en función de la competencia profesional en el caso de los técnicos, y de la solvencia técnica en el del contratista. En el caso de constatar una decisión errónea en cuanto a la carencia de competencia de alguno de los agentes, debería proceder a rectificar de inmediato, y ello cuantas veces fuera necesario con el objetivo de poder garantizar el cumplimiento legal derivado de la falta de cualificación en materia de seguridad y salud.

Para garantizar la eficacia de sus decisiones, deberá contar con el asesoramiento técnico que se requiera para cada caso y la acreditación documental de la propuesta y sus argumentos técnicos para su constancia.

Proyectista

Elabora el proyecto a construir procediendo a las definiciones necesarias en los distintos documentos que lo integran. Ha de prever la complejidad del proceso para llevar a cabo su construcción pues el proyecto no puede quedarse en mera teoría sino que ha de llevarse a efecto, describiendo su proceso productivo y metodología a emplear. En consecuencia, debe tener en cuenta:

1. Las particularidades del solar donde se ha de ubicar la obra, teniendo en cuenta, a modo de ejemplo, los métodos de realización de los trabajos, forma de ejecución y su método o medios emplear, estableciendo en su valoración los precios adecuados que aseguren su correcta ejecución.

2. Las especificaciones sobre los materiales e instalaciones de la obra, estableciendo las prescripciones en su ejecución, condiciones de aceptación y rechazo, controles de calidad a que deberán someterse las distintas partes de la obra.

3. Medios auxiliares, maquinaria, equipos, herramientas con descripción de los idóneos para la obra de que se trata.

4. Perfil técnico del contratista al que adjudicarle los trabajos de construcción, en relación con la complejidad del proyecto.

5. Programa de obra con análisis del ritmo adecuado y de los plazos parciales de las distintas actividades.

6. Orientaciones coherentes de índole técnica y de apoyo al estudio de seguridad y salud y de complemento a las que el promotor decida incluir como cláusulas en el contrato de ejecución de obras.

7. En la toma de decisiones constructivas y de organización durante la redacción del proyecto ha de tener en cuenta el contenido preventivo del estudio de seguridad y salud que se está redactando simultáneamente.

Puede optar por aparecer como único proyectista o manifestar la existencia de colaboración en el proyecto con otro técnico, con lo que posibilitará según la elección tomada, por la exención o la necesidad legal de contar con la participación de un coordinador de seguridad y salud durante la elaboración del proyecto.

Todos los documentos del Proyecto han de tener su utilidad durante la ejecución, debiendo tener contenido suficiente para permitir que la Dirección de obras la realice otro técnico distinto al que ha elaborado el proyecto, pudiendo además realizar su trabajo sin ninguna dificultad con la única referencia del Proyecto.

Contratista

Recibe el encargo del promotor para realizar las obras proyectadas. La ejecución ha de realizarla teniendo en cuenta las cláusulas del contrato y del proyecto sin olvidar la coherencia reciproca con el plan de seguridad y salud a realizar.

En función de lo prevenido en los documentos contractuales, actúa para la ejecución de los contratos siguientes:

1. Realiza subcontrataciones a empresas o trabajadores autónomos, de parte de la obra y en ocasiones de la totalidad, imponiendo las condiciones en que han de prestarse estos trabajos.

2. Establece las condiciones de trabajo en la obra empresas y trabajadores participantes, en relación con las condiciones del proyecto y del contrato, designando a su representante en obra y a la estructura humana conveniente.

3. Analiza el estudio de seguridad y salud redactado por el coordinador de seguridad y salud, y lo adecua a los procesos y métodos de que disponen los trabajadores autónomos, las empresas subcontratadas y él

mismo como contratista, conformando tras negociación al efecto con los implicados, su plan de seguridad y salud que será la guía preventiva durante la ejecución.

4. Contrata los Servicios de Prevención externos o dispone de ellos en el seno de la empresa, con el objeto de realizar el seguimiento de las evaluaciones de riesgos, sus controles y auditorías.

5. Dispone de las inversiones en equipos, maquinaria, herramientas, medios preventivos, formación de directivos y trabajadores propios y de empresas participantes.

6. Contrata los asesores técnicos y trabajadores que considera adecuados, dándoles las instrucciones de funciones y obligaciones que crea conveniente.

7. Su actuación en obra se rige por los documentos que le obligan, no debiendo alterarlos por instrucciones verbales que los sustituyan.

8. Mantiene en correctas condiciones de seguridad y salubridad el centro de trabajo en aplicación de la política de gestión de la prevención implantada en la empresa.

Subcontratista

Recibe el encargo del contratista para realizar parte de las obras proyectadas. La ejecución ha de realizarla teniendo en cuenta las cláusulas del contrato con el contratista y las condiciones del proyecto de las que debe ser informado. Aporta a su contratante su manual de riesgos y prevención de las actividades propias de su empresa.

En función de lo prevenido en los documentos contractuales, actúa para conseguir los objetivos siguientes:

1. Realiza la contratación de trabajadores de acuerdo con la capacitación profesional exigida por las condiciones del contrato de ejecución suscrito.

2. Cumple y hace cumplir a sus trabajadores las condiciones de trabajo exigibles en la obra, designando a su representante en obra y a la estructura humana conveniente. En unión del contratista y el resto de las empresas, analiza las partes del estudio de seguridad y salud, que le son de aplicación a la prevención de su trabajo en la obra, para acordar la parte el plan de seguridad y salud que le compete y que será la guía preventiva de su actividad durante la ejecución de la obra.

3. Contrata los Servicios de Prevención externos o dispone de ellos en el seno de la empresa, con el objeto de realizar el seguimiento de las evaluaciones de riesgos, sus controles y auditorías.

4. Dispone de las inversiones en equipos, maquinaria, herramientas, medios preventivos, formación de directivos y trabajadores.

5. Contrata los asesores técnicos y trabajadores que considera adecuados, dándoles las instrucciones de funciones y obligaciones que crea conveniente.

6. Su actuación en obra se rige por los documentos que le obligan, no debiendo alterarlos por instrucciones verbales que los sustituyan

Colabora en mantener en correctas condiciones de seguridad y salubridad el centro de trabajo en aplicación de la política de gestión de la prevención implantada en la empresa propia y en la principal.

Dirección facultativa

Representa técnicamente los intereses del promotor durante la ejecución de la obra, dirigiendo el proceso de construcción en función de las atribuciones profesionales de cada técnico participante.

Su actuación debe sujetarse y limitarse a las condiciones del contrato de ejecución de obras suscrito entre promotor y contratista y el contenido del proyecto de ejecución. Como funciones de mayor interés en relación con los objetivos preventivos, se señalan:

1. Verificar previamente la coherencia entre los documentos contractuales, advirtiendo las disfunciones que se observen.

2. Dirigir y verificar los procesos y métodos establecidos en proyecto, adecuándolos en su caso a los requerimientos que se planteen durante la ejecución.

3. Dar instrucciones complementarias para el adecuado cumplimiento de las condiciones establecidas y en coherencia con los documentos contractuales tanto de índole técnica como económica, teniendo en cuenta en todo caso no modificar las condiciones de trabajadores a efectos de seguridad y salud, las económicas establecidas para empresas y trabajadores autónomos, y las de calidad de los futuros usuarios.

4. Conocer y controlar las condiciones de puesta en obra, los métodos de control establecidos por los empresarios, y proceder a la aceptación o rechazo de las unidades de obra ejecutadas en relación con las exigencias de calidad establecidas en el proyecto y contrato.

5. Colaborar con su cliente, el promotor, en la mejor elección del contratista y las condiciones del contrato para una mayor eficacia.

6. Colaborar con el coordinador de seguridad y salud durante la ejecución de la obra, para el cumplimiento de sus fines, y con la Inspección de Trabajo y Seguridad Social si observara durante su actividad en obra incumplimiento grave en materia de seguridad, que pusiera en peligro la integridad de los participantes en la ejecución.

El coordinador en materia de seguridad y salud durante la elaboración del proyecto.

Es contratado por el promotor o propietario obligado por el R.D. 1627/97, y con funciones de abordar la planificación de la prevención de los riesgos que surgirán después durante la ejecución.

Su misión ha de comenzar al tiempo que la concepción del proyecto, debiendo hacer coherentes las actuaciones del proyectista y promotor en materia preventiva. Su actuación culmina con la elaboración del estudio de seguridad y salud, que es un documento específico para la obra y sus circunstancias, debiendo su autor tener capacidad y conocimientos técnicos para su elaboración.

1. Impulsar la toma en consideración del proyectista de decisiones apropiadas para contemplar en el proyecto, tales como métodos de ejecución, sistemas constructivos, organización y plazo, que sean convenientes como prevención de los riesgos que se plantearán en la ejecución.
2. Impulsar la toma en consideración del proyectista de medios auxiliares, apeos, maquinaria o equipos a considerar en el proyecto como ayuda a la planificación preventiva.
3. Impulsar la toma en consideración por el proyectista de la adecuada capacitación de contratista, subcontratistas y trabajadores estableciendo restricciones al caso.
4. Procurar que las acciones del promotor sean de apoyo de las prescripciones de proyectista y las atinentes al estudio que redacte el coordinador.
5. Conocer las distintas posibilidades de establecer procedimientos y métodos a desarrollar durante la ejecución, a efectos de proponer soluciones eficaces y viables, en relación con el perfil de las empresas participantes.
6. Procurar la menor perturbación de coactividades por trabajos de distintas empresas, colaborando en el adecuado plan de obras y planificación de la duración de las distintas fases de la obra para una mayor eficacia preventiva.
7. Culminar su actuación redactando el estudio de seguridad y salud en base a las actuaciones tenidas durante la fase de proyecto, y en coherencia con las decisiones tomadas por proyectista y promotor, procurando la aplicabilidad posterior de su contenido y la aceptación en la fase de ejecución de sus aspectos principales.
8. Tener conocimientos técnicos, de comunicación y la experiencia adecuada a la competencia profesional exigible a los trabajos encomendados.
9. Colaborar con el coordinador de seguridad y salud designado para la fase de ejecución, aportando los datos e información de su interés para el mejor cumplimiento de sus fines.

El coordinador en materia de seguridad y salud durante la ejecución de la obra.

Es contratado por el promotor o propietario, siendo legalmente obligada su actuación por el R.D. 1627/97 cuando durante la ejecución van a participar más de una empresa, o una empresa y trabajadores autónomos o varios trabajadores autónomos.

Su función comienza con la aprobación del plan de seguridad y salud que se debe adaptar a la tecnología de las empresas participantes, teniendo en cuenta el contenido del estudio de seguridad y salud.

Durante la ejecución estará a disposición de la obra a fin de corregir o adaptar el contenido del plan de seguridad y salud a los requerimientos de las empresas participantes o adaptaciones surgidas durante la ejecución. En las reuniones de coordinación deberán participar todas las empresas intervinientes y las decisiones se tomarán por consenso evitando imponer métodos específicos a los que manifiestan su oposición argumentada. Los requisitos restrictivos deben estar en todo caso previamente incorporados en el momento que son procedentes, que suele ser el contrato respectivo.

Las obligaciones impuestas al coordinador en materia de seguridad y salud durante la ejecución de la obra quedan reflejadas en el R.D. 1627/97:

1. Conocer el Sistema de Gestión de la Prevención en la empresa según la política preventiva implantada.
2. Coordinar que las empresas participantes no generen nuevos riesgos por la concurrencia de sus actividades en la obra.
3. Analizar la coherencia entre obligaciones asumidas por las empresas y las cláusulas contractuales impuestas por el promotor al contratista. Entre ellas se encuentran el máximo escalonamiento para subcontratar, capacitación de los trabajadores, y otros que puedan estipularse. La no existencia de cláusulas significaría abandonar al coordinador a su suerte.
4. Estudiar las propuestas que realicen las empresas participantes en relación con las incompatibilidades que afecten a otros su tecnología, procedimientos o métodos habituales, a fin de procurar la aplicación coherente y responsable de los principios de prevención de todos los que intervengan.
5. Conocer a los Delegados de Prevención de la empresa o en su caso al Servicio de Prevención externo, a efecto del cumplimiento de las obligaciones que asumen.
6. Coordinar las acciones de control que cada empresa realice de sus propios métodos de trabajo, para que la implantación del plan de seguridad quede asegurada.
7. Conocer la exigencia protocolizada de comunicación entre empresas y entre trabajadores y empresas, a fin de que se garantice la entrega de equipos de protección, instrucciones de uso, etc.

8. Aprobar el plan de seguridad si es conforme a las directrices del estudio de S+S, en el que deberá quedar reflejado las medidas adoptadas para que solo las personas autorizadas accedan a la obra.

9. Facilitar y mantener bajo su poder el Libro de Incidencias facilitado por su Colegio profesional U Oficina de supervisión de proyectos u órgano equivalente, a efectos de que todos los que prevé el art. 13 del Real Decreto, puedan acceder a él durante el seguimiento y control que a cada uno competa del plan de seguridad y salud de la obra.

10. Remitir a la Inspección de Trabajo y Seguridad Social, las anotaciones hechas en el Libro de Incidencias, en el plazo de 24 horas.

Para conseguir esta eficacia preventiva y por tanto la coherencia documental de los pliegos de condiciones del proyecto y de éste, y de los posteriores contractuales, para la elaboración del presente estudio de seguridad y salud, se han tenido en cuenta las actuaciones previas siguientes:

En general

Voluntad real del promotor para propiciar contrataciones adecuadas, con sujeción a las leyes económicas de mercado, pero impulsando que cada agente disponga de los medios adecuados para desarrollar su misión.

Que la oferta económica de las empresas constructoras que licitan, se realice con condiciones previamente establecidas basadas en la transparencia de lo exigible, sin sorpresas, claramente enunciadas, con vocación de exigirlas con todo rigor estableciendo cláusulas penales de índole económica.

Competencia acreditada de los técnicos contratados (conocimiento y experiencia).

Mejora de las condiciones de trabajo, exigiendo capacitación y experiencia en las contrataciones a terceros (subcontratas) a fin de asegurar que los trabajadores estén capacitados para el desarrollo de cada tipo de trabajo, aplicando sanciones por incumplimientos vía contractual a su empresario.

RELACIÓN CON EL PROMOTOR Y EL PROYECTISTA:

Propuestas técnicas y organizativas realizadas en la fase de proyecto para la mejora de las condiciones de seguridad y salud durante la ejecución, uso y mantenimiento de la obra

El presente estudio de seguridad y salud fue encargado por el promotor de la obra una vez redactado el correspondiente proyecto por el proyectista, por lo que no ha sido posible realizar por parte de los técnicos que suscriben propuestas en la fase de proyecto para la mejora de las condiciones de seguridad y salud durante la ejecución, uso y mantenimiento de la obra.

OBJETIVOS:

El presente pliego de condiciones particulares, es un documento contractual de esta obra que tiene por objeto:

1º Exponer todas las obligaciones del Contratista, subcontratistas y trabajadores autónomos con respecto a este estudio de seguridad y salud.

2º Concretar la calidad de la prevención decidida y su montaje correcto.

3º Exponer las normas preventivas de obligado cumplimiento en determinados casos o exigir al Contratista que incorpore a su plan de seguridad y salud, aquellas que son propias de su sistema de construcción de esta obra.

4º Concretar la calidad de la prevención e información útiles, elaboradas para los previsibles trabajos posteriores.

5º Definir el sistema de evaluación de las alternativas o propuestas hechas por el plan de seguridad y salud, a la prevención contenida en este estudio de seguridad y salud.

6º Fijar unos determinados niveles de calidad de toda la prevención que se prevé utilizar, con el fin de garantizar su éxito.

7º Definir las formas de efectuar el control de la puesta en obra de la prevención decidida y su administración.

8º Propiciar un determinado programa formativo - informativo en materia de Seguridad y Salud, que sirva para implantar con éxito la prevención diseñada.

Todo ello con el objetivo global de conseguir la realización de esta obra, sin accidentes ni enfermedades profesionales, al cumplir los objetivos fijados en la memoria de este estudio de seguridad y salud, que no se reproducen por economía documental, pero que deben entenderse como transcritos a norma fundamental de este documento contractual.

12.2.2. NORMAS Y CONDICIONES TÉCNICAS A CUMPLIR POR TODOS LOS MEDIOS DE PROTECCIÓN COLECTIVA

CONDICIONES GENERALES:

En la memoria de este estudio de seguridad y salud, se han definido los medios de protección colectiva. El Contratista es el responsable de que en la obra, cumplan todos ellos, con las siguientes condiciones generales:

1º La protección colectiva de esta obra, ha sido diseñada en los planos de seguridad y salud. El plan de seguridad y salud los respetará fidedignamente o podrá modificarlas justificadamente, debiendo ser aprobadas tales modificaciones por el Coordinador de Seguridad y Salud durante la ejecución de la obra.

2º Las posibles propuestas alternativas que se presenten en el plan de seguridad y salud, requieren para poder ser aprobadas, seriedad y una representación técnica de calidad en forma de planos de ejecución de obra.

3º Las protecciones colectivas de esta obra, estarán en acopio disponible para uso inmediato, antes de la fecha decidida para su montaje, según lo previsto en el plan de ejecución de obra.

4º Serán nuevas, a estrenar, si sus componentes tienen caducidad de uso reconocida, o si así se especifica en su apartado correspondiente dentro de este "pliego de condiciones técnicas y particulares de Seguridad y Salud". Idéntico principio al descrito, se aplicará a los componentes de madera.

5º Antes de ser necesario su uso, estarán en acopio real en la obra con las condiciones idóneas de almacenamiento para su buena conservación. El Contratista deberá velar por que su calidad se corresponda con la definida en el Plan de Seguridad y Salud.

6º Serán instaladas previamente al inicio de cualquier trabajo que requiera su montaje. Queda prohibida la iniciación de un trabajo o actividad que requiera protección colectiva, hasta que esta esté montada por completo en el ámbito del riesgo que neutraliza o elimina.

7º El Contratista, queda obligado a incluir y suministrar durante la ejecución de obra, el montaje, mantenimiento, cambio de ubicación y retirada de cada una de las protecciones colectivas que se contienen en este estudio de seguridad y salud, siguiendo el esquema del plan de ejecución de obra que suministrará incluido en los documentos técnicos citados.

8º El Contratista desmontadas de inmediato, las protecciones colectivas en uso en las que se aprecien deterioros con merma efectiva de su calidad real. Se sustituirá a continuación el componente deteriorado y se volverá a montar la protección colectiva una vez resuelto el problema. Entre tanto se realiza esta operación, se suspenderán los trabajos protegidos por el tramo deteriorado y se aislará eficazmente la zona para evitar accidentes. Estas operaciones quedarán protegidas mediante el uso de equipos de protección individual. En cualquier caso, estas situaciones se evalúan como riesgo intolerable.

9º Durante la realización de la obra, puede ser necesario variar el modo o la disposición de la instalación de la protección colectiva prevista en el plan de seguridad y salud aprobado. Si ello supone variación al contenido del plan de seguridad y salud, los planos de seguridad y salud, para concretar exactamente la

nueva disposición o forma de montaje. Estos planos deberán ser aprobados por el Coordinador en materia de seguridad y salud durante la ejecución de la obra.

10º Las protecciones colectivas proyectadas en este trabajo, están destinadas a la protección de los riesgos de todos los trabajadores y visitantes de la obra; es decir: trabajadores del contratista, los de las empresas subcontratistas, empresas colaboradoras, trabajadores autónomos y visitas de los técnicos de dirección de, visitas de las inspecciones de organismos oficiales o de invitados por diversas causas.

11º El Contratista, en virtud de la legislación vigente, está obligado al montaje, mantenimiento en buen estado y retirada de la protección colectiva por sus medios o mediante subcontratación, según las cláusulas penalizadoras del contrato de adjudicación de obra y del pliego de condiciones técnicas y particulares del proyecto.

12º El montaje y uso correcto de la protección colectiva definida en este estudio de seguridad y salud, es preferible al uso de equipos de protección individual para defenderse de idéntico riesgo; en consecuencia, no se admitirá el cambio de uso de protección colectiva por el de equipos de protección individual.

13º El Contratista, queda obligado a conservar en la posición de uso prevista y montada, las protecciones colectivas que fallen por cualquier causa, hasta que se realice la investigación necesaria por el Contratista, dado cuenta al Coordinador en materia de seguridad y salud durante la ejecución de la obra. En caso de fallo por accidente, se procederá según las normas legales vigentes, avisando además sin demora, inmediatamente, tras ocurrir los hechos, al Coordinador en materia de seguridad y salud durante la ejecución de la obra, y al Director de Obra.

CONDICIONES TÉCNICAS DE INSTALACIÓN Y USO DE PROTECCIONES COLECTIVAS:

Dentro del apartado correspondiente de cada protección colectiva, que se incluyen en los diversos apartados del texto siguiente, se especifican las condiciones técnicas de instalación y uso, junto con su calidad, definición técnica de la unidad y las normas de obligado cumplimiento que se han creado para que sean cumplidas por los trabajadores que deben montarlas, mantenerlas, cambiarlas de posición y retirarlas.

El Contratista, recogerá obligatoriamente en su plan de seguridad y salud, las condiciones técnicas y demás especificaciones mencionadas en el apartado anterior. Si el plan de seguridad y salud presenta alternativas a estas previsiones, lo hará con idéntica composición y formato, para facilitar su comprensión y en su caso, su aprobación.

CONDICIONES A CUMPLIR POR LOS EQUIPOS DE PROTECCIÓN INDIVIDUAL

CONDICIONES GENERALES:

Como norma general, se han elegido equipos de protección individual ergonómicos, con el fin de evitar las negativas a su uso. Por lo expuesto, se especifica como condición expresa que: todos los equipos de protección individual utilizables en esta obra, cumplirán las siguientes condiciones generales:

1º Tendrán la marca "CE", según las normas EPI.

2º Los equipos de protección individual que cumplan con la indicación expresada en el punto anterior, tienen autorizado su uso durante su período de vigencia. Llegando a la fecha de caducidad, se constituirá un acopio ordenado, que será revisado por el coordinador en materia de seguridad y salud durante la ejecución de la obra, para que autorice su eliminación de la obra.

3º Los equipos de protección individual en uso que estén rotos, serán reemplazados de inmediato, quedando constancia escrita en la oficina de obra del motivo del cambio y el nombre de la empresa y de la persona que recibe el nuevo equipo de protección individual, con el fin de dar la máxima seriedad posible a la utilización de estas protecciones.

4º Las normas de utilización de los equipos de protección individual, se atenderán a lo previsto en la reglamentación vigente.

CONDICIONES TÉCNICAS DE EQUIPOS DE PROTECCIÓN INDIVIDUAL:

A continuación se especifican los equipos de protección individual junto con las normas que hay que aplicar para su utilización.

1º Todo equipo de protección individual en uso que esté deteriorado o roto, será reemplazado de inmediato, quedando constancia en la oficina de obra del motivo del cambio y el nombre de la empresa y de la persona que recibe el nuevo equipo de protección individual. Así mismo, se investigarán los abandonos de estos equipos de protección, con el fin de razonar con los usuarios y hacerles ver la importancia que realmente tienen para ellos.

2º Los equipos de protección individual, con las condiciones expresadas, han sido valorados según las fórmulas usuales de cálculo de consumos de equipos de protección individual, por consiguiente, se entienden valoradas todas las utilizables por el personal y mandos de cada contratista, subcontratistas y trabajadores autónomos.

SEÑALIZACIÓN DE LA OBRA

SEÑALIZACIÓN DE RIESGOS EN EL TRABAJO:

Esta señalización cumplirá con el contenido del Real Decreto 485 de 14 de abril de 1.997, que no se reproduce por economía documental. Desarrolla los preceptos específicos sobre señalización de riesgos en el trabajo según la Ley 31 de 8 de noviembre de 1.995 de Prevención de Riesgos Laborales.

En las "literaturas" de las mediciones y presupuesto, se especifican: el tipo, modelo, tamaño y material de cada una de las señales previstas para ser utilizadas en la obra. Estos textos deben tenerse por transcritos a este pliego de condiciones técnicas y particulares, como normas de obligado cumplimiento.

DESCRIPCIÓN TÉCNICA:

CALIDAD: Serán nuevas, a estrenar. Con el fin de economizar costos se eligen y valoran los modelos adhesivos en tres tamaños comercializados: pequeño, mediano y grande.

Señal de riesgos en el trabajo normalizada según el Real Decreto 485 de 1.977 de 14 de abril.

Con el fin de no aumentar innecesariamente el texto de este pliego de condiciones de seguridad y Salud, deben tenerse por transcritas en él, las literaturas de las mediciones referentes a la señalización de riesgos en el trabajo. Su reiteración es innecesaria.

NORMAS PARA EL MONTAJE DE LAS SEÑALES:

1º Las señales se ubicarán en los lugares correspondientes, en los accesos las informativas y junto a cada maquina las específicas de riesgo de cada una de ellas.

2º Está previsto el cambio de ubicación de cada señal mensualmente como mínimo para garantizar su máxima eficacia. Se pretende que por integración en el "paisaje habitual de la obra" no sea ignorada por los trabajadores.

3º Las señales permanecerán cubiertas por elementos opacos cuando el riesgo, recomendación o información que anuncian sea innecesario y no convenga por cualquier causa su retirada.

4º Se instalarán en los lugares y a las distancias que se indican en los planos específicos de señalización.

5º Se mantendrá permanentemente un tajo de limpieza y mantenimiento de señales, que garantice su eficacia.

NORMAS DE SEGURIDAD PARA MONTADORES DE SEÑALIZACIÓN VIAL:

Se hará entrega a los montadores de las señales del siguiente texto y firmarán un recibo de recepción, que estará archivado a disposición del Coordinador en materia de seguridad y salud durante la ejecución de la obra y en su caso, de la Autoridad Laboral.

La tarea que va a realizar es muy importante; de su buen hacer depende que no existan accidentes en la obra. Considere que una señal es necesaria para avisar a sus compañeros de la existencia de algún riesgo, peligro o aviso necesario para su integridad física.

La señalización de riesgos en el trabajo, no se monta de una forma caprichosa. Debe seguir lo más exactamente posible, los planos que para ello le suministre el Encargado de Seguridad o el Coordinador de Seguridad y Salud, que han sido elaborados por técnicos y que cumplen con las especificaciones necesarias para garantizar su eficacia.

No improvise el montaje. Estudie y replantee el lugar de señalización, según los planos y normas de montaje correcto que se le suministran. Si por cualquier causa, observa que una o varias señales no quedan lo suficientemente visibles, no improvise, consulte con el Encargado de Seguridad o con el Coordinador de Seguridad y Salud, para que le den una solución eficaz, luego, póngala en práctica.

Avise al Encargado de Seguridad para que se cambie de inmediato el material usado o seriamente deteriorado. En este proyecto el material de seguridad se abona; se exige, por lo tanto, nuevo, a estrenar.

Considere que es usted quien corre los riesgos que anuncia la señal mientras la instala. Este montaje no puede realizarse a destajo.

Tenga siempre presente, que la señalización de riesgos en el trabajo se monta, mantiene y desmonta por lo general, con la obra en funcionamiento. Que el resto de los trabajadores no saben que se van a encontrar con usted y por consiguiente, que laboran confiadamente. Son acciones de alto riesgo. Extreme sus precauciones.

Para este trabajo y por su Seguridad, es obligatorio que use el siguiente listado de equipos de protección individual:

- Casco de seguridad, para evitar los golpes en la cabeza.
- Ropa de trabajo, preferiblemente un "mono" con bolsillos cerrados por cremallera, fabricado en algodón 100x100.
- Guantes de loneta y cuero, para protección contra los objetos abrasivos y pellizcos en las manos.
- Botas de seguridad, para que le sujete los tobillos en los diversos movimientos que debe realizar y evitar los resbalones.
- Cinturón de seguridad, clase "C", que es el especial para que, en caso de posible caída al vacío usted no sufra lesiones importantes.

Debe saber que todos los equipos de protección individual que se le suministren, deben tener la certificación impresa de la marca "CE", que garantiza el cumplimiento de la Norma Europea para esa protección individual. Por último, desearle éxito sin accidentes en su tarea, convencidos de su apoyo a la seguridad y Salud de esta obra.

DETECCIÓN DE RIESGOS HIGIÉNICOS Y MEDICIONES DE SEGURIDAD DE LOS RIESGOS HIGIÉNICOS

El contratista, está obligado a recoger en su plan de seguridad y salud en el trabajo y realizar a continuación, las mediciones técnicas de los riesgos higiénicos, bien directamente con un Servicio de Prevención acreditado propio o externo, o mediante la colaboración o contratación con unos laboratorios, mutuas patronales o empresas especializadas, con el fin de detectar y evaluar los riesgos higiénicos previstos o que pudieran detectarse, a lo largo de la realización de los trabajos; se definen como tales los siguientes:

- Nivel acústico de los trabajos y de su entorno.
- Identificación y evaluación de la presencia de disolventes orgánicos, (pinturas).

Estas mediciones y evaluaciones necesarias para la definir las condiciones de higiene de la obra, se realizarán mediante el uso de los necesarios aparatos técnicos especializado, manejado por personal cualificado.

Los informes de estado y evaluación, serán entregados al Coordinador en materia de seguridad y salud durante la ejecución de la obra, para su estudio y propuesta de decisiones.

SISTEMAS APLICADOS PARA LA EVALUACIÓN Y DECISIÓN SOBRE LAS ALTERNATIVAS PROPUESTAS POR EL PLAN DE SEGURIDAD

El Coordinador en materia de seguridad y salud durante la ejecución de obra, para evaluar las alternativas propuestas por el Contratista en su plan de seguridad y salud, utilizará los siguientes criterios técnicos:

RESPECTO A LA PROTECCIÓN COLECTIVA:

A. El montaje, mantenimiento, cambios de posición y retirada de una propuesta alternativa, no tendrán más riesgos o de mayor entidad, que los que tiene la solución de un riesgo decidida en este trabajo.

B. La propuesta alternativa, no exigirá hacer un mayor número de maniobras que las exigidas por la que pretende sustituir; se considera que: a mayor número de maniobras, mayor cantidad de riesgos.

C. No puede ser sustituida por equipos de protección individual.

D. No aumentará los costos económicos previstos.

E. No implicará un aumento del plazo de ejecución de obra.

F. No será de calidad inferior a la prevista en este estudio de seguridad y salud.

Las soluciones previstas en este estudio de seguridad, que estén comercializadas con garantías de buen funcionamiento, no podrán ser sustituidas por otras de tipo artesanal, (fabricadas en taller o en la obra), salvo que estas se justifiquen mediante un cálculo expreso, su representación en planos técnicos y la firma de un técnico competente.

RESPECTO A LOS EQUIPOS DE PROTECCIÓN INDIVIDUAL:

A. Las propuestas alternativas no serán de inferior calidad a las previstas en este estudio de seguridad.

B. No aumentarán los costos económicos previstos, salvo si se efectúa la presentación de una completa justificación técnica, que razone la necesidad de un aumento de la calidad decidida en este estudio de seguridad y salud.

RESPECTO A OTROS ASUNTOS:

El plan de seguridad y salud, debe dar respuesta a todas las obligaciones contenidas en este estudio de seguridad y salud.

El plan de seguridad y salud, dará respuesta a todos los apartados de la estructura de este estudio de seguridad y salud, con el fin de abreviar en todo lo posible, el tiempo necesario para realizar su análisis y proceder a los trámites de aprobación.

El plan de seguridad y salud, suministrará el "plan de ejecución de la obra" que propone el Contratista como consecuencia de la oferta de adjudicación de la obra, conteniendo como mínimo, todos los datos que contiene el de este estudio de seguridad y salud .

LEGISLACIÓN APLICABLE A LA OBRA

Debe entenderse transcrita toda la legislación laboral de España, que no se reproduce por economía documental. Es de obligado cumplimiento el Derecho Positivo del Estado y de sus Comunidades Autónomas aplicable a esta obra, porque el hecho de su transcripción o no, es irrelevante para lograr su eficacia. No obstante, se reproduce a modo de orientación el cuadro legislativo siguiente:

LISTADO NO EXHAUSTIVO DE LEGISLACIÓN	
L. 31/1995	De Prevención de Riesgos Laborales.
R. D. 39/1997	Reglamento de los Servicios de Prevención
	Capítulos vigentes de la Ordenanza de Trabajo en la Construcción, vidrio y cerámica de Agosto de 1970

R. D. 485/1997	Sobre señalización de seguridad y salud en el Trabajo
R.D. 486/1997	Sobre las normas mínimas de seguridad y salud en los lugares de trabajo (Ap. 5 del Anexo IV)
R.D. 487/1997	Sobre manipulación de cargas.
R. D. 488/1997	Sobre condiciones mínimas de seguridad y salud de los puestos de trabajo con pantallas de visualización
R.D. 664/1997	Sobre la exposición de los trabajadores a agentes biológicos.
R.D. 665/1997	Sobre la exposición de los trabajadores a agentes cancerígenos.
R.D. 773/1997	Sobre disposiciones mínimas de seguridad y salud para la utilización de equipos de protección personal.
R.D. 1215/1997	Sobre disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo.
R.D. 1627/ 1997	Sobre disposiciones mínimas de seguridad y salud en las obras de construcción.
R.D. 604/2006	Se modifican el Real Decreto 39/1997, por el que se aprueba el Reglamento de los Servicios de Prevención, y el Real Decreto 1627/1997
Código de la Circulación, 1934	Regulación del Tránsito Rodado.
(Reglamento de Circulación (1992),	Regulación del Tránsito Rodado.
Ley de Responsabilidad Civil y Seguro en la Circulación a Motor, 1995.	Regulación del Tránsito Rodado.
Ley de Transporte Terrestre y Reglamento de los transportes Terrestres, 1987 y 1990).	Regulación del Tránsito Rodado.
Ley de Seguridad Vial, 1990 y modificaciones (1997).	Regulación del Tránsito Rodado.

LEGISLACIÓN APLICABLE A LOS DELEGADOS DE PREVENCIÓN:

Esta figura de la prevención de riesgos, está regulada por la Ley 13/1.995 de 8 de noviembre, de Prevención de Riesgos Laborales en:

Artículo 36 Competencias y facultades de los Delegados de prevención y las relaciones reconocidas en este artículo con los artículos: 33; apartado 2 del Artículo 38; apartado 4 del Artículo 22; Artículos 18, 23 y 40; apartado 3 del Artículo 21.

Artículo 37 Garantías y sigilo profesional de los Delegados de Prevención y las relaciones reconocidas en este artículo con los artículos: letras a) y c) del número 2 del artículo 36 de la Ley 31/1.995 de Prevención de Riesgos Laborales y apartado 2 del Artículo 65 del Estatuto de los Trabajadores en cuanto al sigilo profesional debido respeto de las informaciones a que tuvieren acceso como consecuencia de su actuación en la empresa.

LEGISLACIÓN APLICABLE AL COMITÉ DE SEGURIDAD Y SALUD:

Esta figura de la prevención de riesgos, está regulada en:

Ley 13/1.995 de 8 de noviembre, de Prevención de Riesgos Laborales en: Artículo 38 y 39.

LEGISLACIÓN APLICABLE A LOS SERVICIOS DE PREVENCIÓN:

Real Decreto 39/1.997, de 17 de enero, por el que se aprueba el Reglamento de los Servicios de Prevención.

Orden de 27 de junio de 1.997 por la que se desarrolla el Real Decreto 39/1.997, de 17 de enero, en relación con las condiciones de acreditación de las entidades especializadas como servicios de prevención ajenos a las empresas, de autorización de las personas o entidades especializadas que pretendan desarrollar la actividad de auditoría del sistema de prevención de las empresas y de autorización de las entidades públicas o privadas para desarrollar y certificar actividades formativas en materia de prevención de riesgos laborales.

CONDICIONES DE SEGURIDAD DE LOS MEDIOS AUXILIARES, MÁQUINAS Y EQUIPOS

Es responsabilidad del Contratista, asegurarse de que todos los equipos, medios auxiliares y máquinas empleados en la obra, cumplen con los RRDD 1.215/1.997, 1.435/1.992 y 56/1.995.

Se prohíbe el montaje de los medios auxiliares, máquinas y equipos, de forma parcial; es decir, omitiendo el uso de alguno o varios de los componentes con los que se comercializan para su función.

El uso, montaje y conservación de los medios auxiliares, máquinas y equipos, se hará siguiendo estrictamente las condiciones de montaje y utilización segura, contenidas en el manual de uso editado por su fabricante. A tal fin, y en aquellas circunstancias cuya seguridad dependa de las condiciones de instalación, los medios auxiliares, máquinas y equipos se someterán a una comprobación inicial y antes de su puesta en servicio por

primera vez, así como a una nueva comprobación después de cada montaje en un lugar o emplazamiento diferente.

Todos los medios auxiliares, máquinas y equipos a utilizar en esta obra, tendrán incorporados sus propios dispositivos de seguridad exigibles por aplicación de la legislación vigente. Se prohíbe expresamente la introducción en el recinto de la obra, de medios auxiliares, máquinas y equipos que no cumplan la condición anterior.

Si el mercado de los medios auxiliares, máquinas y equipos, ofrece productos con la marca "CE", el Contratista en el momento de efectuar el estudio para presentación de la oferta de ejecución de la obra, debe tenerlos presentes e incluirlos, porque son por sí mismos, más seguros que los que no la poseen.

El contratista adoptará las medidas necesarias para que los medios auxiliares, máquinas y equipos que se utilicen en la obra sean adecuados al tipo de trabajo que deba realizarse y convenientemente adaptados al mismo, de tal forma que quede garantizada la seguridad y salud de los trabajadores. En este sentido se tendrán en cuenta los principios ergonómicos, especialmente en cuanto al diseño del puesto de trabajo y la posición de los trabajadores durante la utilización de los referidos medios auxiliares, máquinas y equipos

CONDICIONES TÉCNICAS DE LAS INSTALACIONES PROVISIONALES PARA LOS TRABAJADORES Y ÁREAS AUXILIARES DE EMPRESA

INSTALACIONES PROVISIONALES PARA LOS TRABAJADORES CON MÓDULOS PREFABRICADOS COMERCIALIZADOS METÁLICOS:

Estos servicios quedan resueltos mediante la instalación de módulos metálicos prefabricados comercializados en chapa emparedada con aislamiento térmico y acústico, montados sobre soleras ligeras de hormigón que garantizarán su estabilidad y buena nivelación. Los planos y las "literaturas" y contenido de las mediciones, aclaran las características técnicas que deben reunir estos módulos, su ubicación e instalación. Se considera unidad de obra de seguridad, su recepción, instalación, mantenimiento, retirada y demolición de la solera de cimentación.

Materiales

A.- Cimentación de hormigón en masa de 150 Kg., de cemento "portland".

B.- Módulos metálicos comercializados en chapa metálica aislante pintada contra la corrosión, en las opciones de compra o de alquiler mensual. Se han previsto en la opción de alquiler mensual, conteniendo la distribución e instalaciones necesarias expresadas en las mediciones y presupuesto. Dotados de la carpintería metálica necesaria para su ventilación, con acristalamiento simple en las ventanas, que a su vez, estarán

dotadas con hojas practicables de corredera sobre guías metálicas, cerradas mediante cerrojos de presión por mordaza simple.

C.- Carpintería y puertas de paso formadas por cercos directos para mampara y hojas de paso de madera, sobre cuatro pernios metálicos. Las hojas de paso de los retretes y duchas, serán de las de tipo rasgado a 50 cm., sobre el pavimento, con cierre de manivela y cerrojillo. Las puertas de acceso poseerán cerraja a llave.

Instalaciones

A.- Módulos dotados de fontanería para agua caliente y fría y desagües, con las oportunas griferías, sumideros, desagües, aparatos sanitarios y duchas, calculadas en el cuadro informativo. Todas las conducciones están previstas en "PVC".

B.- De electricidad montada, iniciándola desde el cuadro de distribución, dotado de los interruptores magnetotérmicos y diferencial de 30 mA.; distribuida con manguera contra la humedad, dotada de hilo de toma de tierra. Se calcula un enchufe por cada dos lavabos.

ACOMETIDAS:

Se acometerá en los puntos disponibles a pie del lugar de trabajo, dado que cuenta con estos servicios. Las condiciones técnicas y económicas consideradas en este estudio de seguridad y salud, son las mismas que las señaladas para el uso de estos servicios en el pliego de condiciones técnicas y particulares del proyecto de la obra o del contrato de adjudicación.

El suministro de energía eléctrica al comienzo de la obra y antes de que se realice la oportuna acometida eléctrica de la obra, se realizará mediante la puesta en funcionamiento de un grupo electrógeno generador trifásico, accionado por un motor de gasóleo. Se le considera un medio auxiliar necesario para la ejecución de la obra, consecuentemente no se valora en el presupuesto de seguridad. La acometida de agua potable, se realizará a la tubería de suministro especial para la obra, que tiene idéntico tratamiento económico que el descrito en el punto anterior.

CONDICIONES TÉCNICAS DE LA PREVENCIÓN DE INCENDIOS EN LA OBRA

Esta obra, como la mayoría, está sujeta al riesgo de incendio, por consiguiente para evitarlos o extinguirlos, se establecen las siguientes normas de obligado cumplimiento:

1º Queda prohibida la realización de hogueras, la utilización de mecheros, realización de soldaduras y asimilables en presencia de materiales inflamables, si antes no se dispone del extintor idóneo para la extinción del posible incendio.

2º El Contratista queda obligado a suministrar en su plan de seguridad y salud, un plano en el que se plasmen unas vías de evacuación, para las fases de construcción según su plan de ejecución de obra y su tecnología propia de construcción. Es evidente, que en fase de proyecto, no es posible establecer estas vías, si así se proyectaran quedarían reducidas al campo teórico.

3º Se establece como método de extinción de incendios, el uso de extintores cumpliendo la norma UNE 23.110, aplicándose el CTE DB-SI.

4º En este estudio de seguridad y salud, se definen una serie de extintores aplicando las citadas normas. Su lugar de instalación queda definido en la documentación gráfica. El Contratista respetará en su plan de seguridad y salud en el trabajo el nivel de prevención diseñado, pese a la libertad que se le otorga para modificarlo según la conveniencia de sus propios: sistema de construcción y de organización.

EXTINTORES DE INCENDIOS:

Calidad: los extintores a montar en la obra serán nuevos, a estrenar.

Los extintores serán los conocidos con los códigos "A", "B" y los especiales para fuegos eléctricos. En las "literaturas" de las mediciones y presupuesto, quedan definidas todas sus características técnicas, que deben entenderse incluidas en este pliego de condiciones técnicas y particulares y que no se reproducen por economía documental.

Se preverá además por parte del contratista, la existencia y utilización, de extintores móviles para trabajos de soldaduras capaces de originar incendios.

MANTENIMIENTO DE LOS EXTINTORES DE INCENDIOS:

Los extintores serán revisados y retimbrados según el mantenimiento oportuno recomendado por su fabricante, que deberá concertar el Contratista de la obra con una empresa acreditada para esta actividad.

NORMAS DE SEGURIDAD PARA INSTALACIÓN Y USO DE EXTINTORES DE INCENDIOS:

1º Se instalarán sobre patillas de cuelgue o sobre carro, según las necesidades de extinción previstas.

2º En cualquier caso, sobre la vertical del lugar donde se ubique el extintor y en tamaño grande, se instalará una señal normalizada con la oportuna pictografía y la palabra "EXTINTOR".

3º Al lado de cada extintor, existirá un rótulo grande formado por caracteres negros sobre fondo amarillo, que mostrará la siguiente leyenda:

"En caso de incendio, descuelgue el extintor.

Retire el pasador de la cabeza que inmoviliza el mando de accionamiento.

Póngase a sotavento; evite que las llamas o el humo vayan hacia usted.

Accione el extintor dirigiendo el chorro a la base de las llamas, hasta apagarlas o agotar el contenido.

Si observa que no puede dominar el incendio, pida que alguien avise al "Servicio Municipal de Bomberos" lo más rápidamente que pueda."

FORMACIÓN DE LOS TRABAJADORES

Cada contratista o subcontratista, está legalmente obligado a formar a todo el personal a su cargo, en el método de trabajo seguro; de tal forma, que todos los trabajadores de esta obra, deberán tener conocimiento de los riesgos propios de su actividad laboral, así como de las conductas a observar en determinadas maniobras, del uso correcto de las protecciones colectivas y del de los equipos de protección individual necesarios para su protección.

Independientemente de la formación que reciban de tipo convencional esta información específica se les dará por escrito, utilizando los textos que para este fin se incorporan a este pliego de condiciones técnicas y particulares.

MANTENIMIENTO, CAMBIOS DE POSICIÓN, REPARACIÓN Y SUSTITUCIÓN DE LA PROTECCIÓN COLECTIVA Y DE LOS EQUIPOS DE PROTECCIÓN INDIVIDUAL

El Contratista propondrá al Coordinador en materia de seguridad y salud durante la ejecución de la obra, dentro de su plan de seguridad y salud, un "programa de evaluación" del grado de cumplimiento de lo dispuesto en el texto de este pliego de condiciones en materia de prevención de riesgos laborales, capaz de garantizar la existencia de la protección decidida en el lugar y tiempos previstos, su eficacia preventiva real y el mantenimiento, reparación y sustitución, en su caso, de todas las protecciones que se ha decidido utilizar.

Este programa contendrá como mínimo:

1º La metodología a seguir según el propio sistema de construcción del Contratista.

2º La frecuencia de las observaciones o de los controles que va a realizar.

3º Los itinerarios para las inspecciones planeadas.

4º El personal que prevé utilizar en estas tareas.

5º El informe análisis, de la evolución de los controles efectuados.

No obstante lo escrito en el apartado anterior, se reitera el contenido de los apartados correspondientes de este pliego de condiciones técnicas y particulares de seguridad y salud: normas y condiciones técnicas a cumplir por todos los medios de protección colectiva y las de los equipos de protección individual respectivamente.

ACCIONES A SEGUIR EN CASO DE ACCIDENTE LABORAL

ACCIONES A SEGUIR:

El accidente laboral significa un fracaso de la prevención de riesgos por multitud de causas, entre las que destacan las de difícil o nulo control.

Por ello, es posible que pese a todo el esfuerzo desarrollado y nuestra intención preventiva, se produzca algún fracaso.

El Contratista queda obligado a recoger dentro de su plan de seguridad y salud en el trabajo en el trabajo los siguientes principios de socorro:

1º El accidentado es lo primero. Se le atenderá de inmediato con el fin de evitar el agravamiento o progresión de las lesiones.

2º En caso de caída desde altura o a distinto nivel y en el caso de accidente eléctrico, se supondrá siempre, que pueden existir lesiones graves, en consecuencia, se extremarán las precauciones de atención primaria en la obra, aplicando las técnicas especiales para la inmovilización del accidentado hasta la llegada de la ambulancia y de reanimación en el caso de accidente eléctrico.

3º En caso de gravedad manifiesta, se evacuará al herido en camilla y ambulancia; se evitarán en lo posible según el buen criterio de las personas que atiendan primariamente al accidentado, la utilización de los transportes particulares, por lo que implican de riesgo e incomodidad para el accidentado.

4º El Contratista comunicará, a través del plan de seguridad y salud en el trabajo en el trabajo que componga, la infraestructura sanitaria propia, mancomunada o contratada con la que cuenta, para garantizar la atención correcta a los accidentados y su más cómoda y segura evacuación de esta obra.

5º El Contratista comunicará, a través del plan de seguridad y salud en el trabajo en el trabajo que componga, el nombre y dirección del centro asistencial más próximo, previsto para la asistencia sanitaria de los accidentados, según sea su organización. El nombre y dirección del centro asistencial, que se suministra en este estudio de seguridad y salud, debe entenderse como provisional. Podrá ser cambiado por el Contratista adjudicatario

6º El Contratista queda obligado a instalar una serie de rótulos con caracteres visibles a 2 m., de distancia, en el que se suministre a los trabajadores y resto de personas participantes en la obra, la información necesaria para conocer el centro asistencial, su dirección, teléfonos de contacto etc.; este rótulo contendrá como mínimo los siguientes datos: nombre del centro asistencial, dirección del centro asistencial, teléfono de ambulancias, teléfonos de urgencias y el teléfono de información hospitalaria.

7º El Contratista instalará el rótulo precedente de forma obligatoria en los siguientes lugares de la obra: en la oficina de obra; en el vestuario aseo del personal; y en tamaño hoja Din A4, en el interior de cada maletín botiquín de primeros auxilios. Esta obligatoriedad se considera una condición fundamental para lograr la eficacia de la asistencia sanitaria en caso de accidente laboral.

ITINERARIO ADECUADO EN EVACUACIONES ACCIDENTALES:

El Contratista queda obligado a incluir en su plan de seguridad y salud, un itinerario recomendado para evacuar a los posibles accidentados, con el fin de evitar errores en situaciones límite que pudieran agravar las posibles lesiones del accidentado.

COMUNICACIONES INMEDIATAS EN CASO DE ACCIDENTE LABORAL:

El Contratista queda obligado a realizar las acciones y comunicaciones necesarias tanto a la Dirección Facultativa, al Promotor al Coordinador de Seguridad y Salud, a la Autoridad Laboral o al Juzgado de Guardia si fuera necesario.

ACTUACIONES ADMINISTRATIVAS EN CASO DE ACCIDENTE LABORAL:

Con el fin de informar a la obra de sus obligaciones administrativas en caso de accidente laboral, el Contratista queda obligado a recoger en su plan de seguridad y salud, una síncopa de las actuaciones administrativas a las que está legalmente obligado.

MALETÍN BOTIQUÍN DE PRIMEROS AUXILIOS:

En la obra y en los lugares señalados en los planos, se instalará un maletín botiquín de primeros auxilios, conteniendo todos los artículos que se especifican a continuación:

Agua oxigenada; alcohol de 96 grados; tintura de yodo; o "cristalmina"; amoniaco; gasa estéril; algodón hidrófilo estéril; esparadrapo antialérgico; torniquetes antihemorrágicos; bolsa para agua o hielo; guantes esterilizados; termómetro clínico; apósitos autoadhesivos; antiespasmódicos; analgésicos; tónicos cardiacos de urgencia y jeringuillas desechables.

CRONOGRAMA DE CUMPLIMENTACIÓN DE LAS LISTAS DE CONTROL DEL NIVEL DE SEGURIDAD DE LA OBRA

En el caso de que la obra debido a su envergadura o a su complejidad lo requieran tanto la Dirección Facultativa o el Coordinador de Seguridad y Salud podrán exigir un cronograma de cumplimentación de las listas de control del nivel de seguridad de la obra.

El Contratista, en tal caso, suministrará en su plan de seguridad y salud, el cronograma de cumplimentación de las listas de control del nivel de seguridad de la obra. La forma de presentación preferida, es la de un

gráfico coherente con el que muestra el plan de ejecución de la obra suministrado en este estudio de seguridad y salud.

Con el fin de respetar al máximo la libertad empresarial y su propia organización de los trabajos, se admitirán previo análisis de operatividad, las listas de control que componga o tenga en uso común el Contratista adjudicatario. El contenido de las listas de control será coherente con la ejecución material de las protecciones colectivas y con la entrega y uso de los equipos de protección individual.

Si el Contratista carece de los citados listados o se ve imposibilitado para componerlos, deberá comunicarlo inmediatamente tras la adjudicación de la obra, a esta autoría del estudio de seguridad y salud, con el fin de que le suministre los oportunos modelos para su confección e implantación posterior en ella.

CONTROL DE ENTREGA DE LOS EQUIPOS DE PROTECCIÓN INDIVIDUAL

El Contratista incluirá en su "plan de seguridad y salud", el modelo del "parte de entrega de equipos de protección individual" que tenga por costumbre utilizar en sus obras. Si no lo posee deberá componerlo y presentarlo a la aprobación del Coordinador en materia de seguridad y salud durante la ejecución de la obra. Contendrá como mínimo los siguientes datos: Número del parte. Identificación del Contratista. Empresa afectada por el control, sea contratista, subcontratista o un trabajador autónomo. Nombre del trabajador que recibe los equipos de protección individual. Oficio o empleo que desempeña. Categoría profesional. Listado de los equipos de protección individual que recibe el trabajador. Firma del trabajador que recibe el equipo de protección individual. Firma y sello de la empresa.

Estos partes estarán confeccionados por duplicado. El original de ellos, quedará archivado en poder del Encargado de Seguridad y salud, la copia se entregará al Coordinador en materia de seguridad y salud durante la ejecución de la obra.

PERFILES HUMANOS DEL PERSONAL DE PREVENCIÓN

RECURSO PREVENTIVO:

En esta obra, con el fin de poder controlar día a día y puntualmente la prevención y protección decididas, es necesaria la existencia de un Recurso Preventivo, que será contratado o designado dentro de su personal por el Contratista adjudicatario de la obra.

Perfil del puesto de trabajo de Encargado de Seguridad:

Auxiliar Técnico de obra, con capacidad de entender y trasmitir los contenidos del plan de seguridad y salud. Con capacidad de dirigir a los trabajadores de la Cuadrilla de seguridad y salud.

Funciones del Recurso Preventivo en la obra:

La autoría de este estudio de seguridad y salud, considera necesaria la presencia continua en la obra de un Recurso Preventivo que garantice con su labor cotidiana, los niveles de prevención plasmados en este estudio de seguridad y salud con las siguientes funciones técnicas, que se definen en el conjunto de riesgos y prevención detectados para la obra:

La presencia en el centro de trabajo de los recursos preventivos, cualquiera que sea la modalidad de organización de dichos recursos, será necesaria en los siguientes casos:

a) Cuando los riesgos puedan verse agravados o modificados en el desarrollo del proceso o la actividad, por la concurrencia de operaciones diversas que se desarrollan sucesiva o simultáneamente y que hagan preciso el control de la correcta aplicación de los métodos de trabajo.

b) Cuando se realicen actividades o procesos que reglamentariamente sean considerados como peligrosos o con riesgos especiales.

c) Cuando la necesidad de dicha presencia sea requerida por la Inspección de Trabajo y Seguridad Social, si las circunstancias del caso así lo exigieran debido a las condiciones de trabajo detectadas

1º Seguirá las instrucciones del Coordinador en materia de seguridad y salud durante la ejecución de la obra.

2º Informará puntualmente del estado de la prevención desarrollada al Coordinador en materia de seguridad y salud durante la ejecución de la obra.

3º Controlará y dirigirá, siguiendo las instrucciones del plan que origine este estudio de seguridad y salud, el montaje, mantenimiento y retirada de las protecciones colectivas.

4º Dirigirá y coordinará la cuadrilla de seguridad y salud.

5º Controlará las existencias y consumos de la prevención y protección decidida en el plan de seguridad y salud aprobado y entregará a los trabajadores y visitas los equipos de protección individual.

6º Medirá el nivel de la seguridad de la obra, cumplimentando las listas de seguimiento y control, en el caso de ser requeridas por la Dirección Facultativa o por el Coordinador de Seguridad y Salud, que entregará a la jefatura de obra para su conocimiento y al Coordinador en materia de seguridad y salud durante la ejecución de la obra, para que tome las decisiones oportunas.

7º Realizará las mediciones de las certificaciones de seguridad y salud, para la jefatura de obra.

NORMAS DE ACEPTACIÓN DE RESPONSABLES DEL PERSONAL DE PREVENCIÓN

1º Las personas designadas lo serán con su expresa conformidad, una vez conocidas las responsabilidades y funciones que aceptan.

2º El plan de seguridad y salud, recogerá los documentos para que sean firmados por los respectivos interesados. Estos documentos tienen por objeto revestir de la autoridad necesaria a las personas, que por lo general no están acostumbradas a dar recomendaciones de prevención de riesgos laborales o no lo han hecho nunca.

3º Estos documentos, se firmarán por triplicado. El original quedará archivado en la oficina de la obra. La primera copia, se entregará firmada y sellada en original, al Coordinador en materia de seguridad y salud durante la ejecución de la obra; la tercera copia, se entregará firmada y sellada en original al interesado.

NORMAS DE AUTORIZACIÓN DEL USO DE MAQUINARIA Y DE LAS MÁQUINAS HERRAMIENTA

Está demostrado por la experiencia, que muchos de los accidentes de las obras ocurren entre otras causas, por el voluntarismo mal entendido, la falta de experiencia o de formación ocupacional y la impericia. Para evitar en lo posible estas situaciones, se implanta en esta obra la obligación real de estar autorizado a utilizar una máquina o una determinada máquina herramienta.

1º El Contratista queda obligado a componer según su estilo un documento recogido en su plan de seguridad y ponerlo en práctica Fecha. Este documento contendrá al menos: Nombre del interesado que queda autorizado. Se le autoriza el uso de las siguientes máquinas por estar capacitado para ello. Lista de máquinas que puede usar. Firmas del interesado, el jefe de obra y o el encargado. Sello del contratista.

2º Estos documentos se firmarán por triplicado. El original quedará archivado en la oficina de la obra. La copia, se entregará firmada y sellada en original al Coordinador en materia de seguridad y salud durante la ejecución de la obra; la tercera copia, se entregará firmada y sellada en original al interesado.

OBLIGACIONES DE LOS CONTRATISTAS, SUBCONTRATISTAS Y TRABAJADORES AUTÓNOMOS EN MATERIA DE SEGURIDAD Y SALUD

OBLIGACIONES LEGALES DEL CONTRATISTA Y SUBCONTRATISTAS, CONTENIDAS EN EL ARTICULO 11 DEL R.D. 1627/1997

Los contratistas y subcontratistas estarán obligados a:

1º (RD. 1.627/1.997) Aplicar los principios de la acción preventiva que se recogen en el Artículo 15 de la Ley de Prevención de Riesgos Laborales, en particular al desarrollar las tareas o actividades indicadas en el artículo 10 del presente Real Decreto.

Principios de acción preventiva, artículo 15 de la Ley de Prevención de Riesgos Laborales.

a) Evitar los riesgos.

b) Evaluar los riesgos que no se puedan evitar.

c) Combatir los riesgos en su origen.

d) Adaptar el trabajo a la persona, en particular en lo que respecta a la concepción de los puestos de trabajo, así como a la elección de los equipos y métodos de trabajo y de producción con miras, en particular, a atenuar el trabajo monótono y repetitivo y a reducir los efectos del mismo en la salud.

e) Tener en cuenta la evolución de la técnica.

f) Sustituir lo peligroso por lo que entrañe poco o ningún peligro.

g) Planificar la prevención, buscando un conjunto coherente que integre en ella la técnica, la organización del trabajo, las condiciones de trabajo, las relaciones sociales y la influencia de los factores ambientales en el trabajo.

h) Adoptar medidas que antepongan la protección colectiva a la individual.

i) Dar las debidas instrucciones a los trabajadores.

A. (RD. 1.627/1.997)

Cumplir y hacer cumplir a su personal y al subcontratado por ellos, lo establecido en el plan de Seguridad y Salud, al que se refiere el artículo 7

B. (RD. 1.627/1.997)

Cumplir la normativa en materia de prevención de riesgos laborales, teniendo en cuenta en su caso, las obligaciones sobre coordinación de actividades empresariales previstas en el artículo 24 de la Ley de Prevención de Riesgos Laborales, así como cumplir las disposiciones mínimas establecidas en el anexo IV del presente Real Decreto, durante la ejecución de la obra.

Artículo 24 de la Ley de Prevención de Riesgos Laborales: Coordinación de actividades empresariales.

Es decir:

Obligaciones de cooperación entre las empresas que coincidan en una obra	
Establecerán los medios de coordinación que sean necesarios en cuanto a **la protección y prevención** de riesgos laborales de sus respectivos trabajadores.	Establecerán los medios de coordinación que sean necesarios para **la información** sobre la protección y prevención de riesgos laborales de sus respectivos trabajadores.

<table>
<tr><td colspan="4">Como deben cumplir con las dos obligaciones anteriores: en los términos previstos en el apartado 1 del artículo 18 de la Ley 31/1.995 de PRL.</td></tr>
<tr><td colspan="4">ES DECIR: el empresario adoptará las medidas adecuadas (las eficaces), para que los trabajadores reciban todas las informaciones necesarias en relación con:</td></tr>
<tr><td colspan="2">a) Los riesgos para la seguridad y salud en el trabajo, tanto aquellos que afecten a la empresa en su conjunto como a cada puesto de trabajo o función.</td><td>b) Las medidas y actividades de protección y prevención aplicables a los riesgos señalados en el apartado anterior.</td><td>c) Las medidas adoptadas de conformidad con lo dispuesto en el artículo 20 de esta Ley.</td></tr>
<tr><td colspan="4">ADEMÁS: En las empresas que cuenten con representantes de los trabajadores, la información a que se refiere el presente apartado se facilitará por el empresario a los trabajadores a través de dichos representantes; no obstante, deberá informarse directamente a cada trabajador de los riesgos específicos que afecten a su puesto de trabajo o función y de las medidas de protección y prevención aplicables a dichos riesgos.</td></tr>
<tr><td colspan="4">ADEMÁS: El desarrollo de la obligación del apartado c), obliga al cumplimiento del artículo 20 de la Ley 31/1.995 de PRL.: MEDIDAS DE EMERGENCIA: El empresario, teniendo en cuenta el tamaño y la actividad de la empresa, así como la posible presencia de personas ajenas a la misma, DEBERÁ:</td></tr>
<tr><td>Analizar las posibles situaciones de emergencia.</td><td>Adoptar las medidas necesarias en materia de primeros auxilios</td><td>Adoptar las medidas necesarias en materia de lucha contra incendios.</td><td>Adoptar las medidas necesarias en materia de evacuación de los trabajadores.</td></tr>
<tr><td colspan="4">Para cumplir con los cuatro puntos anteriores: DEBERÁ:</td></tr>
<tr><td colspan="2">Designar para ello al personal encargado de poner en práctica estas medidas</td><td>Que este personal encargado, compruebe periódicamente, en su caso, su correcto funcionamiento.</td><td>Que este personal encargado, posea la formación necesaria, sea suficiente en número y disponer del material adecuado.</td></tr>
</table>

ADEMÁS: Para la aplicación de las medidas adoptadas, el empresario deberá organizar las relaciones que sean necesarias con servicios externos a la empresa, en particular en materia de primeros auxilios, asistencia médica de urgencia, salvamento y lucha contra incendios, de forma que quede garantizada la rapidez y eficacia de las mismas.

C. (RD. 1.627/1.997)

Informar y proporcionar las instrucciones adecuadas a los trabajadores autónomos sobre todas las medidas que hayan de adoptarse en lo que se refiere a su seguridad y salud en la obra.

D. (RD. 1.627/1.997)

Atender las indicaciones y cumplir las instrucciones del Coordinador en materia de seguridad y salud durante la ejecución de obra, y de la Dirección Facultativa.

2º (RD. 1.627/1.997)

Los contratistas y subcontratistas serán responsables de la ejecución correcta de las medidas preventivas fijadas en el plan de seguridad y salud en el trabajo en lo relativo a las obligaciones que les correspondan a ellos directamente, o en su caso, a los trabajadores autónomos por ellos contratados.

Además, los contratistas y los subcontratistas responderán solidariamente de las consecuencias que se deriven del incumplimiento de las medidas previstas en el plan, en los términos del apartado 2 del artículo 42 de la Ley de Prevención de Riesgos Laborales.

El apartado 2 del artículo 42, Responsabilidades y su compatibilidad, de la Ley de Prevención de Riesgos Laborales, dice:

La empresa principal responderá solidariamente con los contratistas y subcontratistas a que se refiere el apartado 3 del artículo 24 de esta Ley del cumplimiento, durante el periodo de contrata, de las obligaciones impuestas por esta Ley en relación con los trabajadores que aquellos ocupen en los centros de trabajo de la empresa principal, siempre que la infracción se haya producido en el centro de trabajo de dicho empresario principal.

En las relaciones de trabajo de las empresas de trabajo temporal, la empresa usuaria será responsable de la protección en materia de seguridad y salud en el trabajo en los términos del artículo 6 de la Ley 14/1994, de 1 de julio, por la que se regulan las empresas de trabajo temporal.

El apartado 3 del artículo 42, Responsabilidades y su compatibilidad, de la Ley de Prevención de Riesgos Laborales, dice:

Las responsabilidades administrativas que se deriven del procedimiento sancionador serán compatibles con las indemnizaciones por los daños y perjuicios causados y de recargo de prestaciones económicas del sistema de la Seguridad Social que pueden ser fijadas por el órgano competente de conformidad con lo previsto en la normativa reguladora de dicho sistema.

Los contratistas y subcontratistas son responsables:	
De la ejecución correcta de las medidas preventivas fijadas en el plan de S+S en lo relativo a ellos o a los trabajadores autónomos que contraten.	Responsabilidad solidaria con referencia a las sanciones contenidas en el apartado 2 del Artículo 42 de la Ley 31/1.995 de PRL.

Por último, el punto 3 del artículo 11, del RD. 1.627/1.997 expresa:

3º Las responsabilidades de los coordinadores, de la dirección facultativa y del promotor no eximirán de sus responsabilidades a los contratistas y a los subcontratistas.

OBLIGACIONES ESPECIFICAS DEL CONTRATISTA CON RELACIÓN AL CONTENIDO DE ESTE ESTUDIO DE SEGURIDAD Y SALUD:

1º Cumplir y hacer cumplir en la obra, todas las obligaciones exigidas por la legislación vigente del Estado Español y sus Comunidades Autónomas, referida a la seguridad y salud en el trabajo y concordantes, de aplicación a la obra.

2º Elaborar en el menor plazo posible y siempre antes de comenzar la obra, un plan de seguridad y salud en el trabajo cumpliendo con el articulado del Real Decreto: 1.627/1.997 de 24 de octubre, que respetará el nivel de prevención definido en todos los documentos de este estudio de seguridad y salud. Requisito sin el cual no podrá ser aprobado.

3º Incorporar al plan de seguridad y salud, el "plan de ejecución de la obra" que piensa seguir, incluyendo desglosadamente, las partidas de seguridad con el fin de que puedan realizarse a tiempo y de forma eficaz; para ello seguirá fielmente como modelo, el plan de ejecución de obra que se suministra en este estudio de seguridad y salud.

4º Presentar el plan de seguridad a la aprobación del Coordinador de Seguridad y Salud antes del comienzo de la obra. Realizar diligentemente cuantos ajustes fueran necesarios para que la aprobación pueda ser otorgada; y no comenzar la obra hasta que este trámite se haya concluido.

5º El Plan de Seguridad y Salud aprobado, el Estudio de S+S y el Plan de Prevención de todas las empresas, deberán estar en la obra, a disposición permanente de quienes intervengan en la ejecución de la misma, así como las personas u órganos con responsabilidades en materia de prevención en las empresas intervinientes en la misma, los representantes de los trabajadores, la Dirección Facultativa y de la Autoridad Laboral, para que en base al análisis de dichos documentos puedan presentar por escrito y de forma razonada según sus atribuciones, las sugerencias y alternativas que estimen oportunas al Plan de S+S en el trabajo.

6º Notificar al Coordinador en materia de seguridad y salud durante la ejecución de la obra, con quince días de antelación, la fecha en la que piensa comenzar los trabajos, con el fin de que pueda programar sus actividades y asistir a la firma del acta de replanteo, pues este documento, es el que pone en vigencia el contenido del plan de seguridad y salud en el trabajo aprobado.

7º En el caso de que pudiera existir alguna diferencia entre los presupuestos del estudio y el del plan de seguridad y salud en el trabajo que presente el Contratista, acordar las diferencias y darles la solución más oportuna, con el Coordinador en materia de seguridad y salud durante la ejecución de la obra, antes de la firma del acta de replanteo.

8º Trasmitir la prevención contenida en el plan de seguridad y salud en el trabajo aprobado, a todos los trabajadores propios, subcontratistas y trabajadores autónomos de la obra y hacerles cumplir con las condiciones y prevención en él expresadas.

9º Entregar a todos los trabajadores de la obra independientemente de su afiliación a una empresa contratista, subcontratada o autónoma, los equipos de protección individual definidos en este pliego de condiciones particulares del plan de seguridad y salud aprobado, para que puedan usarse de forma inmediata y eficaz.

10º Instalar a tiempo todas las protecciones colectivas definidas en el pliego de condiciones particulares definidas en el estudio de seguridad y salud y en el plan seguridad y salud aprobado, según lo contenido en el plan de ejecución de obra; mantenerla en buen estado, cambiarla de posición y retirarla, con el conocimiento de que se ha diseñado para proteger a todos los trabajadores de la obra, independientemente de su afiliación a una empresa contratista, subcontratista o autónoma.

11º Instalar a tiempo según lo contenido en el plan de ejecución de obra, contenido en el plan de seguridad y salud aprobado: las "instalaciones provisionales para los trabajadores". Mantenerlas en buen estado de confort y limpieza; realizar los cambios de posición necesarios, las reposiciones del material fungible y la retirada definitiva, conocedor de que se definen y calculan estas instalaciones, para ser utilizadas

por todos los trabajadores de la obra, independientemente de su afiliación a una empresa contratista, subcontratista o autónoma.

12º Incluir en el Plan de Seguridad y Salud en el trabajo un apartado " acciones a seguir en caso de accidente laboral", y cumplir fielmente con lo expresado.

13º Informar de inmediato de los accidentes: leves, graves, mortales o sin víctimas al Coordinador en materia de seguridad y salud durante la ejecución de la obra, tal como queda definido en el apartado "acciones a seguir en caso de accidente laboral".

14º Disponer en acopio de obra, antes de ser necesaria su utilización, todos los artículos de prevención contenidos y definidos en este estudio de seguridad y salud, en las condiciones que expresamente se especifican dentro de este pliego de condiciones técnicas y particulares de seguridad y salud.

15º Comunicar al Coordinador en materia de seguridad y salud durante la ejecución de la obra, la solución técnico preventiva, de los posibles imprevistos del proyecto o motivados por los cambios de ejecución decididos sobre la marcha, durante la ejecución de la obra.

16º Incluir en el plan de seguridad y salud, las medidas preventivas implantadas en su empresa y que son propias de su sistema de construcción. Éstas, unidas a las que se suministran para el montaje de la protección colectiva y equipos, dentro de este pliego de condiciones y particulares, formarán un conjunto de normas específicas de obligado cumplimiento en la obra. En el caso de no tener redactadas las citadas medidas preventivas a las que se hace mención, lo comunicará por escrito al Coordinador en materia de seguridad y salud durante la ejecución de la obra, con el fin de que pueda orientarle en el método a seguir para su composición.

17º Componer en el plan de seguridad y salud, una declaración formal de estar dispuesto a cumplir con estas obligaciones en particular y con la prevención y su nivel de calidad, contenidas en este estudio de seguridad y salud. Sin el cumplimiento de este requisito, no podrá ser otorgada la aprobación del plan de seguridad y salud en el trabajo.

18º Componer el análisis inicial de los riesgos tal como exige la Ley 31 de 8 de noviembre de Prevención de Riesgos Laborales.

19º Exigir a los subcontratistas y lograr su cumplimiento, para que compongan el análisis inicial de los riesgos tal como exige la Ley 31 de 8 de noviembre de Prevención de Riesgos Laborales.

20º A lo largo de la ejecución de la obra, realizar y dar cuenta de ello al Coordinador en materia de seguridad y salud durante la ejecución de la obra, el análisis permanente de riesgos al que como empresario está

obligado por mandato de la Ley 31 de 8 de noviembre de Prevención de Riesgos Laborales, con el fin de conocerlo y tomar las decisiones que sean oportunas.

21º El contratista, así como los subcontratistas y los trabajadores autónomos que hayan de intervenir en la ejecución de la obra, habrán de disponer de los medios humanos, técnicos y económicos necesarios para desempeñar correctamente con arreglo al proyecto, al presente estudio de S+S y al contrato, los trabajos que respectivamente se hubiesen comprometido a realizar cada uno de ellos.

22º El contratista y subcontratistas habrán de contar con los Servicios de prevención propios o ajenos que en función de sus características vengan exigidos por la Ley de Prevención de Riesgos Laborales y el Reglamento de los Servicios de Prevención.

23º El contratista se obliga a hacer constar en los contratos que formalice con los subcontratistas y trabajadores autónomos, las obligaciones en materia de seguridad y salud que a dichos subcontratistas y trabajadores autónomos les corresponden.

Asimismo, queda obligado a comprobar el cumplimiento de la cláusula Nº 23, en los contratos que se establezcan entre los subcontratistas y los trabajadores autónomos.

24º La ejecución de las diferentes unidades de obra por parte del contratista, subcontratistas y trabajadores autónomos se llevarán a cabo con arreglo a lo prescrito en el proyecto de ejecución, en este estudio de seguridad y salud y a las instrucciones recibidas del Coordinador en materia de seguridad y salud durante la ejecución de la obra, así como de la Dirección Facultativa de la misma.

25º Es responsabilidad del contratista, subcontratistas y trabajadores autónomos cumplir rigurosamente con los principios preventivos en materia de seguridad y salud que vienen establecidos en la legislación vigente y con las prescripciones que figuren en el plan de seguridad y salud en el trabajo en el trabajo que se apruebe en su momento antes del comienzo de la obra.

26º Los medios humanos de que se dispongan en la obra por el contratista, subcontratistas, así como los trabajadores autónomos que intervengan en la ejecución de la obra habrán de poseer las cualificaciones necesarias a los cometidos cuyo desempeño les encomienden o asuman.

27º Es obligación del contratista facilitar a su personal la información necesaria en materia de seguridad y salud, tanto de carácter general como la específica que concierne a las funciones que cada uno desarrolle, y que en todo caso serán acordes tanto a la cualificación que individualmente se posea como a las condiciones síquicas y físicas del propio trabajador.

28º El contratista o el titular del centro de trabajo adoptará las medidas necesarias para que las empresas subcontratistas y trabajadores autónomos que desarrollen actividades en la obra reciban la información y las instrucciones adecuadas, en relación con los riesgos existentes en dicha obra y con las medidas de protección y prevención correspondientes, así como sobre las medidas de emergencia a aplicar, para su traslado, en su caso, a sus respectivos trabajadores.

OBLIGACIONES LEGALES DE LOS TRABAJADORES AUTÓNOMOS:

Los trabajadores autónomos estarán obligados a:

1º (RD. 1.627/1.997) Aplicar los principios de acción preventiva que se recogen en el artículo 15 de la Ley de Prevención de Riesgos Laborales, en particular al desarrollar las tareas o actividades indicadas en el artículo 1º del presente Real Decreto.

Principios de acción preventiva, artículo 15 de la Ley de Prevención de Riesgos Laborales.

a) Evitar los riesgos.

b)Evaluar los riesgos que no se puedan evitar.

c) Combatir los riesgos en su origen.

d) Adaptar el trabajo a la persona, en particular en lo que respecta a la concepción de los puestos de trabajo, así como a la elección de los equipos y métodos de trabajo y de producción con miras, en particular, a atenuar el trabajo monótono y repetitivo y a reducir los efectos del mismo en la salud.

e) Tener en cuenta la evolución de la técnica.

f) Sustituir lo peligroso por lo que entrañe poco o ningún peligro.

g) Planificar la prevención, buscando un conjunto coherente que integre en ella la técnica, la organización del trabajo, las condiciones de trabajo, las relaciones sociales y la influencia de los factores ambientales en el trabajo.

h) Adoptar medidas que antepongan la protección colectiva a la individual.

i) Dar las debidas instrucciones a los trabajadores.

2º (RD. 1.627/1.997)

Cumplir las disposiciones mínimas de seguridad y salud establecidas en el anexo IV del presente Real Decreto, (1.627/1.997)durante la ejecución de la obra.

3º (RD. 1.627/1.997)

Cumplir las obligaciones en materia de prevención de riesgos que establece para los trabajadores el artículo 29, apartados 1 y 2 de la Ley de Prevención de Riesgos Laborales.

El Artículo 29 apartados 1 y 2 de la Ley de Prevención de Riesgos Laborales dice:

1. Corresponde a cada trabajador velar, según sus posibilidades y mediante el cumplimiento de las medidas de prevención que en cada caso sean adoptadas, por su propia seguridad y salud en el trabajo y por las de aquellas otras personas a las que pueda afectar su actividad profesional, a causa de sus actos u omisiones en el trabajo, de conformidad con su formación y las instrucciones del empresario.

2. Los trabajadores, con arreglo a su formación y siguiendo las instrucciones del empresario, deberán en particular:

1º Usar adecuadamente, de acuerdo con su naturaleza y los riesgos previsibles, las máquinas aparatos, herramientas, substancias peligrosas, equipos de transporte y, en general, cualesquiera otros medios con los que desarrollen su actividad.

2º Utilizar correctamente los medios y equipos de protección facilitados por el empresario, de acuerdo con las instrucciones recibidas de este.

3º No poner fuera de funcionamiento y utilizar correctamente los dispositivos de seguridad existentes o que se instalen en los medios relacionados con su actividad o en los lugares de trabajo en los que esta tenga lugar.

4º Informar de inmediato a su superior jerárquico directo, y a los trabajadores designados para realizar actividades de protección y prevención o, en su caso, al servicio de prevención, acerca de cualquier situación que, a su juicio, entrañe, por motivos razonables, un riesgo para la seguridad y la salud de los trabajadores.

5º Contribuir al cumplimiento de las obligaciones establecidas por la autoridad competente con el fin de proteger la seguridad y la salud de los trabajadores en el trabajo.

6º Cooperar con el empresario para que este pueda garantizar unas condiciones de trabajo que sean seguras y no entrañen riesgos para la seguridad y la salud de los trabajadores.

3. El incumplimiento por los trabajadores de las obligaciones en materia de prevención de riesgos a que se refieren los apartados anteriores tendrá la consideración de incumplimiento laboral a los efectos previstos en el artículo 58.1 del Estatuto de los Trabajadores o de falta, en su caso, conforme a lo establecido en la correspondiente normativa sobre régimen disciplinario de los funcionarios públicos o del personal estatutario al servicio de las Administraciones públicas. Lo dispuesto en este apartado será igualmente aplicable a los socios de las cooperativas cuya actividad consista en la prestación de su trabajo, con las precisiones que se establezcan en sus Reglamentos de Régimen Interno.

4º (RD. 1.627/1.997).

Ajustar su actuación en la obra conforme a los deberes de coordinación de actividades empresariales establecidos en el artículo 24 de la Ley de Prevención de Riesgos Laborales, participando en particular de cualquier medida de actuación coordinada que se hubiera establecido.

El artículo 24 de la Ley de Prevención de Riesgos Laborales, dice:

1. Cuando en un mismo centro de trabajo desarrollen actividades trabajadores de dos o más empresas, éstas deberán cooperar en la aplicación de la normativa sobre previsión de riesgos laborales. A tal fin, establecerán los medios de coordinación que sean necesarios en cuanto a la protección y prevención de riesgos laborales y la información sobre los mismos a sus respectivos trabajadores, en los términos previstos en el apartado 1 del artículo 18 de esta Ley.

El apartado 1 del artículo 18 de la Ley de Prevención de Riesgos laborales dice:	
A fin de dar cumplimiento al deber de protección establecido en la presente Ley, el empresario adoptará las medidas adecuadas para que los trabajadores reciban todas las informaciones necesarias en relación con:	a) los riesgos para la seguridad y salud de los trabajadores en el trabajo, tanto aquellos que afecten a la empresa en su conjunto como a cada tipo de puesto de trabajo o función. b) Las medidas y actividades de protección y prevención aplicables a los riesgos señalados en el apartado anterior. c) las medidas adoptadas de conformidad con lo dispuesto en el artículo 20 de esta Ley.
En las empresas que cuenten con representantes de los trabajadores, la información a la que se refiere el presente apartado se facilitará por el empresario a los trabajadores a través de dichos representantes; no obstante, deberá informar directamente a cada trabajador de los riesgos específicos que afecten a su puesto de trabajo o función y de las medidas de protección y prevención aplicables a dichos riesgos. Para comprender el alcance del apartado c), el artículo 20, Medidas de emergencia de la Ley de Prevención de Riesgos laborales dice:	

- El empresario, teniendo en cuenta el tamaño y la actividad de la empresa, así como la posible presencia de personas ajenas a la misma, deberá analizar las posibles situaciones de emergencia y adoptar las medidas necesarias en materia de primeros auxilios, lucha contra incendios y evacuación de los trabajadores, designando para ello al personal encargado de poner en práctica estas medidas y comprobando periódicamente, en su caso, su correcto funcionamiento. El citado personal deberá poseer la formación necesaria, ser suficiente en número y disponer del material adecuado, en función de las circunstancias antes señaladas.
- Para la aplicación de las medidas adoptadas, el empresario deberá organizar las relaciones quesean necesarias con los servicios externos a la empresa, en particular en materia de primeros auxilios, asistencia médica de urgencia, salvamento, y lucha contra incendios, de forma que quede garantizada la rapidez y eficacia de las mismas.

Prosigue el artículo 24 de la Ley de prevención de Riesgos Laborales:

2. El empresario titular del centro de trabajo adoptará las medidas necesarias para que aquellos otros empresarios que desarrollen actividades en su centro de trabajo reciban la formación y las instrucciones adecuadas, en relación con los riesgos existentes en el centro de trabajo y con las medidas de protección y prevención correspondientes, así como sobre las medidas de emergencia a aplicar, para su traslado a sus respectivos trabajadores.

3. Las empresas que contraten o subcontraten con otras la realización de obras o servicios correspondientes a la propia actividad de aquellas y que se desarrollen en sus propios centros de trabajo deberán vigilar el cumplimiento por dichos contratistas y subcontratistas de la normativa de prevención de riesgos laborales.

4. Las obligaciones consignadas en el último párrafo del apartado 1 de artículo 41 de esta Ley serán también de aplicación, respecto a las operaciones contratadas, en los supuestos en que los trabajadores de la empresa contratista o subcontratista no presten servicios en los centros de trabajo de la empresa principal, siempre que tales trabajadores deban operar con maquinaria, equipos, productos, materias primas o útiles proporcionados por la empresa principal.

El último párrafo del apartado 1 del artículo 41 de la Ley de Prevención de Riesgos Laborales dice:

- Los fabricantes importadores y suministradores deberán proporcionar a los empresarios, y estos recabar de aquellos, la información necesaria para que la utilización y manipulación de la maquinaria, equipos, productos, materias primas, y útiles de trabajo se produzca sin riesgos para la seguridad y salud de los trabajadores, así como para que los empresarios puedan cumplir con sus obligaciones de información respecto a los trabajadores.

Prosigue el artículo 24 de la Ley de prevención de Riesgos Laborales:

5. Los deberes de cooperación y de información e instrucción recogidos en los apartados 1 y 2 (*de este artículo)*, serán de aplicación respecto de los trabajadores autónomos que desarrollen actividades en dichos centros de trabajo.

5º (RD. 1.627/1.997) Utilizar los equipos de trabajo que se ajusten a lo dispuesto en el Real Decreto 1215/1997, de 18 de julio, por el que se establecen las disposiciones mínimas de seguridad y salud para utilización por los trabajadores de equipos de trabajo. (Máquinas y similares).

6º (RD. 1.627/1.997) Elegir y utilizar equipos de protección individual en los términos previstos en el Real Decreto 773/1997, de 30 de mayo, sobre disposiciones mínimas de seguridad y salud relativas a la utilización por los trabajadores de equipos de protección individual.

7º (RD. 1.627/1.997) Atender las indicaciones y cumplir las instrucciones del coordinador en materia de Seguridad y Salud durante la ejecución de la obra o, en su caso, de la dirección facultativa.

8º (RD. 1.627/1.997) Los trabajadores autónomos deberán cumplir lo establecido en el plan de seguridad y salud en el trabajo.

NORMAS DE MEDICIÓN, VALORACIÓN Y CERTIFICACIÓN DE LAS PARTIDAS PRESUPUESTARIAS DE SEGURIDAD Y SALUD

No todos los medios de protección tanto colectivos como personales descritos en este Estudio de Seguridad se encuentran valorados en las mediciones y presupuesto, dado que muchos de ellos pertenecen a los gastos generales de obra o costes indirectos de cada unidad de obra, como puede ser el caso del vallado de la obra, los andamios necesarios para la realización de una obra de fábrica, las grúas y medios de elevación, etc.,. Son por tanto elementos referidos en este estudio y que requieren de atención en materia de prevención de riesgos laborales, pero que a su vez intervienen de manera directa en la ejecución de una unidad de obra o son indispensables para la ejecución de la obra.

MEDICIONES:

Las mediciones de los componentes y equipos de seguridad se realizarán en la obra, mediante la aplicación de las unidades físicas y patrones, que las definen; es decir: m., m2., m3., l., Und., y h. No se admitirán otros supuestos.

La medición de los equipos de protección individual utilizados, se realizarán mediante el análisis de la veracidad de los partes de entrega definidos en este pliego de condiciones técnicas y particulares, junto con el control del acopio de los equipos retirados por uso, caducidad o rotura.

La medición de la protección colectiva puesta en obra será realizada o supervisada por el Coordinador en materia de seguridad y salud, aplicando los criterios de medición común para las partidas de construcción, siguiendo los planos y criterios contenidos en el capítulo de mediciones de este estudio de seguridad y salud.

No se admitirán las mediciones de protecciones colectivas, equipos y componentes de seguridad, de calidades inferiores a las definidas en este pliego de condiciones.

Los errores de mediciones de S+S, se justificarán ante el Coordinador en materia de seguridad y salud durante la ejecución de la obra y se procederá conforme a las normas establecidas para las liquidaciones de obra.

VALORACIONES ECONÓMICAS:

Valoraciones

Las valoraciones económicas del plan de seguridad y salud en el trabajo no podrán implicar disminución del importe total del estudio de seguridad adjudicado, según expresa el RD. 1.627/1.997 en su artículo 7, punto 1, segundo párrafo.

Valoraciones de unidades de obra no contenidas o que son erróneas, en este estudio de seguridad y salud

Los errores presupuestarios, se justificarán ante el Coordinador en materia de S+S durante la ejecución de la obra y se procederá conforme a las normas establecidas para las liquidaciones de obra.

Precios contradictorios

Los precios contradictorios se resolverán mediante la negociación con el Coordinador en materia de S+S durante la ejecución de la obra y se procederá conforme a las normas establecidas para las liquidaciones de obra.

Abono de partidas alzadas

Las partidas alzadas serán justificadas mediante medición en colaboración con el Coordinador en materia de S+S durante la ejecución de la obra y se procederá conforme a las normas establecidas para las liquidaciones de obra.

Relaciones valoradas

La seguridad ejecutada en la obra se presentará en forma de relación valorada, compuesta de mediciones totalizadas de cada una de las partidas presupuestarias, multiplicadas por su correspondiente precio unitario, seguida del resumen de presupuesto por artículos. Todo ello dentro de las relaciones valoradas del resto de capítulos de la obra.

Certificaciones.

Se realizará una certificación mensual, que será presentada, para su abono, según lo pactado en el contrato de adjudicación de obra.

La certificación del presupuesto de seguridad, está sujeta a las normas de certificación, que deben aplicarse al resto de las partidas presupuestarias del proyecto de ejecución, según el contrato de construcción firmado entre la Propiedad y el Contratista. Estas partidas a las que nos referimos, son parte integrante del proyecto de ejecución por definición expresa de la legislación vigente.

Revisión de precios

Se aplicará las normas establecidas en el contrato de adjudicación de obra.

Prevención contratada por administración

El Coordinador en materia de seguridad y salud durante la ejecución de la obra, controlará la puesta real en obra de las protecciones contratadas por administración, mediante medición y valoración unitaria expresa, que se incorporará a la certificación mensual en las condiciones expresadas en el apartado certificaciones de este pliego de condiciones particulares.

NORMAS Y CONDICIONES TÉCNICAS PARA EL TRATAMIENTO DE RESIDUOS

El Contratista, identificará durante la ejecución de la obra en colaboración con los subcontratistas y trabajadores autónomos, los derivados de la evacuación de los residuos corrientes de la construcción, (escombros). En el plan de seguridad y salud en el trabajo de esta obra, se recogerán los métodos de eliminación de residuos. En cualquier caso, se cumplirá con las condiciones siguientes de eliminación de residuos:

Escombro en general, se evacuará mediante trompas de vertido de continuidad total sin fugas; las trompas, descargarán sobre contenedor; la boca de la trompa, estará unida al contenedor mediante una lona que abrazando la boca de salida, cubra toda la superficie del contenedor.

Escombro especial, se evacuará mediante bateas emplintadas a gancho de grúa, cubiertas con una lona contra los derrames fortuitos.

Escombro derramado, se evacuará mediante apilado con cargadora de media capacidad, con carga posterior a camión de transporte al vertedero.

Escombro sobre camión de transporte al vertedero, se cubrirá con una lona contra los derrames y polvo.

NORMAS Y CONDICIONES TÉCNICAS PARA EL TRATAMIENTO DE MATERIALES Y SUSTANCIAS PELIGROSAS

Cuando se identifique la existencia de materiales peligrosos, estos deberán ser evitados siempre que sea posible. Los contratistas evaluarán adecuadamente los riesgos y adoptarán las medidas necesarias al realizar las obras. Si se descubriesen materiales peligrosos inesperados, el contratista, subcontratista o trabajadores autónomos, informarán al Coordinador en materia de seguridad y salud durante la ejecución de la obra, que procederá según la legislación vigente específica para cada material peligroso identificado.

EL PLAN DE SEGURIDAD Y SALUD

El plan de seguridad y salud en el trabajo será compuesto por el Contratista adjudicatario, cumpliendo los siguientes requisitos; si incumple alguno de ellos, la aprobación del plan de seguridad y salud en el trabajo no podrá ser otorgada:

1º Cumplirá las especificaciones del Real Decreto 1.627/1.997 y concordantes, confeccionándolo antes de la firma del acta de replanteo, que se entiende como el único documento que certifica el comienzo real de la obra. Siendo requisito indispensable, el que se pueda aprobar antes de proceder a la firma de la citada acta, por el coordinador en materia de seguridad y salud durante la ejecución de la obra y que recogerá expresamente, el cumplimiento de tal circunstancia.

2º Respetará escrupulosamente el contenido de todos los documentos integrantes de este estudio de seguridad y salud, limitándose a realizar la adaptación a la tecnología de construcción que es propia del Contratista adjudicatario, analizando y completando todo aquello que crea menester para lograr el cumplimiento de los objetivos contenidos en este estudio de seguridad y salud. Además está obligado a suministrar, los documentos y definiciones que en él se le exigen, especialmente el plan de ejecución de obra, conteniendo de forma desglosada las partidas de seguridad y salud. Para ello, tomará como modelo de mínimos el plan de ejecución de obra que se incluye en este estudio de seguridad y salud.

3º Se ajustará al máximo posible a la estructura de este estudio, facilitándose con ello tanto la redacción del Plan de Seguridad y salud como su análisis para la aprobación y seguimiento durante la ejecución de la obra.

4º Suministrará planos de calidad técnica, planos de ejecución de obra con los detalles oportunos para su mejor comprensión.

5º No contendrá croquis de los llamados "fichas de seguridad" de tipo genérico, de tipo publicitario, de tipo humorístico o de los denominados de divulgación, salvo si los incluye en una separata formativa informativa para los trabajadores totalmente separada del cuerpo documental del plan de seguridad y salud. En cualquier caso, estos croquis aludidos, no tendrán la categoría de planos de seguridad y en consecuencia, nunca se aceptarán como substitutivos de ellos.

6º No podrá ser sustituido por ningún otro tipo de documento, que no se ajuste a lo especificado en los apartados anteriores.

7º El Contratista adjudicatario estará identificado en cada página y en cada plano del plan de seguridad y salud. Las páginas estarán además numeradas unitariamente y en el índice de cada documento.

8º El nombre de la obra que previene, aparecerá en el encabezamiento de cada página y en el cajetín identificativo de cada plano.

9º Se presentará encuadernado a tamaño DIN A4, con anillas, tornillos, "gusanillo de plástico" o con alambre continuo.

10º Todos sus documentos: memoria, pliego de condiciones técnicas y particulares, mediciones y presupuesto, estarán sellados en su última página con el sello oficial del contratista adjudicatario de la obra y firmados por persona física que tenga firma reconocida para hacerlo en nombre de la empresa. Los planos, tendrán impreso el sello mencionado en su cajetín identificativo o carátula y con la misma firma de persona física apoderada.

LIBRO DE INCIDENCIAS

Lo suministrará a la obra la Propiedad en las obras oficiales.

Se utilizará según lo especificado en el artículo 13 del citado Real Decreto 1.627/1.997.

Se facilitará por el Colegio profesional al que pertenezca el técnico que haya aprobado el Plan de Seguridad y salud o por la oficina de supervisión de proyectos u órgano equivalente cuando se trate de obras de las Administraciones públicas, tal y como se recoge en el Real Decreto 1.627/1.997 de 24 de octubre por el que se establecen disposiciones mínimas de seguridad y salud en las obras de construcción.

El Libro de incidencias deberá estar siempre en la obra a disposición de quién establece el art. 13, ap. 3 del RD 1627/1997.

Efectuada una anotación en el libro de incidencias, El Coordinador de Seguridad durante la ejecución de la obra o en su caso la Dirección Facultativa, están obligados a remitir en el plazo de veinticuatro horas, una copia a la Inspección de Trabajo y Seguridad Social de la provincia que se realiza la obra. Igualmente se deberán notificar las anotaciones en el libro al contratista afectado y a los representantes de los trabajadores de éste.

CLÁUSULAS PENALIZADORAS

El incumplimiento continuo de la prevención contenida en el plan de seguridad y salud aprobado, es causa suficiente para la rescisión del contrato con cualquiera de las empresas intervinientes en esta obra. A tal efecto, y en su caso, el Coordinador en materia de seguridad y salud durante la ejecución de la obra, elaborará un informe detallado, de las causas que le obligan a proponer la rescisión del contrato, que elevará ante la propiedad o promotor, para que obre en consecuencia.

CLÁUSULAS CONTRACTUALES APLICABLES A EMPRESAS SUBCONTRATISTAS Y TRABAJADORES AUTÓNOMOS

EMPRESAS SUBCONTRATISTAS:

Se entiende por subcontratista la persona física o jurídica que asume contractualmente ante el contratista el compromiso de realizar determinadas partes o instalaciones de la obra con sujeción al proyecto y al contrato. Por proyecto se entiende el proyecto de ejecución de la obra visado por el Colegio Profesional correspondiente y que deberá contar con el estudio de seguridad y salud. Debe entenderse por contrato el establecido por el contratista con el promotor o propietario de la obra para llevar a cabo la construcción, total o parcial, de aquélla, así como el contrato que ha de formalizarse entre contratista y subcontratista.

El subcontratista, sea persona física o jurídica, habrá de disponer de los medios humanos, técnicos y económicos adecuados para desempeñar correctamente, con arreglo al proyecto, al contrato de obra y al contrato regulador de la parte de la obra o de las instalaciones subcontratadas, los trabajos que haya de desempeñar.

Es obligación del subcontratista facilitar a su personal la información necesaria en materia de seguridad y salud, tanto de carácter general como la específica que corresponda a las funciones que cada trabajador desempeñe, y que en todo caso serán acordes, tanto a la cualificación que individualmente posean aquéllos como a las condiciones psicofísicas del propio trabajador.

TRABAJADORES AUTÓNOMOS:

Se entiende por trabajador autónomo la persona física distinta del contratista y del subcontratista que realiza de forma personal y directa una actividad profesional en la obra, sin sujeción a un contrato de trabajo, y que asume ante el promotor o propietario de la obra, el contratista o el subcontratista, el compromiso formalizado contractualmente de realizar determinadas partes o instalaciones de la obra, con sujeción al proyecto y al contrato

Por proyecto se entiende el proyecto de ejecución de la obra visado por el Colegio Profesional correspondiente y que deberá contar con el estudio de seguridad y salud. Debe entenderse por contrato el establecido por el trabajador autónomo con quién encarga sus servicios, sea éste el promotor o propietario de la obra, el contratista o subcontratista.

El trabajador autónomo habrá de disponer de los medios técnicos y económicos adecuados para desempeñar correctamente, con arreglo al proyecto, al contrato de obra y a su propio contrato regulador los trabajos que haya de desempeñar.

El trabajador autónomo tendrá las cualificaciones adecuadas a los cometidos cuyo desempeño asume, debiendo poseer la información necesaria en materia de seguridad y salud, tanto de carácter general como la específica que corresponda a las funciones que realice, que en todo caso serán acordes, tanto a la cualificación que posea como a sus condiciones síquicas y físicas.

FACULTADES DE LOS TÉCNICOS FACULTATIVOS

La Dirección Facultativa, está compuesta por los técnicos nombrados por la propiedad o promotor. Realizarán las funciones según las atribuciones reconocidas legalmente para sus profesiones respectivas.

El Coordinador en materia de seguridad y salud, se integrará en la dirección facultativa.

La interpretación de los documentos de este estudio de seguridad y salud, es competencia exclusiva del Coordinador en materia de seguridad y salud durante la ejecución de la obra y de la Dirección Facultativa, en su caso.

La interpretación de los documentos del plan de seguridad y salud en el trabajo aprobado, es competencia exclusiva del Coordinador en materia de seguridad y salud durante la ejecución de la obra, en colaboración estrecha con el resto de componentes de la Dirección Facultativa, que debe tener en consideración sus opiniones, decisiones e informes.

PREVISIÓN DE PRESENCIAS DEL COORDINADOR EN MATERIA DE SEGURIDAD Y SALUD, PARA APOYO Y ASESORAMIENTO VOLUNTARIO AL COMITÉ DE SEGURIDAD Y SALUD DE LA OBRA

El Coordinador en materia de seguridad y salud, declara su voluntad de apoyo a las labores del Comité de Seguridad y Salud de la obra (en caso de ser necesaria la formación del Comité), y que está dispuesto a prestarle todo su apoyo técnico si él se lo solicita, para lo que sugiere la posibilidad de ser invitado a sus reuniones con voz pero sin voto.

El Contratista adjudicatario, queda obligado a recoger el párrafo anterior en el texto de su plan de seguridad y salud.

CONDICIONES TÉCNICAS ESPECÍFICAS

A continuación se relacionan las condiciones técnicas específicas de algunas de las protecciones colectivas e individuales y normas de instalación y uso, junto con las normas de obligado cumplimiento para determinados trabajadores.

SISTEMA DE RED PERIMETRAL PARA EJECUCIÓN DE TRABAJOS EN CUBIERTA Y FACHADAS SOBRE SOPORTES TIPO HORCA.

Se plantea la utilización de un andamio perimetral de seguridad durante la duración de la obra, si bien en el caso de que no fuera viable esa opción, se expone aquí la posibilidad de ejecutar la misma con la utilización de redes perimetrales de protección sobre soportes tipo horca, y barandillas.

Especificación técnica general

Todo el sistema de protección con redes, cumplirá las Normas Europeas EN/ISO convertidas en normas UNE según el cuadro siguiente:

Norma EN/ISO	Título	Norma Une
EN 919	Cuerdas de fibra para usos diversos. Determinación de ciertas propiedades físicas y mecánicas.	UNE – EN 919: 1.996
EN ISO 9001	Sistemas de la Calidad. Modelo para el aseguramiento de la calidad en el diseño, el desarrollo, la producción, la instalación y el servicio posventa.	UNE – EN ISO 9001: 1.994
EN ISO 9002	Sistemas de la Calidad. Modelo para el aseguramiento de la calidad en la producción, la instalación y el servicio posventa	UNE – EN ISO 9002: 1.994

ISO 554	Atmósferas normales para acondicionamiento o ensayo. especificaciones	UNE 7520: 1.994

Especificación técnica

Redes tipo V, sobre soportes tipo horca comercial formado por: omegas y anclajes de redondos corrugados recibidos a canto de losa, horcas metálicas pintadas contra la corrosión, cuerdas de suspensión y atado y red de olefina, cumpliendo la norma UNE - EN 1.263 - 1, etiquetadas N – CE por AENOR. Incluida parte proporcional de montaje, mantenimiento y retirada.

Paños de red

Calidad: Serán nuevos, a estrenar.

Estarán fabricados en olefina de color verde para mayor detección sin nudos, mediante tejido continuo a doble cara tipo León de Oro o similar, cumpliendo la norma UNE - EN 1.263 - 1, etiquetadas N – CE por AENOR. Tejidas al rombo de 100 x 100 mm., tipo B2 con energías mínimas de rotura de 4,4 kJ. Estarán bordeados de cuerda tipo K recibida a las esquinas del paño y enhebrada en las trencillas. Cada paño de red será servido de fábrica etiquetado certificado cumpliendo la norma UNE - EN 1.263 - 1, etiquetadas N – CE por AENOR

Los paños sin etiquetar y certificar, según lo expresado anteriormente, serán rechazados por el coordinador en materia de seguridad y salud durante la ejecución de la obra.

Cuerda perimetral

Calidad: Será nueva, a estrenar.

Cuerda perimetral continua tipo K, con una resistencia a la tracción de al menos 30 kN. Estarán fabricadas olefina. Cada cuerda será servida de fábrica etiquetada certificada cumpliendo la norma UNE - EN 1.263 - 1, etiquetadas N – CE por AENOR

Cuerdas de suspensión a las horcas.

Calidad: Serán nuevas, a estrenar.

Cuerda de suspensión tipo L, con una resistencia a la tracción de al menos 30 kN, dotadas de gafa terminal en uno de sus extremos, de al menos 150 mm y en el otro protegida por funda contra los deshilachamientos. Estarán fabricadas olefina. Cada cuerda será servida de fábrica etiquetada certificada cumpliendo la norma UNE - EN 1.263 - 1, etiquetadas N – CE por AENOR

Cuerdas de cosido de continuidad de los paños de red instalados.

Calidad: Serán nuevas, a estrenar.

Cuerda de cosido de paños tipo M, con una resistencia a la tracción de al menos 30 kN, dotadas de en sus dos extremos con fundas contra los deshilachamientos. Estarán fabricadas olefina. Cada cuerda será servida de fábrica etiquetada certificada cumpliendo la norma UNE - EN 1.263 - 1, etiquetadas N – CE por AENOR.

Horcas de sustentación

Calidad: Serán nuevas, a estrenar.

Horcas comerciales fabricadas en chapa de acero, conformadas a base de tubo rectangular Protección anticorrosión mediante pintura.

Omegas o anclajes de sustentación de horcas

Calidad: Serán nuevos, a estrenar.

Construidos mediante redondos de acero corrugado doblado en frío.

El montaje de estas "omegas" o anclajes se realizará, mediante recibido sujeto con alambre a la armadura perimetral de huecos y forjados.

Anclajes de la base inferior de los paños de red

Calidad: Serán nuevos, a estrenar.

Construidos mediante redondos de acero corrugado, doblados en frío.

El montaje se realizará mediante recibido sujeto con alambre a la armadura perimetral de los huecos y forjados.

Tensores del sistema

En algunas ocasiones, para facilitar la situación en posición correcta del sistema, será necesario instalar tensores de inmovilización. Los que se representan en los planos lo son a modo orientativo por razones obvias.

Se formarán a base de cuerda de poliamida 6.6 industrial de 12 mm., de diámetro. Se amarrarán para tensar a los pilares más cercanos.

Normas para el montaje de las redes sobre soportes tipo horca comercial

1º Replantear durante la fase de armado, las omegas y los anclajes inferiores. Recibirlos a la ferralla fijándolos mediante alambre. Comprobar la corrección del trabajo realizado; corregir errores. Hormigonar.

2º Abrir los paquetes de cuerdas; comprobar que están etiquetados certificados "N" por AENOR.

3º Enhebrar las cuerdas de suspensión de las redes en los pasadores de las horcas e inmovilizarlos a los fustes mediante nudos. Atar a la punta superior externa de la horca, la cuerda tensora por si es necesario su uso y anudarla al fuste.

4º Con la ayuda de la grúa, enhebrar las horcas en las omegas y acuñarlas con madera para evitar movimientos no deseables.

5º Transportar los paquetes de redes, abrirlos. Comprobar que están etiquetadas certificadas "N" por AENOR.

6º Abrir los paquetes de cuerdas de cosido de paños de red y comprobar que están etiquetados certificados "N" por AENOR.

7º Replantear en el suelo los paños de red; extenderlos longitudinalmente.

8º Soltar con cuidado los nudos de inmovilización de las cuerdas de suspensión y hacerlas llegar hasta los paños de red en acopio, controlando que el cabo inferior que queda sobre el forjado, no se desenhebre de la parte superior de las horcas; para evitarlo, atarlo de nuevo al fuste. Anudarlas a la red según la modulación exigida en los planos.

9º Izar por tramos uniformes de 1,5 a 1,7 m. los paños de red consecutivos y proceder, con cuidado y poco a poco, al cosido entre ellos mediante las cuerdas destinadas para este fin. Una vez concluido el cosido, hacerlos descender de nuevo y dejarlos en acopio longitudinal.

10º Atar a las bases de los paños de red, las cuerdas auxiliares.

11º Con la ayuda de cuerdas auxiliares, elevar la base de los paños de red ya cosidos entre sí, hasta los anclajes inferiores dispuestos para recibirlas al borde del forjado; colgarla ordenadamente de ellos.

12º Izar la parte superior de la red, tirando de las cuerdas de suspensión, y hacer llegar todos los paños hasta la máxima altura que permitan las horcas.

13º Inmovilizar las cuerdas de suspensión atándolas de nuevo a los fustes de las horcas.

14º Utilizar las cuerdas de tensión si fuera necesario, regulando el sistema de protección de redes hasta conseguir su ubicación correcta según lo dibujado en los planos.

Normas de seguridad de obligado cumplimiento por los montadores del sistema de redes sobre soportes tipo horca comercial

Se hará entrega a los montadores de redes del siguiente texto y firmarán un recibo de recepción, que estará archivado a disposición del coordinador en materia de seguridad y salud durante la ejecución de la obra, y en su caso de la Dirección Facultativa y de la Autoridad Laboral.

La tarea que va a realizar es muy importante; de su buen hacer depende que si alguien se cae, la red le recoja sin daños graves. Asegúrese de que las monta y mantiene correctamente.

El sistema de protección mediante redes no se monta de forma caprichosa. Debe seguir los planos que para ello le suministre el Encargado de seguridad, que han sido elaborados por técnicos. Los anclajes, horcas, paños, cuerdas y tensores han sido calculados para su función.

No improvise el montaje. Estudie y replantee el sistema, según los planos y normas de montaje correcto que se le suministran.

Avise al Encargado de seguridad para que se cambie de inmediato el material usado. En este proyecto el material de seguridad se abona; se exige, por lo tanto, nuevo, a estrenar.

Considere que es usted quien corre el riesgo de caer mientras instala el sistema de redes. Este montaje no puede realizarse a destajo. No descuide el estar constantemente amarrado con el cinturón de Seguridad. Compruebe que en su etiqueta dice que está certificado CE., y es de clase "C".

Las horcas son pesadas y se mueven con la grúa. No obstante, si se ve obligado por cualquier circunstancia a cargarlas a brazo y hombro, sujételas apoyándolas por la cara más estrecha del tubo, para evitar deformaciones.

Abra los paquetes de redes con cuidado. Piense primero que es lo que realmente desea hacer y cómo piensa llevarlo a cabo. Desenrolle la red con precaución y orden. Es un tejido que se deforma. Es difícil de dominar como sin duda usted ya sabe.

Las redes, horcas y cuerdas son objetos abrasivos; para evitar accidentes, utilice guantes de loneta y cuero para su manejo.

El sistema de redes se monta, mantiene y desmonta durante el crecimiento de la estructura. Son fases de alto riesgo. Extreme sus precauciones.

Para este trabajo y por su Seguridad, es obligatorio que use el siguiente listado de equipos de protección individual:

- Casco de seguridad, para evitar los golpes en la cabeza.
- Ropa de trabajo preferiblemente un mono con bolsillos cerrados por cremallera, fabricado en algodón 100x100.
- Guantes de loneta y cuero para protección contra los objetos abrasivos y pellizcos en las manos.
- Botas de seguridad con plantilla contra los clavos y puntera reforzada, para que le sujete los tobillos en los diversos movimientos que debe realizar y evitar los resbalones, pinchazos y golpes.
- Cinturón de seguridad, clase "C", si se ve obligado a montar esta protección cuando ya se ha empezado a realizar el vaciado. En este caso, debe pedir al Encargado de Seguridad que le

explique cómo y dónde debe amarrarlo que es el especial para que, si se cae al vacío, no sufra usted lesiones.

Debe saber que todos los equipos de protección individual que se le suministren, deben tener la certificación impresa de la marca CE, que garantiza el cumplimiento de la Norma Europea para esa protección individual.

Por último, desearle éxito sin accidentes en su tarea, convencidos de su apoyo a la seguridad y salud de esta obra.

Normas de seguridad de obligado cumplimiento para el salvamento de personas caídas en la red.

Antes de utilizar las redes en obra, pedir al ferrallista la confección de dos ganchos de redondo de 16 mm, con un mango útil del mismo material de unos 2’30 m. Se utilizarán para acercar las redes en caso de salvamento según el procedimiento que se describe a continuación:

Imponga calma a su alrededor. Considere si es necesario el uso de cinturones de seguridad, si duda, imponga de inmediato su utilización bien amarrada.

Sitúese en el mismo nivel que el accidentado o lo más próximo posible a él.

Impida que nadie actúe por su cuenta. Tirar de la red con desorden enrollará en ella al accidentado y hará más peligroso el rescate.

Intente sosegar al caído, su situación no es fácil y su estado de ánimo puede dañarle.

Envíe a dos trabajadores a por los ganchos y que suban a la planta inmediata superior; procure que no corran, ir ligero es suficiente y evitarán tropiezos y accidentes.

Estos trabajadores deben saber que tienen que sujetar la red hasta atraer el paño a sus manos tirando con los ganchos si es preciso.

Una vez la red en poder de los trabajadores situados en la planta superior, ordéneles que tiren del paño hacia arriba; como consecuencia, el accidentado, se irá aproximando hacia el lugar desde el que rescatarle.

Introduzca en el nivel al trabajador accidentado con la ayuda de otro trabajador.

Ordene ir soltando la red a los trabajadores que la sujetan en la planta superior.

Cuando en trabajador ya está seguro sobre la planta, suelte la base de la red o bien la corte para concluir la primera parte del salvamento.

Considere que el accidentado es posible que no esté en estado de optima limpieza por consecuencia de la terrible experiencia vivida.

Enviar de inmediato a urgencias al accidentado por si hubiere algún conato de lesión cardiaca por la experiencia sufrida.

BARANDILLAS SOBRE PIES DERECHOS POR APRIETO TIPO CARPINTERO O DE SARGENTO EN EL BORDE DE FORJADOS O LOSAS.

Especificación técnica

Barandillas de madera formadas por: pies derechos por aprieto tipo carpintero; pasamanos, listón intermedio y rodapié de madera. Incluso parte proporcional de montaje, mantenimiento y retirada. Incluso pintura de señalización a franjas alternativas amarillas y negras, sin remate preciosista.

Calidad: El material a emplear será nuevo, a estrenar.

Pies derechos

Serán un modelo comercializado metálico, para sujeción por aprieto tipo carpintero, pintado contra la corrosión.

Barandilla

La barandilla se formará por madera de pino continua apoyada sobre los pies derechos con solape entre ellos. Estará formada por pasamanos, tramo intermedio y rodapié.

Señalización

Los pies derechos y la madera que forman esta barandilla se suministrarán a obra pintadas en franjas alternativas de colores amarillo y negro. No es necesaria una terminación preciosista; pues solo se pretende señalizar e identificar de "seguridad" los materiales.

Normas de obligado cumplimiento para el montaje de las barandillas de madera sobre pies derechos por aprieto tipo carpintero al borde de forjado o losa

1º Recibir la cuerda de alpinismo a la que deben amarrar los cinturones de seguridad, los montadores de barandillas.

2º Recibir los pies derechos ordenadamente y en bateas emplintadas, sobre el lugar de montaje. Proceder a montarlas ordenadamente, cada uno en su lugar, accionando los husillos de aprieto.

3º Recibir ordenadamente y en bateas emplintadas, sobre el lugar del montaje, la madera que conforma los pasamanos y tramo intermedio. La recepción del rodapié hacerla de idéntica manera.

4º Por módulos formados entre dos pies derechos consecutivos, montar los elementos constitutivos de la barandilla por este orden: rodapié, tramo intermedio y pasamanos.

Repetir la operación de idéntica manera en el siguiente módulo y así sucesivamente hasta concluirla.

5º Si hay que recibir material en la planta, solo se desmontará momentáneamente el módulo de barandillas por el que deba recibirse. Concluida la maniobra se montará de nuevo.

6º Este modelo de barandillas está estudiado para no obstaculizar el aplomado. No se eliminarán para estas tareas.

7º Esta protección solo queda eliminada por el cerramiento definitivo. No se admite todo su desmantelamiento lineal y a un tiempo. La barandilla será desmontada módulo a módulo conforme se empiece a construir exactamente en el lugar que ocupa.

OCLUSIÓN DE HUECO HORIZONTAL POR MEDIO DE TAPA DE MADERA

Especificación técnica

Oclusión de hueco horizontal por tapa de madera de pino fabricada con tabla, mediante encolado con cola blanca y clavazón de acero, según detalle de planos, incluso parte proporcional de montaje, retoque y retirada.

Calidad: El material a utilizar será nuevo, a estrenar.

Tapa de madera

Formada por tabla de madera de pino, sin nudos, unida mediante clavazón previo encolado con "cola blanca" de carpintero.

Instalación

Como norma general, los huecos quedarán cubiertos por la tapa de madera en toda su dimensión + 10 cm., de lado en todo su perímetro. La protección quedará inmovilizada en el hueco para realizar un perfecto encaje, mediante un bastidor de madera que se instala en la parte inferior de la tapa.

Normas de seguridad de obligado cumplimiento para el montaje de la oclusión provisional de huecos horizontales con tapas de madera

1º Durante la fase de encofrado, se fabricarán las tapas de oclusión, considerando el grosor de las tabicas del encofrado para que encajen perfectamente en el hueco del hormigón una vez concluido y se instalarán inmediatamente. Al retirar la tabica, se ajustará el bastidor de inmovilización para que encaje perfectamente en el hormigón.

En el caso de ser necesario cubrir arquetas, las tapas se formarán con idénticos criterios.

2º Durante la fase de desencofrado y en el momento en el que el hueco quede descubierto, se instalará de nuevo la tapa de oclusión.

3º Los huecos permanecerán cerrados hasta que se inicie su cerramiento definitivo.

4º La labor de aplomado permitirá la retirada de las tapas en una misma vertical hasta su conclusión. Entre tanto, se adaptarán las tapas con cortes que permitan sin estorbos, el paso del cordel de aplomado. Se repondrán de inmediato para evitar accidentes.

5º La instalación de tubos y similares en la vertical de un mismo hueco, como se ha permitido el paso de los cordeles de aplomado, solo exigirá descubrir el hueco en el que se actúe en una planta concreta.

6º Adaptar la tapa al hueco libre que quede tras el paso de tubos y similares o iniciar, hasta alcanzar 1m. de altura, el cerramiento definitivo.

OCLUSIÓN DE HUECO HORIZONTAL MEDIANTE MALLAZO ELECTROSOLDADO

Especificación técnica

Oclusión de hueco horizontal mediante mallazo electrosoldado especial de acero corrugado.

Calidad:

El material a utilizar será nuevo, a estrenar.

Anclajes para cinturones de seguridad

En las esquinas de cada hueco a cubrir con mallazo, se instalarán anclajes para los mosquetones o la cuerda fiadora a los que amarrar los cinturones de seguridad contra las caídas con marcado CE.

Normas de seguridad de obligado cumplimiento para el montaje de oclusión provisional de hueco mediante mallazo electrosoldado especial

1º Durante la fase de armado, se montará y cortará el mallazo electrosoldado a la dimensión oportuna para cubrir el hueco. Se instalará recibido a las armaduras perimetrales y unido mediante alambre. El mallazo pasará sobre las tabicas del encofrado lateral del hueco.

2º Durante la fase de armado se recibirán mediante alambre a las armaduras, los anclajes para los cinturones de seguridad y las garrotas de sustentación de la señalización.

3º Se procederá al hormigonado.

4º Se instalarán las cintas de señalización.

5º Para el desmontaje, proceder con los pasos y condiciones descritos, pero en orden inverso. El mallazo se cortará con tenazas cortafríos.

ESCALERAS DE MANO CON CAPACIDAD DE DESPLAZAMIENTO

Especificación técnica

Escalera de mano metálica, con soporte de tijera sobre ruedas y plataforma con barandilla de coronación, con manillar de accionamiento manual para cambios de posición y parada, sin necesidad de descender de ella.

Escalera

Escalera de mano metálica comercializada, con soporte de tijera sobre ruedas, dotada de una plataforma rodeada de una barandilla en la coronación, con manillar de accionamiento manual para cambios de posición y parada, sin necesidad de descender de ella. De total seguridad para el usuario dentro de las posibilidades e instrucciones de uso dadas por el fabricante.

Por mandato expreso del RD. 1627/1997, Disposiciones mínimas de seguridad y salud de las obras de construcción, deben cumplir con las condiciones de diseño y utilización señaladas en el Real Decreto 486/1.997, de 14 de abril, por el que se establecen las disposiciones mínimas de seguridad y salud en los lugares de trabajo.

Material de fabricación

Aluminio anodizado.

Normas de utilización

Aplicar puntualmente las maniobras para uso correcto y seguro, contenidas dentro del manual suministrado por el fabricante.

ANDAMIO METÁLICO TUBULAR APOYADO

Andamio metálico tubular apoyado, utilizado como protección contra el riesgo de caída desde altura; incluso parte proporcional de montaje, mantenimiento y retirada. Montado con todos sus componentes de seguridad, siguiendo un proyecto específico de cálculo y montaje firmado por técnico competente.

El modelo del andamio a instalar, lleva incorporada una escalera para evacuaciones de emergencia en cumplimiento del Anexo IV del RD 1627/1.997, expresamente señalizada para este menester.

Normas de seguridad para el uso de andamios metálicos tubulares apoyados

Se montarán siguiendo fielmente las instrucciones contenidas en el folleto de montaje suministrado por el fabricante.

El contratista o subcontratista en su caso, es responsable de conseguir guardar en la obra y ordenar ejecutar este montaje según las instrucciones del folleto o manual suministrado por el fabricante.

En el caso de haber desaparecido del mercado el fabricante o la marca comercial, el montaje se efectuará siguiendo las instrucciones del folleto de un modelo similar al que se va a montar.

CABLES FIADORES PARA CINTURONES DE SEGURIDAD

Especificación técnica

Cables fiadores para cinturones de seguridad, fabricadas en acero torcido con un diámetro de 5 mm, incluso parte proporcional de aprietos atornillados de acero para formación de lazos, montaje mantenimiento y retirada.

Calidad: El material a emplear será nuevo, a estrenar.

Cables

Cables de hilos de acero fabricado por torsión.

Lazos

Se formarán mediante casquillos electrofijados protegidos interiormente con guardacabos.

Si en alguna ocasión, deben formarse mediante el sistema tradicional de tres aprietos, el lazo se formará justo en la amplitud del guardacabos.

Ganchos

Fabricados en acero timbrado, instalados en los lazos con guardacabos del cable para su instalación rápida en los anclajes de seguridad.

Disposición en obra

El plan de seguridad a lo largo de su puesta en obra, y en colaboración con el coordinador en ,materia de seguridad y salud durante la ejecución de la obra, suministrará los planos de ubicación exacta según las nuevas solicitaciones de prevención que surjan.

ANCLAJES ESPECIALES PARA AMARRE DE CINTURONES DE SEGURIDAD

Especificación técnica

Anclajes especiales para amarre de cinturones de seguridad fabricados en acero corrugado doblado en frío y recibidos a la estructura.

Calidad: El material a emplear será nuevo, a estrenar.

Anclajes

Fabricados en acero corrugado, doblado en frío y recibidos a la estructura.

Disposición en obra

El plan de seguridad a lo largo de su puesta en obra en colaboración con el coordinador de seguridad y salud durante la ejecución de la obra, suministrará los planos de ubicación exacta según las diversas solicitaciones de prevención que surjan.

EXTINTORES DE INCENDIOS

Especificación técnica

Extintores de incendios. Incluso parte proporcional de instalación, mantenimiento y retirada.

Calidad: Los extintores a montar en la obra serán nuevos, a estrenar.

Los extintores a instalar serán los conocidos con el nombre de “tipo universal”.

Mantenimiento de los extintores de incendios

Los extintores serán revisados y retimbrados según el mantenimiento oportuno recomendado por su fabricante, que deberá concertar el contratista principal de la obra con una empresa especializada.

Normas de seguridad para la instalación y uso de los extintores de incendios

1º Se instalarán sobre patillas de cuelgue o sobre carro, según las necesidades de extinción previstos.

2º En cualquier caso, sobre la vertical del lugar donde se ubique el extintor y en tamaño grande, se instalará una señal normalizada con la palabra "EXTINTOR".

PORTÁTILES DE SEGURIDAD PARA ILUMINACIÓN ELÉCTRICA

Especificación técnica

Portátiles de seguridad para iluminación eléctrica formados por: portalámparas estancos; rejilla contra los impactos; Lámpara, gancho para cuelgue; mango de sujeción de material aislante; manguera antihumedad. Toma corrientes por clavija estanca de intemperie.

Características técnicas

Calidad: Serán nuevos, a estrenar.

Estarán formados por los siguientes elementos:

Portalámparas estancos con rejilla antiimpactos, con gancho para cuelgue y mango de sujeción de material aislante de la electricidad.

Manguera antihumedad de la longitud que se requiera para cada caso, evitando depositarla sobre el pavimento siempre que sea posible.

Toma corrientes por clavija estanca de intemperie.

Normas de seguridad de obligado cumplimiento

Se conectarán en las tomas de corriente instaladas en los cuadros eléctricos de distribución de zona.

Si el lugar de utilización es húmedo, la conexión eléctrica se efectuará a través de transformadores de seguridad a 24 voltios.

Responsabilidad

Cada empresario interviniente en esta obra, será responsable directo de que todos los portátiles que use cumplan con estas normas, especialmente los utilizados por los trabajadores autónomos de la obra, fuere cual fuere su oficio o función y especialmente si el trabajo se realiza en zonas húmedas.

BOTAS CON SUELA CONTRA DESLIZAMIENTOS.

Especificación técnica

Unidad de par de botas contra los riesgos en los pies, comercializadas en varias tallas. Fabricadas con serraje y loneta reforzada contra los desgarros. Dotada de puntera y talones reforzados con loneta y serraje. Con suela de goma contra los deslizamientos y plantilla contra el sudor.

Cumplimiento de normas UNE:

Las botas de seguridad cumplirán las siguientes normas UNE:

- UNE.EN 344/93 + ERRATUM/94 y 2/95 + AL/97
- UNE.EN 345/93 + A1797
- UNE.EN 345-2/96
- UNE.EN 346/93 + A1/97
- UNE.EN 346-2/96
- UNE.EN 347/93 + A1/97
- UNE.EN 347-2/96

Obligación de su utilización

Durante la realización de todos los trabajos que requieran la garantía de la estabilidad de los tobillos y pies de cualquier persona.

Ámbito de obligación de su utilización

Toda la superficie del solar y obra una vez desaparecido el riesgo de pisadas sobre objetos cortantes o punzantes.

Los que están obligados a la utilización de botas de loneta reforzada y serraje con suela contra los deslizamientos de goma o PVC:

Oficiales, ayudantes, peones de ayuda que realicen las instalaciones de la obra.

Oficiales, ayudantes, peones de ayuda que realicen trabajos sobre andamios.

Oficiales, ayudantes, peones de ayuda que realicen trabajos de albañilería, solados, chapados, techados, impermeabilizaciones, carpinterías, vidrio y similares a los descritos.

BOTAS DE SEGURIDAD CON PLANTILLA CONTRA OBJETOS PUNZANTES Y PUNTERA REFORZADA.

Especificación técnica

Unidad de botas de seguridad. Comercializadas en varias tallas. Fabricadas en cloruro de polivinilo o goma; de media caña, con talón y empeine reforzados. Forrada en loneta resistente. Dotada de puntera y plantilla metálicas embutidas en el "PVC"., y con plantilla contra el sudor. Con suela dentada contra los deslizamientos. Con marca CE., según normas E.P.I.

Obligación de su utilización

En la realización de cualquier trabajo con la existencia del riesgo de pisadas sobre objetos punzantes o cortantes en ambientes húmedos, encharcados o con hormigones frescos.

Ámbito de obligación de su utilización

Toda la superficie de la obra en fase de hormigonado de estructura y en tiempo lluvioso, en todos los trabajos que impliquen caminar sobre barros.

BOTAS IMPERMEABLES

Especificación técnica

Unidad de par de botas pantalón de protección para trabajos en barro o de zonas inundadas, hormigones, o pisos inundados con riesgo de deslizamiento: Fabricadas en "PVC" o goma. Comercializadas en varias tallas. Forradas de loneta resistente y dotadas con suelas dentadas contra los deslizamientos. Con marca CE., según las normas E.P.I.

Obligación de su utilización

En los trabajos en lugares inundados; en el interior de hormigones; en lugares anegados con barro líquido y similares.

Ámbito de obligación de su utilización

Hormigonados con masas fluidas en las que se deba trabajar en su interior por cualquier causa; pocería; rescates en caso de inundación o similares.

Trabajadores que específicamente están obligados a la utilización de las botas impermeables pantalón:

Los oficiales, ayudantes y peones de pocería; los que deban trabajar dentro de hormigones de más de 60 cm., de profundidad desde la superficie al lugar de apoyo; los que deban trabajar dentro de zonas anegadas o en el interior de ríos y similares de poca profundidad.

CASCOS AURICULARES PROTECTORES AUDITIVOS

Especificación técnica.

Unidad de cascos auriculares protectores auditivos amortiguadores de ruido para ambas orejas. Fabricados con casquetes auriculares ajustables con almohadillas recambiables para uso optativo con o sin el casco de seguridad. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

Los cascos auriculares protectores auditivos cumplirán las siguientes normas UNE:

- UNE.EN 352- 1/94
- UNE.EN 352-2/94
- UNE.EN 352-3/94

Obligación de su utilización

En la realización o trabajando en presencia de un ruido cuya presión sea igual o superior a 80 dB. medidos con sonómetro en la escala 'A'.

Ámbito de obligación de su utilización

En toda la obra y solar, en consecuencia de la ubicación del punto productor del ruido del que se protege.

Los que están obligados a la utilización de los cascos auriculares protectores auditivos:

Personal, con independencia de su categoría profesional, que ponga en servicio y desconecte los compresores y generadores eléctricos.

Capataz de control de este tipo de trabajos.

Peones que manejen martillos neumáticos, en trabajos habituales o puntuales.

Cualquier trabajador que labore en la proximidad de un punto de producción de ruido intenso.

Personal de replanteo o de mediciones; jefatura de obra; Coordinación de seguridad y salud durante la ejecución de la obra; Dirección Facultativa; visitas e inspecciones, cuando deban penetrar en áreas con alto nivel acústico.

CASCO DE SEGURIDAD

Especificación técnica

Unidad de casco de seguridad contra golpes en la cabeza, con arnés de adaptación de apoyo sobre el cráneo con cintas textiles de amortiguación y contra el sudor de la frente frontal; ajustable a la nuca, de tal forma que se impide la caída accidental del casco. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

Los cascos de seguridad cumplirán las siguientes normas UNE:

- UNE.EN 397/95 + ERRATUM/96
- UNE.EN 966/95 + ERRATUM/96

Obligación de su utilización

Durante toda la realización de la obra y en todos los lugares, con excepción del: interior de talleres, instalaciones provisionales para los trabajadores; oficinas y en el interior de cabinas de maquinaria y siempre que no existan riesgos para la cabeza.

Ámbito de obligación de su utilización

Desde el momento de entrar en la obra, durante toda la estancia en ella, dentro de los lugares con riesgos para la cabeza.

Los que están obligados a la utilización de la protección del casco de seguridad:

Todo el personal en general contratado por el contratista, por los subcontratistas y los autónomos si los hubiese. Se exceptúa, por carecer de riesgo evidente y sólo "en obra en fase de terminación", a los pintores y personal que remate la urbanización y jardinería.

Todo el personal de oficinas sin exclusión, cuando accedan a los lugares de trabajo.

Jefatura de Obra y cadena de mando de todas las empresas participantes.

Coordinación de seguridad y salud durante la ejecución de la obra, Dirección Facultativa, representantes y visitantes invitados por la Propiedad.

Cualquier visita de inspección de un organismo oficial o de representantes de casas comerciales para la venta de artículos.

CHALECO REFLECTANTE

Especificación técnica

Unidad de chaleco reflectante para ser visto en lugares con escasa iluminación, formado por: peto y espalda. Fabricado en tejidos sintéticos transpirables, reflectantes o catadióptricos con colores: blanco, amarillo o anaranjado. Ajustable a la cintura mediante unas cintas "Velcro".

Cumplimiento de normas UNE:

Los chalecos reflectantes cumplirán las siguientes normas UNE:

- UNE.EN 471/95 + ERRATUM/96
- UNE.EN 966/95 + ERRATUM/96

Obligación de su utilización

Se prevé exclusivamente para la realización de trabajos en lugares con escasa iluminación.

Ámbito de obligación de su utilización

En toda la obra cuando sea necesario realizar un trabajo con escasa iluminación, en el que por falta de visión clara, existan riesgos de atropello por máquinas o vehículos.

Los que están obligados a la utilización del chaleco reflectante:

Señalistas, ayudantes y peones que deban realizar un trabajo en lugares que sea recomendable su señalización personal para evitar accidentes.

CINTURON DE SEGURIDAD DE SUJECIÓN.

Especificación técnica

Unidad de cinturón de seguridad de sujeción para trabajos estáticos, que no requieren desplazamientos. Formado por faja dotada de hebilla de cierre, argolla en "D" de cuelgue en acero estampado. Cuerda fijadora de un m., de longitud y mosquetón de anclaje en acero. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

Los cinturones de seguridad de sujeción, cumplirán las siguientes normas UNE:

- UNE.EN 358/93
- UNE.EN 361/93

Obligación de su utilización

En la realización de todo tipo de trabajos estáticos con riesgo de caída desde altura, contenidos en el análisis de riesgos de la memoria.

Ámbito de obligación de su utilización

En cualquier punto de la obra en la que deba realizarse un trabajo estático con riesgo de caída de altura.

Los que están obligados a la utilización del cinturón de seguridad, clase "A", tipo "1":

Oficiales, ayudantes y peonaje de ayuda que realicen trabajos estáticos en puntos con riesgo de caída desde altura, (ajustes, remates y similares).

CINTURON DE SEGURIDAD ANTICAÍDAS.

Especificación técnica

Unidad de cinturón de seguridad contra las caídas. Formado por faja dotada de hebilla de cierre; arnés unido a la faja dotado de argolla de cierre; arnés unido a la faja para pasar por la espalda, hombros y pecho, completado con perneras ajustables. Con argolla en "D" de acero estampado para cuelgue; ubicada en la cruceta del arnés a la espalda; cuerda de amarre de 1 m., de longitud, dotada de un mecanismo amortiguador y de un mosquetón de acero para enganche. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

Los cinturones de seguridad anticaídas, cumplirán las siguientes normas UNE:

- UNE.EN 361/93
- UNE.EN 358/93
- UNE.EN 355/92
- UNE.EN 355/93

Obligación de su utilización

En todos aquellos trabajos con riesgo de caída desde altura definidos en la memoria dentro del análisis de riesgos. Trabajos de: montaje, mantenimiento, cambio de posición y desmantelamiento de todas y cada una de las protecciones colectivas. Montaje y desmontaje de andamios metálicos modulares. Montaje, mantenimiento y desmontaje de grúas torre.

Ámbito de obligación de su utilización

En toda la obra. En todos aquellos puntos que presenten riesgo de caída desde altura.

Los que están obligados a la utilización del cinturón de seguridad, clase "C", tipo "1":

Montadores y ayudantes de las grúas torre.

El gruista durante el ascenso y descenso a la cabina de mando.

Oficiales, ayudantes y peones de apoyo al montaje, mantenimiento y desmontaje de las protecciones colectivas, según el listado específico de este trabajo preventivo.

Montadores de: ascensores, andamios, plataformas en altura y asimilables.

El personal que suba o labore en andamios cuyos pisos no estén cubiertos o carezcan de cualquiera de los elementos que forman las barandillas de protección.

Personal que encaramado a un andamio de borriquetas, a una escalera de mano o de tijera, labore en la proximidad de un borde de forjado, hueco vertical u horizontal, en un ámbito de 3 m. de distancia.

CINTURON PORTAHERRAMIENTAS

Especificación técnica

Unidad de cinturón portaherramientas formado por faja con hebilla de cierre, dotada de bolsa de cuero y aros tipo canana con pasador de inmovilización, para colgar hasta 4 herramientas. Con marca CE., según normas E.P.I.

Obligación de su utilización

En la realización de cualquier trabajo fuera de talleres que requieran un mínimo de herramientas y elementos auxiliares.

Ámbito de obligación de su utilización

Toda la obra.

Los que están obligados a la utilización del cinturón portaherramientas:

Oficiales y ayudantes ferrallistas.

Oficiales y ayudantes carpinteros encofradores.

Oficiales y ayudantes de carpinterías de madera o metálica.

Instaladores en general.

FAJA DE PROTECCIÓN CONTRA SOBRE ESFUERZOS

Especificación técnica

Unidad de faja de protección contra sobre esfuerzos, para la protección de la zona lumbar del cuerpo humano. Fabricada en cuero y material sintético ligero. Ajustable en la parte delantera mediante hebillas. Con marca CE., según normas E.P.I.

Obligación de su utilización

Para todos los trabajos de carga, descarga y transporte a hombro de objetos pesados y todos aquellos otros sujetos al riesgo de sobre esfuerzo según el "análisis de riesgos" contenido en la "memoria".

Ámbito de obligación de su utilización

En cualquier punto de la obra en el que se realicen trabajos de carga, transporte a hombro y descarga.

Los que están obligados a la utilización de la faja de protección contra sobre esfuerzos:

Peones en general, que realicen trabajos de ayudantía en los que deban transportar cargas.

Peones dedicados a labores de carga, transporte a brazo y descarga de objetos.

Oficiales, ayudantes y peones que manejen la siguiente maquinaria: Motovolquete autotransportado (dumper). Martillos neumáticos. Pisones mecánicos.

FILTRO MASCARILLA ANTIPOLVO

Especificación técnica

Unidad de filtro para recambio del de las mascarillas contra el polvo, con una retención de partículas superior al 98 %. Con marca CE., según normas E.P.I.

Obligación de su utilización

En cualquier trabajo a realizar en atmósferas saturadas de polvo o con producción de polvo, en el que esté indicado el cambio de filtro por rotura o saturación. Del cambio se dará cuenta documental al coordinador en materia de seguridad y salud durante la ejecución de la obra, y en su caso, a la Dirección Facultativa.

Ámbito de obligación de su utilización

Toda la obra, independientemente del sistema de contratación utilizado.

Los que están obligados a la utilización de filtro mecánico para mascarilla contra el polvo:

Oficiales, ayudantes y peones sueltos o especialistas que realicen trabajos con martillos neumáticos, rozadoras, taladros y sierras circulares en general.

GAFAS DE SEGURIDAD CONTRA POLVO E IMPACTOS

Especificación técnica

Unidad de gafas de seguridad contra el polvo y los impactos en los ojos. Fabricadas con montura de vinilo, pantalla exterior de policarbonato, pantalla interior contra choques y cámara de aire entre las dos pantallas para evitar condensaciones. Modelo panorámico, ajustable a la cabeza mediante bandas elásticas textiles contra las alergias. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

Los ensayos de las gafas de seguridad contra el polvo y los impactos, cumplirán las siguientes normas UNE:

- UNE.EN 167/96
- UNE.EN 168/96

Obligación de su utilización

En la realización de todos los trabajos con riesgos de proyección o arranque de partículas, reseñados dentro del análisis de riesgos de la memoria.

Ámbito de obligación de su utilización

En cualquier punto de la obra en el que se trabaje produciendo o arrancando partículas.

Los que están obligados al uso de gafas de seguridad contra el polvo y los impactos:

Peones y peones especialistas, que manejen sierras circulares en vía seca, rozadoras, taladros, pistola fija clavos, lijadoras y pistolas hinca clavos.

En general, todo trabajador que a juicio del encargado de seguridad o del Coordinador en materia de seguridad y salud durante la ejecución de la obra, esté sujeto al riesgo de recibir partículas proyectadas en los ojos.

GUANTES DE CUERO Y LONETA

Especificación técnica

Unidad de par de guantes fabricados en cuero flor en la parte anterior de palma y dedos de la mano, dorso de loneta de algodón, comercializados en varias tallas. Ajustables a la muñeca de las manos mediante bandas extensibles ocultas. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

Los guantes fabricados en cuero flor y loneta, cumplirán la siguiente norma UNE:

- UNE.EN 388/95

Obligación de su utilización

En todos los trabajos de manejo de herramientas manuales: picos, palas.

En todos los trabajos de manejo y manipulación de puntales y bovedillas.

Manejo de sogas o cuerdas de control seguro de cargas en suspensión a gancho.

En todos los trabajos similares por analogía a los citados.

Ámbito de obligación de su utilización

En todo el recinto de la obra.

Los que están obligados a la utilización de los guantes de cuero flor y loneta:

Peones en general.

Peones especialistas de montaje de encofrados.

Oficiales encofradores.

Ferrallistas.

Personal similar por analogía de riesgos en las manos a los mencionados.

TRAJES DE TRABAJO (MONOS O BUZOS DE ALGODÓN)

Especificación técnica

Unidad de mono o buzo de trabajo, fabricado en diversos cortes y confección en una sola pieza, con cierre de doble cremallera frontal, con un tramo corto en la zona de la pelvis hasta cintura. Dotado de seis bolsillos; dos a la altura del pecho, dos delanteros y dos traseros, en zona posterior de pantalón; cada uno de ellos cerrados por una cremallera. Estará dotado de una banda elástica lumbar de ajuste en la parte dorsal al nivel de la cintura. Fabricados en algodón 100 X 100, en los colores blanco, amarillo o naranja. Con marca CE., según normas E.P.I.

Cumplimiento de normas UNE:

El mono o buzo de trabajo, cumplirá la siguiente norma UNE:

- UNE 863/96
- UNE 1149/96

Obligación de su utilización

En su trabajo, a todos los trabajadores de la obra.

Ámbito de obligación de su utilización

En toda la obra.

Los que están obligados la utilización de trajes de trabajo:

Todos los trabajadores de la obra, independientemente de que pertenezcan a la plantilla de la empresa contratista o trabajen como subcontratistas o autónomos.

TRAJE IMPERMEABLE

Especificación técnica

Unidad de traje impermeable para trabajar. Fabricado en los colores: blanco, amarillo, naranja, en PVC., termosoldado; formado por chaqueta y pantalón. La chaqueta está dotada de dos bolsillos laterales delanteros y de cierre por abotonadura simple. El pantalón se sujeta y ajusta a la cintura mediante cinta de algodón embutida en el mismo. Con marca CE., según normas E.P.I.

Obligación de su utilización

En aquellos trabajos sujetos a salpicaduras o realizados en lugares con goteos o bajo tiempo lluvioso leve.

Ámbito de obligación de su utilización

En toda la obra.

Los que están obligados a la utilización de traje impermeable de PVC., a base de chaquetilla y pantalón:

Todos los trabajadores de la obra, independientemente de que pertenezcan a la plantilla de la empresa contratista, subcontratistas o autónomos.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: noviembre de 2024

12.3. MEDICIONES Y PRESUPUESTO SEGURIDAD Y SALUD

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01	**SEGURIDAD Y SALUD**							
01.01	**INSTALACIONES DE BIENESTAR**							
01.01.01	**mes ALQUILER CASETA ALMACÉN**							
S01B080	Mes de alquiler de caseta prefabricada para almacén de 12 m2. Estructura de acero galvanizado. Cubierta y cerramiento lateral de chapa galvanizada trapezoidal de 0,6 mm reforzada con perfiles de acero, interior prelacado. Suelo de aglomerado hidrófugo de 19 mm puerta de acero de 1 mm, de 0,80x2,00 m pintada con cerradura y punto de luz. Ventana fija de cristal de 6 mm, recercado con perfil de goma. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	120,70	724,20

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.01.02	**mes ALQUILER CASETA VESTUARIOS-ASEOS**							
S01B190	Mes de alquiler de caseta prefabricada para vestuarios, 2 duchas y un aseo con inodoro y 2 lavabos. Dimensiones mínimas 30 m2 en vestuario. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. 2 Puertas de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. 2 ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Mobiliario completo para su uso. Instalación eléctrica a 220 V, toma de tierra, automático, 4 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	215,34	1.292,04

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.01.03	**mes ALQUILER CASETA COMEDOR**							
S01B191PN	Mes de alquiler de caseta prefabricada para comedor de obra de mínimo 15 m2. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	215,34	1.292,04

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.01.04	**mes** ALQUILER CASETA OFICINA REUNIONES							
S01B180PN	Mes de alquiler de caseta prefabricada para oficina y reuniones. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Divisiones en tablero de melamina. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	310,64	1.863,84

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.01.05	**m ACOMETIDA AÉREA MONOFÁSICA COBRE 2x16 mm2**							
E17AAM010PN	Acometida aérea monofásica instalada sobre fachada, formada por conductores de cobre aislados con polietileno reticulado (XLPE), en cable rígido multiconductor trenzado en haz 0,6/1kV RZ Fca, de sección 2x16 mm2, fabricado conforme a UNE 21030-2; fijado a fachada mediante abrazadera de acero con tornillo autorroscante plastificada resistente a la intemperie. Totalmente realizada; i/p.p. de conexiones y medios auxiliares (excepto elevación y/o transporte). Conforme a REBT: ITC-BT-06 e ITC-BT-11, NTE-IER, UNE-HD 60364-1:2009 y UNE-HD 60364-1:2009/A11:2018. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		200				200,00		
						200,00	17,17	3.434,00
01.01.06	**u ACOMETIDA PROVISIONAL FONTANERÍA 25 mm**							
S01A030PN	Acometida provisional de fontanería para obra de la red general municipal de agua potable hasta una longitud máxima de 8 m, realizada con tubo de polietileno de 25 mm de diámetro, de alta densidad y para 10 atmósferas de presión máxima con collarín de toma de fundición, p.p. de piezas especiales de polietileno y tapón roscado, incluso derechos y permisos para la conexión, terminada y funcionando, y sin incluir la rotura del pavimento. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		1				1,00		
						1,00	133,53	133,53

01.01.07 **u** **ACOMETIDA PROVISIONAL SANEAMIENTO EN SUPERFICIE**

S01A050PN

Acometida provisional de saneamiento de caseta de obra a la red general municipal (pozo o imbornal), hasta una distancia máxima de 8 m, formada por tubería en superficie de PVC de 110 mm de diámetro interior, tapado posterior de la acometida con hormigón en masa HM-20/P/20/I, y con p.p. de medios auxiliares. Incluso p.p de limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
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		1				1,00		
						1,00	177,08	177,08

01.01.08 **u** **CUADRO DE OBRA 80 A MODELO 8**

S02DC100PN

Cuadro de obra trifásico 80 A, compuesto por armario metálico con revestimiento de poliéster de 600x500 cm con salida lateral por toma de corriente y salida interior por bornes fijos, soportes, manecilla de sujeción y/o anillos de elevación, con cerradura, MT General de 4x80 A, 3 diferenciales de 4x25 A 30 mA, 4x63 A 30 mA y 4x40 A 300 mA, respectivamente, 7 MT por base, tres de 2x16 A, tres de 4x16 A y uno de 4x32 A, incluyendo cableado, rótulos de identificación, 7 bases de salida y p.p. de conexión a tierra, instalado (amortizable en 4 obras), según ITC-BT-33 del REBT (R.D. 842/2002), R.D. 614/2001 y UNE-EN 61439-4:2013. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
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PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		1				1,00		
						1,00	598,04	598,04

01.01.09 **u** **TOMA DE TIERRA R80 Ohm R=100 Ohm**

S02DT010PN

Toma de tierra para una resistencia de tierra R<=80 Ohmios y una resistividad R=100 Ohm formada por arqueta de ladrillo macizo de 24x11,5x7 cm, tapa de hormigón armado, tubo de PVC de D=75 mm, electrodo de acero cobrizado 14,3 mm y 100 cm, de profundidad hincado en el terreno, línea de t.t. de cobre desnudo de 35 mm2, con abrazadera a la pica, instalado. Según ITC-BT-18 y MIE-BT-039 del REBT (R.D. 842/2002) y R.D. 614/2001. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
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		1				1,00		
						1,00	153,76	153,76

TOTAL 01.01 ..... 9.668,53

01.02 PROTECCIONES COLECTIVAS

01.02.01 **u** **EXTINTOR POLVO ABC 6 kg PROTECCIÓN INCENDIOS**

S02E010PN

Extintor de polvo químico ABC polivalente antibrasa de eficacia 21A/113B, de 6 kg de agente extintor, con soporte, manómetro comprobable y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

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PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		2				2,00		
						2,00	49,42	98,84

01.02.02 **u** **EXTINTOR CO2 5 kg ACERO**

S02E030PN

Extintor de nieve carbónica CO2, de eficacia 89B, con 5 kg de agente extintor, construido en acero, con soporte y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

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		2				2,00		
						2,00	123,60	247,20

01.02.03 **m** **VALLA ENREJADO GALVANIZADO/PLIEGUES**

S02BV020PN

Valla metálica móvil de módulos prefabricados de 3,50x2,00 m de altura, enrejados de malla de D=5 mm de espesor con cuatro pliegues de refuerzo, bastidores verticales de D=40 mm y 1,50 mm de espesor, todo ello galvanizado en caliente, sobre soporte de hormigón prefabricado de 230x600x150 mm, separados cada 3,50 m, accesorios de fijación, considerando 5 usos, incluso montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

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	Vallado perimetral	1	165,00			165,00		

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
						165,00	7,47	1.232,55
01.02.04	**u VALLA CONTENCIÓN DE PEATONES**							
S02BV040	Valla de contención de peatones, metálica, prolongable de 2,50 m de largo y 1,00 m de altura, color amarillo, amortizable en 5 usos, incluso colocación y desmontaje, según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		1	50,00			50,00		
						50,00	8,49	424,50
01.02.05	**u PUERTA PEATONAL CHAPA 1,00x2,00 m**							
S02BV080PN	Puerta de acceso peatonal de chapa galvanizada de 1,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		2				2,00		
						2,00	51,17	102,34

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.02.06	**u PUERTA CAMIÓN CHAPA 4,00x2,00 m**							
S02BV090	Puerta de acceso de vehículos de chapa galvanizada de 4,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento provenientes de la Presidencia del Gobierno y demás Ministerios							
		2				2,00		
						2,00	181,17	362,34
01.02.07	**m2 PROTECCIÓN HORIZONTAL CUAJADO TABLONES**							
S02F110	Protección horizontal de huecos con cuajado de tablones de madera de pino de 20x7 cm unidos a clavazón, incluso instalación y desmontaje (amortizable en 2 usos), según R.D. 486/97 y R.D. 1627/97.							
		20				20,00		
						20,00	26,08	521,60
01.02.08	**m2 PROTECCIÓN HUECO CON RED HORIZONTAL**							
S02F100	Red horizontal de seguridad en cubrición de huecos formada por malla de poliamida de 10x10 cm anudada con cuerda de D=3 mm y cuerda perimetral de D=10 mm para amarre de la red a los anclajes de acero de D=10 mm conectados a las armaduras perimetrales del hueco cada 50 cm y cinta perimetral de señalización fijada a pies derechos (amortizable en 4 usos), según R.D. 486/97 y R.D. 1627/97.							
		20				20,00		
						20,00	7,98	159,60
	TOTAL 01.02							**3.148,97**
01.03	**EQUIPOS DE PROTECCION INDIVIDUAL**							
01.03.01	**u PAR DE RODILLERAS**							
S03D150PN	Par de rodilleras ajustables de protección ergonómica (amortizables en 3 usos). Según UNE-EN 340, UNE-EN 14404, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	4,99	29,94

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.03.02	**u PANTALLA DE CABEZA SOLDADOR**							
S03A040PN	Pantalla de seguridad de cabeza, para soldador, de fibra vulcanizada, con cristal de 110x55 mm (amortizable en 5 usos). Según UNE-EN 175, UNE-EN 379, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	EPI soldador	1				1,00		
						1,00	2,78	2,78
01.03.03	**u MANDIL CUERO PARA SOLDADOR**							
S03B140PN	Mandil de cuero para soldador (amortizable en 3 usos). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	EPI soldador	1				1,00		
						1,00	3,32	3,32
01.03.04	**u PAR GUANTES SOLDADOR**							
S03C100PN	Par de guantes para soldador (amortizables en 2 usos). Según UNE-EN 12477, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	EPI soldador	1				1,00		
						1,00	1,51	1,51
01.03.05	**u PAR DE BOTAS AISLANTES**							
S03D080PN	Par de botas aislantes para electricista hasta 5000 V de tensión (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		9				9,00		
						9,00	24,22	217,98
01.03.06	**u CUBREGRAFAS DE SEGURIDAD**							
S03A065PN	Cubregafas de seguridad con ocular transparente diseñado para poder llevar gafas graduadas. Según UNE-EN 166, R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	0,58	3,48
01.03.07	**u PROTECCIÓN LUMBAR CON TIRANTES**							
S03B020PN	Protector lumbar con tirantes (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	10,94	65,64

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.03.08	**u CINTURÓN PORTAHERRAMIENTAS**							
S03B030PN	Cinturón portaherramientas (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	4,34	26,04
01.03.09	**u TRAJE IMPERMEABLE**							
S03B090PN	Traje impermeable de trabajo, 2 piezas de PVC (amortizable en un uso). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		3				3,00		
						3,00	9,75	29,25
01.03.10	**u ABRIGO PARA EL FRÍO**							
S03B125PN	Abrigo para el frío (amortizable en 3 usos). Según UNE-EN 342, UNE-EN 14058, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	11,71	70,26
01.03.11	**u CHALECO DE OBRAS REFLECTANTE**							
S03B180PN	Chaleco de obras con bandas reflectante (amortizable en 1 usos). Según UNE-EN 471 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	3,10	18,60
01.03.12	**u CHUBASQUERO ALTA VISIBILIDAD**							
S03B230PN	Chubasquero de lluvia impregnado exterior de PVC, capucha fija con cordón de apriete. Alta visibilidad, con tiras retroreflejantes microburbujas termoselladas, color plata, 50 mm, montaje paralelo (amortizable en 3 usos). Según UNE-EN 471, UNE-EN 343 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		3				3,00		
						3,00	3,65	10,95
01.03.13	**u PAR GUANTES LONA REFORZADOS**							
S03C020PN	Par de guantes de lona reforzados. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		5				5,00		
						5,00	3,29	16,45

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.03.14	**u PAR GUANTES LÁTEX ANTICORTE**							
S03C040PN	Par de guantes de goma látex anticorte. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		5				5,00		
						5,00	2,14	10,70
01.03.15	**u PAR GUANTES AISLANTES 5000 V**							
S03C110PN	Par de guantes aislantes para protección de contacto eléctrico en tensión hasta 5000 V (amortizables en 3 usos). Según UNE-EN 60903, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		9				9,00		
						9,00	10,01	90,09
01.03.16	**u PAR DE BOTAS DE SEGURIDAD**							
S03D070PN	Par de botas de seguridad con plantilla y puntera de acero (amortizables en 1 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	28,39	170,34
01.03.17	**u CASCO DE SEGURIDAD AJUSTABLE RUEDA**							
S03A010PN	Casco de seguridad con arnés de cabeza ajustable por medio de rueda dentada, para uso normal y eléctrico hasta 440 V. Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	8,63	51,78
01.03.18	**u CASCO SEGURIDAD DIELÉCTRICO**							
S03A030PN	Casco de seguridad dieléctrico con pantalla para protección de descargas eléctricas (amortizable en 5 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		4				4,00		
						4,00	4,01	16,04
01.03.19	**u PANTALLA CONTRA PARTÍCULAS**							
S03A060PN	Pantalla para protección contra partículas, con sujeción en cabeza (amortizable en 5 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		

PRESUPUESTO Y MEDICIONES

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
						6,00	1,88	11,28
01.03.20	**u GAFAS CONTRA IMPACTOS**							
S03A070PN	Gafas protectoras contra impactos, incoloras (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	3,02	18,12
01.03.21	**u GAFAS ANTIPOLVO**							
S03A090PN	Gafas antipolvo antiempañables, panorámicas (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	2,95	17,70
01.03.22	**u SEMI MÁSCARA ANTIPOLVO 1 FILTRO**							
S03A100PN	Semi-mascarilla antipolvo un filtro (amortizable en 3 usos). Según UNE-EN 140, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	6,15	36,90
01.03.23	**u FILTRO RECAMBIO MASCARILLA**							
S03A110PN	Filtro de recambio de mascarilla para polvo y humos. Según UNE-EN 136, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		144				144,00		
						144,00	1,82	262,08
01.03.24	**u CASCOS PROTECTORES AUDITIVOS**							
S03A120PN	Protectores auditivos con arnés a la nuca (amortizables en 3 usos). Según UNE-EN 458, UNE-EN 352, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	4,11	24,66
01.03.25	**u BARBUQUEJO CON MENTONERA PARA CASCO**							
S03A032	Cinta o correa elástica de sujeción con mentonera para casco de seguridad.							
		6				6,00		
						6,00	5,02	30,12
01.03.26	**u PAR DE POLAINAS SOLDADURA**							
S03D090	Par de polainas para soldador (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.							

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		1				1,00		
						1,00	1,75	1,75
01.03.27	**u ARNÉS AMARRE DORSAL Y TORÁCICO**							
S03EA030	Arnés básico de seguridad amarre dorsal con anilla y torácico con cintas, regulación en piernas, fabricado con cinta de nailon de 45 mm y elementos metálicos de acero inoxidable (amortizable en 5 obras). Según UNE-EN 361, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.							
		5				5,00		
						5,00	9,16	45,80
01.03.28	**u CUERDA CON REDUCTOR 2,00 m MOSQUETONES+GANCHO**							
S03ED040	Eslinga anticaída regulable con absorbedor de energía compuesta por cuerda de poliamida de 12 mm de diámetro y 2,00 m de longitud, con reductor, con un mosquetón de 17 mm de apertura y un gancho de 60 mm de apertura (amortizable en 4 usos). Según UNE-EN 355, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.							
		5				5,00		
						5,00	20,32	101,60
01.03.29	**u ANCLAJE DE CINTA L=250 cm**							
S03EE080PN	Dispositivo de anclaje para sistemas anticaídas, instalado con taco metálico en estructuras de hormigón armado y estructura metálica. Se instala a techo o pared y dispone en uno de los extremos de la cinta de una anilla de acero para el enganche del elemento de amarre del arnés anticaídas. Tiene una longitud de 250 cm, siendo adecuado su aplicación para todos aquellos puntos en los que se de el riesgo de caída a distinto nivel, bordes de forjados, etc. Su uso está limitado a un solo trabajador. Certificado según UNE-EN 795:2012.							
		30				30,00		
						30,00	32,01	960,30
	TOTAL 01.03							**2.345,46**
01.04	**SEÑALIZACION**							
01.04.01	**u PLACA SEÑALIZACIÓN RIESGO**							
S05C080PN	Placa señalización-información en PVC serigrafiado de 50x30 cm, fijada mecánicamente (amortizable en 2 usos), incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		40				40,00		
						40,00	6,43	257,20
01.04.02	**u PANEL COMPLETO PVC 700x1000 mm**							
S05B030PN	Panel completo serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Tamaño 700x1000 mm. Válido para incluir hasta 15 símbolos de señales, incluso textos "Prohibido el paso a toda persona ajena a la obra", incluido colocación, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		3				3,00		
						3,00	16,92	50,76

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

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01.04.03	**u BALIZA LUMINOSA INTERMITENTE**							
S05A050PN	Foco de balizamiento intermitente (amortizable en 4 usos), según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		13				13,00		
						13,00	7,51	97,63
01.04.04	**m CINTA BALIZAMIENTO BICOLOR 8 cm**							
S05A010PN	Cinta de balizamiento bicolor rojo/blanco de material plástico, incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	ESTIMADA	1	500,00			500,00		
						500,00	0,94	470,00
01.04.05	**u CARTEL PVC SEÑALIZACIÓN EXTINTOR BOCA INCENDIO**							
S05B020	Cartel serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Para señales de lucha contra incendios (extintor, boca de incendio), incluido colocación, según R.D. 485/97 y R.D. 1627/97.							
		4				4,00		
						4,00	11,26	45,04
01.04.06	**u PANEL DIRECCIONAL CON SOPORTE**							
S05C070	Panel direccional reflectante de 165x45 cm, con soporte metálico (amortizable en cinco usos), incluido p.p. de apertura de pozo, hormigonado H-100/40, colocación y montaje, según R.D. 485/97 y R.D. 1627/97.							
		10				10,00		
						10,00	48,72	487,20
	TOTAL 01.04							**1.407,83**
	TOTAL 01							**16.570,79**
	TOTAL							**16.570,79**

12.4. CUADRO DE PRECIOS DESCOMPUESTOS DE SEGURIDAD Y SALUD

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

01 SEGURIDAD Y SALUD

01.01 INSTALACIONES DE BIENESTAR

01.01.01 **ALQUILER CASETA ALMACÉN** **mes**

S01B080

Mes de alquiler de caseta prefabricada para almacén de 12 m2. Estructura de acero galvanizado. Cubierta y cerramiento lateral de chapa galvanizada trapezoidal de 0,6 mm reforzada con perfiles de acero, interior prelacado. Suelo de aglomerado hidrófugo de 19 mm puerta de acero de 1 mm, de 0,80x2,00 m pintada con cerradura y punto de luz. Ventana fija de cristal de 6 mm, recercado con perfil de goma. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

O01OA070	Peón ordinario	0,085	h	16,88	1,43
P31BC120CEM	Alquiler mes caseta almacén	1,000	u	71,09	71,09
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66

Suma la partida		117,18
Costes indirectos	3%	3,52
TOTAL PARTIDA		**120,70**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO VEINTE con SETENTA CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.02	**ALQUILER CASETA VESTUARIOS-ASEOS**		**mes**			
S01B190	Mes de alquiler de caseta prefabricada para vestuarios, 2 duchas y un aseo con inodoro y 2 lavabos. Dimensiones mínimas 30 m2 en vestuario. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. 2 Puertas de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. 2 ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Mobiliario completo para su uso. Instalación eléctrica a 220 V, toma de tierra, automático, 4 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,085	h	16,88	1,43	
P31BC190CEM	Alquiler mes caseta vestuarios aseos	1,000	u	162,98	162,98	
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66	
	Suma la partida					209,07
	Costes indirectos			3%		6,27
	TOTAL PARTIDA					**215,34**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS QUINCE con TREINTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.03	**ALQUILER CASETA COMEDOR**		**mes**			
S01B191PN	Mes de alquiler de caseta prefabricada para comedor de obra de mínimo 15 m2. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,085	h	16,88	1,43	
P31BC190CEM2	Alquiler mes caseta comedor	1,000	u	162,98	162,98	
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66	
				Suma la partida		209,07
				Costes indirectos	3%	6,27
				**TOTAL PARTIDA		**215,34**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS QUINCE con TREINTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.04	**ALQUILER CASETA OFICINA REUNIONES**		**mes**			
S01B180PN	Mes de alquiler de caseta prefabricada para oficina y reuniones. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Divisiones en tablero de melamina. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,093	h	16,88	1,57	
P31BC180CEM	Alquiler mes caseta oficina	1,000	u	191,32	191,32	
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66	
S01C090	MESA MELAMINA PARA 10 PERSONAS	1,000	u	64,04	64,04	
	Suma la partida					301,59
	Costes indirectos			3%		9,05
	TOTAL PARTIDA					**310,64**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS DIEZ con SESENTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.05	**ACOMETIDA AÉREA MONOFÁSICA COBRE 2x16 mm2**		**m**			
E17AAM010PN	Acometida aérea monofásica instalada sobre fachada, formada por conductores de cobre aislados con polietileno reticulado (XLPE), en cable rígido multiconductor trenzado en haz 0,6/1kV RZ Fca, de sección 2x16 mm2, fabricado conforme a UNE 21030-2; fijado a fachada mediante abrazadera de acero con tornillo autorroscante plastificada resistente a la intemperie. Totalmente realizada; i/p.p. de conexiones y medios auxiliares (excepto elevación y/o transporte). Conforme a REBT: ITC-BT-06 e ITC-BT-11, NTE-IER, UNE-HD 60364-1:2009 y UNE-HD 60364-1:2009/A11:2018. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB200	Oficial 1ª electricista	0,220	h	19,25	4,24	
O01OB210	Oficial 2ª electricista	0,220	h	21,59	4,75	
P15NAB050	Cable rígido trenzado Cu 0,6/1kV RZ Fca - 2x16 mm2	1,050	m	5,69	5,97	
P15AH395	Abrazadera acero c/tornillo autorroscante SAF-25	3,000	u	0,57	1,71	
	Suma la partida					16,67
	Costes indirectos			3%		0,50
	TOTAL PARTIDA					**17,17**

Asciende el precio total de la partida a la mencionada cantidad de DIECISIETE con DIECISIETE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.06	**ACOMETIDA PROVISIONAL FONTANERÍA 25 mm**		**u**			
S01A030PN	Acometida provisional de fontanería para obra de la red general municipal de agua potable hasta una longitud máxima de 8 m, realizada con tubo de polietileno de 25 mm de diámetro, de alta densidad y para 10 atmósferas de presión máxima con collarín de toma de fundición, p.p. de piezas especiales de polietileno y tapón roscado, incluso derechos y permisos para la conexión, terminada y funcionando, y sin incluir la rotura del pavimento. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
P31BA010	Acometida provisional fontanería a caseta	1,000	u	95,81	95,81	
	Suma la partida					129,64
	Costes indirectos			3%		3,89
	TOTAL PARTIDA					**133,53**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO TREINTA Y TRES con CINCUENTA Y TRES CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.07	**ACOMETIDA PROVISIONAL SANEAMIENTO EN SUPERFICIE**		**u**			
S01A050PN	Acometida provisional de saneamiento de caseta de obra a la red general municipal (pozo o imbornal), hasta una distancia máxima de 8 m, formada por tubería en superficie de PVC de 110 mm de diámetro interior, tapado posterior de la acometida con hormigón en masa HM-20/P/20/I, y con p.p. de medios auxiliares. Incluso p.p de limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
P31BA030	Acometida provisional saneamiento a caseta en superficie	1,000	u	138,09	138,09	
	Suma la partida					171,92
	Costes indirectos			3%		5,16
	TOTAL PARTIDA					**177,08**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO SETENTA Y SIETE con OCHO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.08	**CUADRO DE OBRA 80 A MODELO 8**		**u**			
S02DC100PN	Cuadro de obra trifásico 80 A, compuesto por armario metálico con revestimiento de poliéster de 600x500 cm con salida lateral por toma de corriente y salida interior por bornes fijos, soportes, manecilla de sujeción y/o anillos de elevación, con cerradura, MT General de 4x80 A, 3 diferenciales de 4x25 A 30 mA, 4x63 A 30 mA y 4x40 A 300 mA, respectivamente, 7 MT por base, tres de 2x16 A, tres de 4x16 A y uno de 4x32 A, incluyendo cableado, rótulos de identificación, 7 bases de salida y p.p. de conexión a tierra, instalado (amortizable en 4 obras), según ITC-BT-33 del REBT (R.D. 842/2002), R.D. 614/2001 y UNE-EN 61439-4:2013. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB200	Oficial 1ª electricista	1,200	h	19,25	23,10	
P31CE240	Cuadro de obra 80 A Modelo 8	0,250	u	2.230,09	557,52	
	Suma la partida					580,62
	Costes indirectos			3%		17,42
	TOTAL PARTIDA					**598,04**

Asciende el precio total de la partida a la mencionada cantidad de QUINIENTOS NOVENTA Y OCHO con CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.09	**TOMA DE TIERRA R80 Ohm R=100 Ohm**		**u**			
S02DT010PN	Toma de tierra para una resistencia de tierra R<=80 Ohmios y una resistividad R=100 Ohm formada por arqueta de ladrillo macizo de 24x11,5x7 cm, tapa de hormigón armado, tubo de PVC de D=75 mm, electrodo de acero cobrizado 14,3 mm y 100 cm, de profundidad hincado en el terreno, línea de t.t. de cobre desnudo de 35 mm2, con abrazadera a la pica, instalado. Según ITC-BT-18 y MIE-BT-039 del REBT (R.D. 842/2002) y R.D. 614/2001. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA030	Oficial primera	1,316	h	19,86	26,14	
O01OA050	Ayudante	0,659	h	20,32	13,39	
O01OA070	Peón ordinario	0,438	h	16,88	7,39	
O01OB200	Oficial 1ª electricista	0,659	h	19,25	12,69	
O01OB210	Oficial 2ª electricista	0,659	h	21,59	14,23	
P01LT040	Ladrillo perforado tosco 24x11,5x7 cm	0,045	mu	151,87	6,83	
A02A080	MORTERO CEMENTO M-5 C/HORMIGONERA	0,020	m3	91,71	1,83	
P04RR070	Mortero revoco CSIV-W2	0,950	kg	1,67	1,59	
P02EAT020	Tapa cuadrada HA e=6 cm 50x50 cm	1,000	u	20,03	20,03	
P17VPC040	Codo M-H 87º PVC serie B junta pegada 75 mm	0,500	u	2,41	1,21	
P31CE040	Pica cobre para toma tierra 14,3 mm	1,000	m	13,63	13,63	
P31CE020	Cable cobre desnudo D=35 mm	3,000	m	1,77	5,31	
P31CE050	Grapa para pica	1,000	u	2,88	2,88	
P15EC020	Puente de prueba	1,000	u	22,13	22,13	
	Suma la partida					149,28
	Costes indirectos			3%		4,48
	TOTAL PARTIDA					**153,76**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO CINCUENTA Y TRES con SETENTA Y SEIS CÉNTIMOS

01.02 PROTECCIONES COLECTIVAS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.02.01	**EXTINTOR POLVO ABC 6 kg PROTECCIÓN INCENDIOS**		**u**			
S02E010PN	Extintor de polvo químico ABC polivalente antibrasa de eficacia 21A/113B, de 6 kg de agente extintor, con soporte, manómetro comprobable y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
	Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.					
	Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,088	h	16,88	1,49	
P31CI020	Extintor polvo ABC 6 kg 21A/113B	1,000	u	46,49	46,49	
	Suma la partida					47,98
	Costes indirectos			3%		1,44
	TOTAL PARTIDA					**49,42**
	Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y NUEVE con CUARENTA Y DOS CÉNTIMOS					
01.02.02	**EXTINTOR CO2 5 kg ACERO**		**u**			
S02E030PN	Extintor de nieve carbónica CO2, de eficacia 89B, con 5 kg de agente extintor, construido en acero, con soporte y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
	Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.					
	Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
O01OA070	Peón ordinario	0,088	h	16,88	1,49	
P31CI050	Extintor CO2 5 kg acero 89B	1,000	u	118,51	118,51	
				Suma la partida		120,00
				Costes indirectos	3%	3,60
				TOTAL PARTIDA		**123,60**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO VEINTITRÉS con SESENTA CÉNTIMOS

01.02.03 **VALLA ENREJADO GALVANIZADO/PLIEGUES** **m**

S02BV020PN

Valla metálica móvil de módulos prefabricados de 3,50x2,00 m de altura, enrejados de malla de D=5 mm de espesor con cuatro pliegues de refuerzo, bastidores verticales de D=40 mm y 1,50 mm de espesor, todo ello galvanizado en caliente, sobre soporte de hormigón prefabricado de 230x600x150 mm, separados cada 3,50 m, accesorios de fijación, considerando 5 usos, incluso montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

O01OA050	Ayudante	0,050	h	20,32	1,02	
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31CB190	Valla enrejado móvil pliegues 3,5x2 m	0,200	m	20,74	4,15	
P31CB200	Pie de hormigón con 4 agujeros	0,333	u	3,71	1,24	
				Suma la partida		7,25
				Costes indirectos	3%	0,22
				TOTAL PARTIDA		**7,47**

Asciende el precio total de la partida a la mencionada cantidad de SIETE con CUARENTA Y SIETE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.02.04	**VALLA CONTENCIÓN DE PEATONES**		**u**			
S02BV040	Valla de contención de peatones, metálica, prolongable de 2,50 m de largo y 1,00 m de altura, color amarillo, amortizable en 5 usos, incluso colocación y desmontaje, según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31CB100	Valla contención peatones 2,5x1 m	0,200	u	32,75	6,55	
	Suma la partida					8,24
	Costes indirectos			3%		0,25
	TOTAL PARTIDA					**8,49**
	Asciende el precio total de la partida a la mencionada cantidad de OCHO con CUARENTA Y NUEVE CÉNTIMOS					
01.02.05	**PUERTA PEATONAL CHAPA 1,00x2,00 m**		**u**			
S02BV080PN	Puerta de acceso peatonal de chapa galvanizada de 1,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA050	Ayudante	0,050	h	20,32	1,02	
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31CB220	Puerta chapa galvanizada 1x2 m	0,200	u	239,10	47,82	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	Suma la partida					49,68
	Costes indirectos				3%	1,49
	TOTAL PARTIDA					**51,17**

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y UN con DIECISIETE CÉNTIMOS

01.02.06 **PUERTA CAMIÓN CHAPA 4,00x2,00 m** **u**

S02BV090

Puerta de acceso de vehículos de chapa galvanizada de 4,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97.

Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento provenientes de la Presidencia del Gobierno y demás Ministerios

O01OA050	Ayudante	0,050	h	20,32	1,02	
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31CB210	Puerta chapa galvanizada 4x2 m	0,200	u	870,16	174,03	
	Suma la partida					175,89
	Costes indirectos				3%	5,28
	TOTAL PARTIDA					**181,17**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO OCHENTA Y UN con DIECISIETE CÉNTIMOS

01.02.07 **PROTECCIÓN HORIZONTAL CUAJADO TABLONES** **m2**

S02F110

Protección horizontal de huecos con cuajado de tablones de madera de pino de 20x7 cm unidos a clavazón, incluso instalación y desmontaje (amortizable en 2 usos), según R.D. 486/97 y R.D. 1627/97.

O01OB010	Oficial 1ª encofrador	0,250	h	22,55	5,64	
O01OB020	Ayudante encofrador	0,250	h	20,96	5,24	
P31CB070	Tablón madera pino 20x7 cm	0,050	m3	287,65	14,38	
P31CB300	Puntas planas acero 20x100 mm	0,050	kg	1,14	0,06	
	Suma la partida					25,32
	Costes indirectos				3%	0,76
	TOTAL PARTIDA					**26,08**

Asciende el precio total de la partida a la mencionada cantidad de VEINTISÉIS con OCHO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.02.08	**PROTECCIÓN HUECO CON RED HORIZONTAL**		**m2**			
S02F100	Red horizontal de seguridad en cubrición de huecos formada por malla de poliamida de 10x10 cm anudada con cuerda de D=3 mm y cuerda perimetral de D=10 mm para amarre de la red a los anclajes de acero de D=10 mm conectados a las armaduras perimetrales del hueco cada 50 cm y cinta perimetral de señalización fijada a pies derechos (amortizable en 4 usos), según R.D. 486/97 y R.D. 1627/97.					
O01OA030	Oficial primera	0,080	h	19,86	1,59	
O01OA060	Peón especializado	0,080	h	17,00	1,36	
P31CR030	Red seguridad poliamida 10x10 cm	0,250	m2	2,98	0,75	
P31SB010	Cinta balizamiento bicolor 8 cm	1,428	m	0,06	0,09	
P31CR210	Cuerda de unión redes de seguridad	1,280	m	0,49	0,63	
P31CR150	Gancho montaje red D=10 mm	1,600	u	0,21	0,34	
P31SV080	Poste galvanizado 80x40x2 mm 2,00 m	0,125	u	23,90	2,99	
	Suma la partida					7,75
	Costes indirectos			3%		0,23
	TOTAL PARTIDA					**7,98**

Asciende el precio total de la partida a la mencionada cantidad de SIETE con NOVENTA Y OCHO CÉNTIMOS

01.03 EQUIPOS DE PROTECCION INDIVIDUAL

01.03.01	**PAR DE RODILLERAS**		**u**			
S03D150PN	Par de rodilleras ajustables de protección ergonómica (amortizables en 3 usos). Según UNE-EN 340, UNE-EN 14404, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IP150	Par rodilleras	0,333	u	14,54	4,84	
	Suma la partida					4,84
	Costes indirectos			3%		0,15
	TOTAL PARTIDA					**4,99**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con NOVENTA Y NUEVE CÉNTIMOS

01.03.02	**PANTALLA DE CABEZA SOLDADOR**		**u**			
S03A040PN	Pantalla de seguridad de cabeza, para soldador, de fibra vulcanizada, con cristal de 110x55 mm (amortizable en 5 usos). Según UNE-EN 175, UNE-EN 379, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA080	Pantalla seguridad cabeza soldador	0,200	u	13,48	2,70	
	Suma la partida					2,70
	Costes indirectos			3%		0,08
	TOTAL PARTIDA					**2,78**

Asciende el precio total de la partida a la mencionada cantidad de DOS con SETENTA Y OCHO CÉNTIMOS

01.03.03	**MANDIL CUERO PARA SOLDADOR**		**u**			
S03B140PN	Mandil de cuero para soldador (amortizable en 3 usos). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IC140	Mandil cuero para soldador	0,333	u	9,66	3,22	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	Suma la partida					3,22
	Costes indirectos				3%	0,10
	TOTAL PARTIDA					**3,32**

Asciende el precio total de la partida a la mencionada cantidad de TRES con TREINTA Y DOS CÉNTIMOS

01.03.04 **PAR GUANTES SOLDADOR** **u**

S03C100PN

Par de guantes para soldador (amortizables en 2 usos). Según UNE-EN 12477, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IM100	Par guantes para soldador	0,500	u	2,93	1,47	
	Suma la partida					1,47
	Costes indirectos				3%	0,04
	TOTAL PARTIDA					**1,51**

Asciende el precio total de la partida a la mencionada cantidad de UN con CINCUENTA Y UN CÉNTIMOS

01.03.05 **PAR DE BOTAS AISLANTES** **u**

S03D080PN

Par de botas aislantes para electricista hasta 5000 V de tensión (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IP080	Par botas aislantes 5000 V	0,333	u	70,61	23,51	
	Suma la partida					23,51
	Costes indirectos				3%	0,71
	TOTAL PARTIDA					**24,22**

Asciende el precio total de la partida a la mencionada cantidad de VEINTICUATRO con VEINTIDÓS CÉNTIMOS

01.03.06 **CUBREGRAFAS DE SEGURIDAD** **u**

S03A065PN

Cubregafas de seguridad con ocular transparente diseñado para poder llevar gafas graduadas. Según UNE-EN 166, R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IA230	Cubregafas de seguridad	0,333	u	1,67	0,56	
	Suma la partida					0,56
	Costes indirectos				3%	0,02
	TOTAL PARTIDA					**0,58**

Asciende el precio total de la partida a la mencionada cantidad de CERO con CINCUENTA Y OCHO CÉNTIMOS

01.03.07 **PROTECCIÓN LUMBAR CON TIRANTES** **u**

S03B020PN

Protector lumbar con tirantes (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC020	Protector lumbar con tirantes	0,250	u	42,48	10,62	

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
					Suma la partida	10,62
					Costes indirectos 3%	0,32
					TOTAL PARTIDA	**10,94**

Asciende el precio total de la partida a la mencionada cantidad de DIEZ con NOVENTA Y CUATRO CÉNTIMOS

01.03.08 **CINTURÓN PORTAHERRAMIENTAS** **u**

S03B030PN

Cinturón portaherramientas (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC030	Cinturón portaherramientas	0,250	u	16,83	4,21	
					Suma la partida	4,21
					Costes indirectos 3%	0,13
					TOTAL PARTIDA	**4,34**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con TREINTA Y CUATRO CÉNTIMOS

01.03.09 **TRAJE IMPERMEABLE** **u**

S03B090PN

Traje impermeable de trabajo, 2 piezas de PVC (amortizable en un uso). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC090	Traje impermeable 2 piezas PVC	1,000	u	9,47	9,47	
					Suma la partida	9,47
					Costes indirectos 3%	0,28
					TOTAL PARTIDA	**9,75**

Asciende el precio total de la partida a la mencionada cantidad de NUEVE con SETENTA Y CINCO CÉNTIMOS

01.03.10 **ABRIGO PARA EL FRÍO** **u**

S03B125PN

Abrigo para el frío (amortizable en 3 usos). Según UNE-EN 342, UNE-EN 14058, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC120	Abrigo para frío	0,333	u	34,15	11,37	
					Suma la partida	11,37
					Costes indirectos 3%	0,34
					TOTAL PARTIDA	**11,71**

Asciende el precio total de la partida a la mencionada cantidad de ONCE con SETENTA Y UN CÉNTIMOS

01.03.11 **CHALECO DE OBRAS REFLECTANTE** **u**

S03B180PN

Chaleco de obras con bandas reflectante (amortizable en 1 usos). Según UNE-EN 471 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC180	Chaleco de obras reflectante	1,000	u	3,01	3,01	
					Suma la partida	3,01
					Costes indirectos 3%	0,09
					TOTAL PARTIDA	**3,10**

Asciende el precio total de la partida a la mencionada cantidad de TRES con DIEZ CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.03.12	**CHUBASQUERO ALTA VISIBILIDAD**		**u**			
S03B230PN	Chubasquero de lluvia impregnado exterior de PVC, capucha fija con cordón de apriete. Alta visibilidad, con tiras retroreflejantes microburbujas termoselladas, color plata, 50 mm, montaje paralelo (amortizable en 3 usos). Según UNE-EN 471, UNE-EN 343 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IC230	Chubasquero alta visibilidad	0,333	u	10,64	3,54	
	Suma la partida					3,54
	Costes indirectos			3%		0,11
	TOTAL PARTIDA					**3,65**

Asciende el precio total de la partida a la mencionada cantidad de TRES con SESENTA Y CINCO CÉNTIMOS

01.03.13	**PAR GUANTES LONA REFORZADOS**		**u**			
S03C020PN	Par de guantes de lona reforzados. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IM020	Par guantes lona reforzados	1,000	u	3,19	3,19	
	Suma la partida					3,19
	Costes indirectos			3%		0,10
	TOTAL PARTIDA					**3,29**

Asciende el precio total de la partida a la mencionada cantidad de TRES con VEINTINUEVE CÉNTIMOS

01.03.14	**PAR GUANTES LÁTEX ANTICORTE**		**u**			
S03C040PN	Par de guantes de goma látex anticorte. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IM040	Par guantes goma látex anticorte	1,000	u	2,08	2,08	
	Suma la partida					2,08
	Costes indirectos			3%		0,06
	TOTAL PARTIDA					**2,14**

Asciende el precio total de la partida a la mencionada cantidad de DOS con CATORCE CÉNTIMOS

01.03.15	**PAR GUANTES AISLANTES 5000 V**		**u**			
S03C110PN	Par de guantes aislantes para protección de contacto eléctrico en tensión hasta 5000 V (amortizables en 3 usos). Según UNE-EN 60903, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IM110	Par guantes aislamiento 5000 V	0,333	u	29,20	9,72	
	Suma la partida					9,72
	Costes indirectos			3%		0,29
	TOTAL PARTIDA					**10,01**

Asciende el precio total de la partida a la mencionada cantidad de DIEZ con UN CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.03.16	**PAR DE BOTAS DE SEGURIDAD**		**u**			
S03D070PN	Par de botas de seguridad con plantilla y puntera de acero (amortizables en 1 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IP070	Par botas de seguridad	1,000	u	27,56	27,56	
	Suma la partida					27,56
	Costes indirectos			3%		0,83
	TOTAL PARTIDA					**28,39**
	Asciende el precio total de la partida a la mencionada cantidad de VEINTIOCHO con TREINTA Y NUEVE CÉNTIMOS					
01.03.17	**CASCO DE SEGURIDAD AJUSTABLE RUEDA**		**u**			
S03A010PN	Casco de seguridad con arnés de cabeza ajustable por medio de rueda dentada, para uso normal y eléctrico hasta 440 V. Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA030	Casco seguridad con rueda	1,000	u	8,38	8,38	
	Suma la partida					8,38
	Costes indirectos			3%		0,25
	TOTAL PARTIDA					**8,63**
	Asciende el precio total de la partida a la mencionada cantidad de OCHO con SESENTA Y TRES CÉNTIMOS					
01.03.18	**CASCO SEGURIDAD DIELÉCTRICO**		**u**			
S03A030PN	Casco de seguridad dieléctrico con pantalla para protección de descargas eléctricas (amortizable en 5 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA060	Casco seguridad dieléctrica con pantalla	0,200	u	19,44	3,89	
	Suma la partida					3,89
	Costes indirectos			3%		0,12
	TOTAL PARTIDA					**4,01**
	Asciende el precio total de la partida a la mencionada cantidad de CUATRO con UN CÉNTIMOS					
01.03.19	**PANTALLA CONTRA PARTÍCULAS**		**u**			
S03A060PN	Pantalla para protección contra partículas, con sujeción en cabeza (amortizable en 5 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA100	Pantalla protección contra partículas	0,200	u	9,17	1,83	
	Suma la partida					1,83
	Costes indirectos			3%		0,05
	TOTAL PARTIDA					**1,88**
	Asciende el precio total de la partida a la mencionada cantidad de UN con OCHENTA Y OCHO CÉNTIMOS					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.03.20	**GAFAS CONTRA IMPACTOS**		**u**			
S03A070PN	Gafas protectoras contra impactos, incoloras (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA120	Gafas protectoras	0,333	u	8,80	2,93	
	Suma la partida					2,93
	Costes indirectos			3%		0,09
	TOTAL PARTIDA					**3,02**
	Asciende el precio total de la partida a la mencionada cantidad de TRES con DOS CÉNTIMOS					
01.03.21	**GAFAS ANTIPOLVO**		**u**			
S03A090PN	Gafas antipolvo antiempañables, panorámicas (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA140	Gafas antipolvo	0,333	u	8,60	2,86	
	Suma la partida					2,86
	Costes indirectos			3%		0,09
	TOTAL PARTIDA					**2,95**
	Asciende el precio total de la partida a la mencionada cantidad de DOS con NOVENTA Y CINCO CÉNTIMOS					
01.03.22	**SEMI MÁSCARA ANTIPOLVO 1 FILTRO**		**u**			
S03A100PN	Semi-mascarilla antipolvo un filtro (amortizable en 3 usos). Según UNE-EN 140, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA150	Semi-mascarilla 1 filtro	0,333	u	17,92	5,97	
	Suma la partida					5,97
	Costes indirectos			3%		0,18
	TOTAL PARTIDA					**6,15**
	Asciende el precio total de la partida a la mencionada cantidad de SEIS con QUINCE CÉNTIMOS					
01.03.23	**FILTRO RECAMBIO MASCARILLA**		**u**			
S03A110PN	Filtro de recambio de mascarilla para polvo y humos. Según UNE-EN 136, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA180	Filtro antipolvo	1,000	u	1,77	1,77	
	Suma la partida					1,77
	Costes indirectos			3%		0,05
	TOTAL PARTIDA					**1,82**
	Asciende el precio total de la partida a la mencionada cantidad de UN con OCHENTA Y DOS CÉNTIMOS					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.03.24	**CASCOS PROTECTORES AUDITIVOS**		**u**			
S03A120PN	Protectores auditivos con arnés a la nuca (amortizables en 3 usos). Según UNE-EN 458, UNE-EN 352, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA190	Cascos protectores auditivos	0,333	u	11,97	3,99	
	Suma la partida					3,99
	Costes indirectos			3%		0,12
	TOTAL PARTIDA					**4,11**
	Asciende el precio total de la partida a la mencionada cantidad de CUATRO con ONCE CÉNTIMOS					
01.03.25	**BARBUQUEJO CON MENTONERA PARA CASCO**		**u**			
S03A032	Cinta o correa elástica de sujeción con mentonera para casco de seguridad.					
P31IA220	Barbuquejo con mentonera para casco	1,000	u	4,87	4,87	
	Suma la partida					4,87
	Costes indirectos			3%		0,15
	TOTAL PARTIDA					**5,02**
	Asciende el precio total de la partida a la mencionada cantidad de CINCO con DOS CÉNTIMOS					
01.03.26	**PAR DE POLAINAS SOLDADURA**		**u**			
S03D090	Par de polainas para soldador (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.					
P31IP090	Par polainas para soldador	0,333	u	5,11	1,70	
	Suma la partida					1,70
	Costes indirectos			3%		0,05
	TOTAL PARTIDA					**1,75**
	Asciende el precio total de la partida a la mencionada cantidad de UN con SETENTA Y CINCO CÉNTIMOS					
01.03.27	**ARNÉS AMARRE DORSAL Y TORÁCICO**		**u**			
S03EA030	Arnés básico de seguridad amarre dorsal con anilla y torácico con cintas, regulación en piernas, fabricado con cinta de nailon de 45 mm y elementos metálicos de acero inoxidable (amortizable en 5 obras). Según UNE-EN 361, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.					
P31IS030	Arnés amarre dorsal + torácicos	0,200	u	44,44	8,89	
	Suma la partida					8,89
	Costes indirectos			3%		0,27
	TOTAL PARTIDA					**9,16**
	Asciende el precio total de la partida a la mencionada cantidad de NUEVE con DIECISÉIS CÉNTIMOS					
01.03.28	**CUERDA CON REDUCTOR 2,00 m MOSQUETONES+GANCHO**		**u**			
S03ED040	Eslinga anticaída regulable con absorbedor de energía compuesta por cuerda de poliamida de 12 mm de diámetro y 2,00 m de longitud, con reductor, con un mosquetón de 17 mm de apertura y un gancho de 60 mm de apertura (amortizable en 4 usos). Según UNE-EN 355, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.					
P31IS300	Cuerda con reductor 2 m 2 mosquetones 17 mm-60 mm	0,250	u	78,90	19,73	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	Suma la partida					19,73
	Costes indirectos				3%	0,59
	TOTAL PARTIDA					**20,32**

Asciende el precio total de la partida a la mencionada cantidad de VEINTE con TREINTA Y DOS CÉNTIMOS

01.03.29 **ANCLAJE DE CINTA L=250 cm** **u**

S03EE080PN Dispositivo de anclaje para sistemas anticaídas, instalado con taco metálico en estructuras de hormigón armado y estructura metálica. Se instala a techo o pared y dispone en uno de los extremos de la cinta de una anilla de acero para el enganche del elemento de amarre del arnés anticaídas. Tiene una longitud de 250 cm, siendo adecuado su aplicación para todos aquellos puntos en los que se de el riesgo de caída a distinto nivel, bordes de forjados, etc. Su uso está limitado a un solo trabajador. Certificado según UNE-EN 795:2012.

O01OA030	Oficial primera	0,050	h	19,86	0,99	
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31IS800	Anclaje cinta con taco metálico L=250 cm 1 trabajador	1,000	u	9,75	9,75	
P31IS710	Punto de anclaje fijo	1,000	u	18,65	18,65	
	Suma la partida					31,08
	Costes indirectos				3%	0,93
	TOTAL PARTIDA					**32,01**

Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y DOS con UN CÉNTIMOS

01.04 SEÑALIZACION

01.04.01 **PLACA SEÑALIZACIÓN RIESGO** **u**

S05C080PN Placa señalización-información en PVC serigrafiado de 50x30 cm, fijada mecánicamente (amortizable en 2 usos), incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

O01OA070	Peón ordinario	0,150	h	16,88	2,53	
P31SV120	Placa informativa PVC 50x30 cm	0,500	u	7,42	3,71	
	Suma la partida					6,24
	Costes indirectos				3%	0,19
	TOTAL PARTIDA					**6,43**

Asciende el precio total de la partida a la mencionada cantidad de SEIS con CUARENTA Y TRES CÉNTIMOS

01.04.02 **PANEL COMPLETO PVC 700x1000 mm** **u**

S05B030PN Panel completo serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Tamaño 700x1000 mm. Válido para incluir hasta 15 símbolos de señales, incluso textos "Prohibido el paso a toda persona ajena a la obra", incluido colocación, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31SC030	Panel completo PVC 700x1000 mm	1,000	u	14,74	14,74	
	Suma la partida					16,43
	Costes indirectos				3%	0,49
	TOTAL PARTIDA					**16,92**

Asciende el precio total de la partida a la mencionada cantidad de DIECISÉIS con NOVENTA Y DOS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.04.03	**BALIZA LUMINOSA INTERMITENTE**		**u**			
S05A050PN	Foco de balizamiento intermitente (amortizable en 4 usos), según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31SB080	Baliza luminosa intermitente	0,250	u	22,39	5,60	
	Suma la partida					7,29
	Costes indirectos			3%		0,22
	TOTAL PARTIDA					**7,51**

Asciende el precio total de la partida a la mencionada cantidad de SIETE con CINCUENTA Y UN CÉNTIMOS

01.04.04	**CINTA BALIZAMIENTO BICOLOR 8 cm**		**m**			
S05A010PN	Cinta de balizamiento bicolor rojo/blanco de material plástico, incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31SB010	Cinta balizamiento bicolor 8 cm	1,100	m	0,06	0,07	
	Suma la partida					0,91
	Costes indirectos			3%		0,03
	TOTAL PARTIDA					**0,94**

Asciende el precio total de la partida a la mencionada cantidad de CERO con NOVENTA Y CUATRO CÉNTIMOS

01.04.05	**CARTEL PVC SEÑALIZACIÓN EXTINTOR BOCA INCENDIO**		**u**			
S05B020	Cartel serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Para señales de lucha contra incendios (extintor, boca de incendio), incluido colocación, según R.D. 485/97 y R.D. 1627/97.					
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31SC020	Cartel PVC señalización extintor/boca incendios	1,000	u	9,24	9,24	
	Suma la partida					10,93
	Costes indirectos			3%		0,33
	TOTAL PARTIDA					**11,26**

Asciende el precio total de la partida a la mencionada cantidad de ONCE con VEINTISÉIS CÉNTIMOS

01.04.06	**PANEL DIRECCIONAL CON SOPORTE**		**u**			
S05C070	Panel direccional reflectante de 165x45 cm, con soporte metálico (amortizable en cinco usos), incluido p.p. de apertura de pozo, hormigonado H-100/40, colocación y montaje, según R.D. 485/97 y R.D. 1627/97.					
O01OA070	Peón ordinario	0,300	h	16,88	5,06	
P31SV100	Panel dirección reflectante 164x45 cm	0,200	u	162,50	32,50	
P31SV110	Soporte panel dirección metálico	0,200	u	17,29	3,46	
A03H040	HORMIGÓN HM-20/B/25/X0 o XC1 DOSIFICACIÓN 200 kg/m3 CEMENTO Tmáx.25 mm	0,064	m3	98,12	6,28	
	Suma la partida					47,30
	Costes indirectos			3%		1,42
	TOTAL PARTIDA					**48,72**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y OCHO con SETENTA Y DOS CÉNTIMOS

12.5. DOCUMENTACIÓN GRÁFICA DE SEGURIDAD Y SALUD

SEÑALES DE ADVERTENCIA					
SIGNIFICADO DE LA SEÑAL	SIMBOLO	COLORES			SEÑAL DE SEGURIDAD
		DEL SIMBOLO	DE SEGURIDAD	DE CONTRASTE	
RIESGO DE INCENDIO MATERIALES INFLAMABLES		NEGRO	AMARILLO	NEGRO	
RIESGO DE EXPLOCION MATERIALES EXPLOSIVOS		NEGRO	AMARILLO	NEGRO	
RIESGO DE RADIACION MATERIALES RADIACTIVOS		NEGRO	AMARILLO	NEGRO	
RIESGO DE CARGA SUSPENDIDA		NEGRO	AMARILLO	NEGRO	
RIESGO DE INTOXICACION SUBSTANCIAS NOCIVAS		NEGRO	AMARILLO	NEGRO	
RIESGO DE CORROSION SUBSTANCIAS CORROSIVAS		NEGRO	AMARILLO	NEGRO	

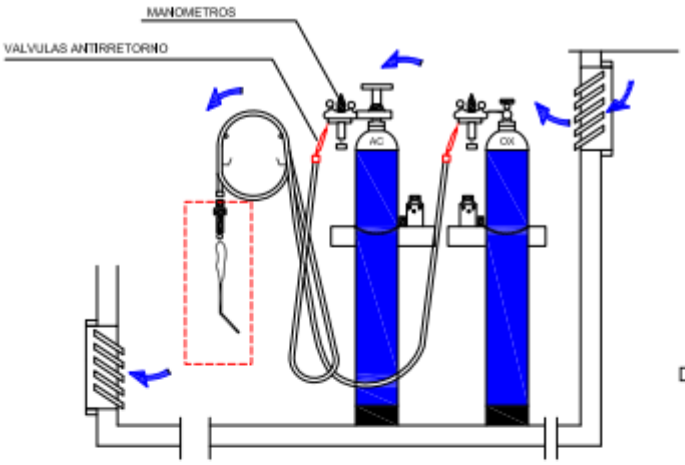
SEÑALES DE ADVERTENCIA

SEÑALES DE SEGURIDAD					
SIGNIFICADO DE LA SEÑAL	SIMBOLO	COLORES			SEÑAL DE SEGURIDAD
		DEL SIMBOLO	DE SEGURIDAD	DE CONTRASTE	
PROTECCION OBLIGATORIA DE VIAS RESPIRATORIAS		BLANCO	AZUL	BLANCO	
PROTECCION OBLIGATORIA DE LA CABEZA		BLANCO	AZUL	BLANCO	
PROTECCION OBLIGATORIA DEL OIDO		BLANCO	AZUL	BLANCO	
PROTECCION OBLIGATORIA DE LA VISTA		BLANCO	AZUL	BLANCO	
PROTECCION OBLIGATORIA DE LAS MANOS		BLANCO	AZUL	BLANCO	
PROTECCION OBLIGATORIA DE LOS PIES		BLANCO	AZUL	BLANCO	

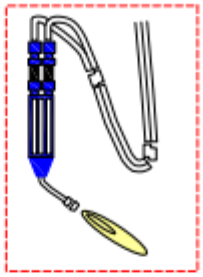
SEÑALES DE OBLIGACIÓN

SEÑALES DE PROHIBICION					
SIGNIFICADO DE LA SEÑAL	SIMBOLO	COLORES			SEÑAL DE SEGURIDAD
		DEL SIMBOLO	DE SEGURIDAD	DE CONTRASTE	
PROHIBIDO FUMAR		NEGRO	ROJO	BLANCO	
PROHIBIDO APAGAR CON AGUA		NEGRO	ROJO	BLANCO	
PROHIBIDO FUMAR Y LLAMAS DESNUDAS		NEGRO	ROJO	BLANCO	
AGUA NO POTABLE		NEGRO	ROJO	BLANCO	
PROHIBIDO PASAR PEATONES		NEGRO	ROJO	BLANCO	

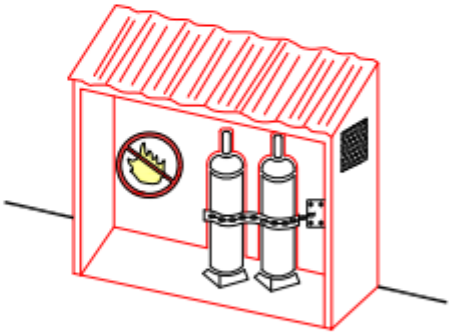
SEÑALES DE PROHIBICION



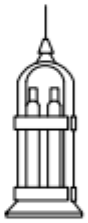
INSTALACION DE BOMBONAS DE OXIGENO Y ACETILENO



DETALLE "A"
DOBLE VALVULA ANTIRRETORNO



ALMACENAJE



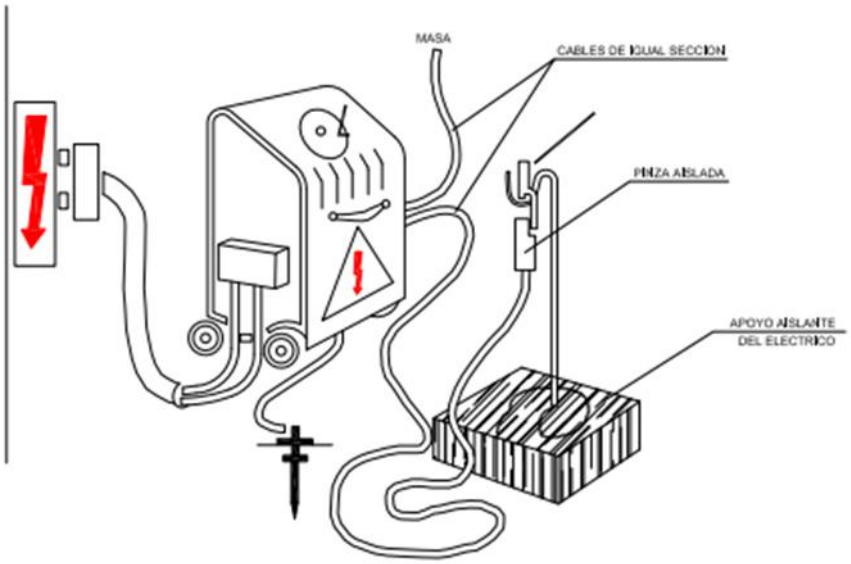


TRANSPORTE

OBSERVACIONES:

- NO SE EMPLEARAN GRASAS EN LA MANIPULACION DE LAS BOTELLAS DE OXIGENO.
- SE UTILIZARAN SIEMPRE EN POSICION VERTICAL Y SUJETAS.
- SE REVISARA PERIODICAMENTE EL ESTADO DE LOS EQUIPOS, COMPROBANDO LA POSIBLE EXISTENCIA DE FUGAS EN EL GRUPO DE OXICORTE Y EL ESTADO DEL CABLE DE ALIMENTACION EN LA SOLDADURA ELECTRICA.

GRUPO OXICORTE



OBSERVACIONES:

- LOS SOLDADORES Y PERSONAL AYUDANTE, IRAN DOTADOS DE PROTECCION PERSONAL ADECUADO.

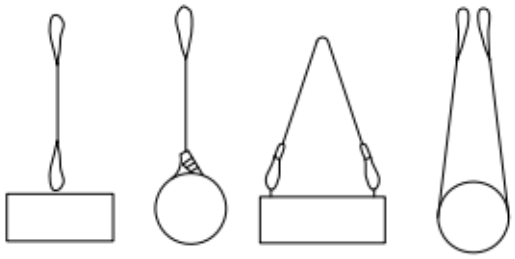
SOLDADURA ELECTRÓGENA

ESQUEMAS DE LOS DIVERSOS TIPOS DE ESLINGAS



DIAMETRO DEL CABLE	NUMEROS DE PERRILLOS	DISTANCIA ENTRE PERRILLOS
HASTA 12 mm.	3	6 DIAMETROS
12 mm. A 20 mm.	4	6 DIAMETROS
20 mm. A 25 mm.	5	6 DIAMETROS
25 mm. A 35 mm.	6	6 DIAMETROS

DIFERENTES FORMAS DE UTILIZACION DE ESLINGAS



ESQUEMAS DE LOS DIVERSOS TIPOS DE GAZAS



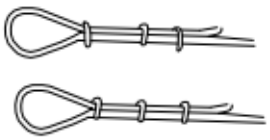
CONSIDERACIONES GENERALES:

- CORRECTO ASENTAMIENTO DE LAS ESLINGAS.
- EVITAR QUE AL UTILIZAR VARIAS ESLINGAS ESTAS SE MONTEN O CRUCEN.
- ELEGIR TERMINALES ADECUADOS (ANILLAS, GRILLETES, GANCHOS, ETC...).
- TENER EN CUENTA QUE CUANDO MAYOR ES EL ANGULO DE TRABAJO DE LA ESLINGA MENOR CAPACIDAD DE CARGA TENDRA.
- SEGUN EL APARTADO ANTERIOR Y COMO NORMA GENERAL EL ANGULO DE TRABAJO EN NINGUN CASO SUPERARA LOS 90°.

FORMA CORRECTA DE MONTAR UNA GAZA CON PERRILLOS

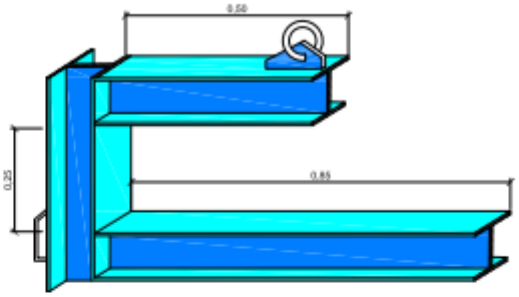


FORMAS INCORRECTAS DE MONTAR UNA GAZA CON PERRILLOS

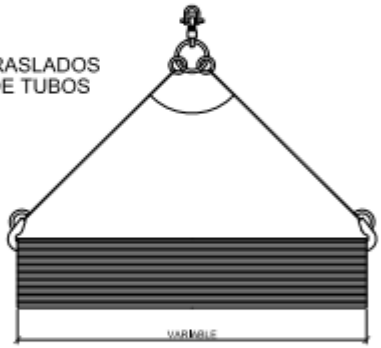


ELEMENTOS AUXILIARES DE IZADO

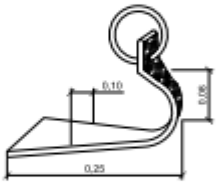
BALANCÍN ESPECIAL PARA MANIOBRAS DE OVOIDES



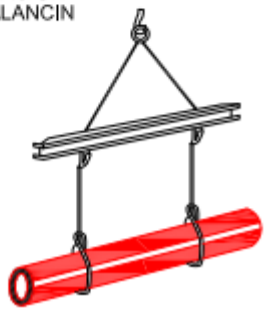
TRASLADOS DE TUBOS



GANCHO



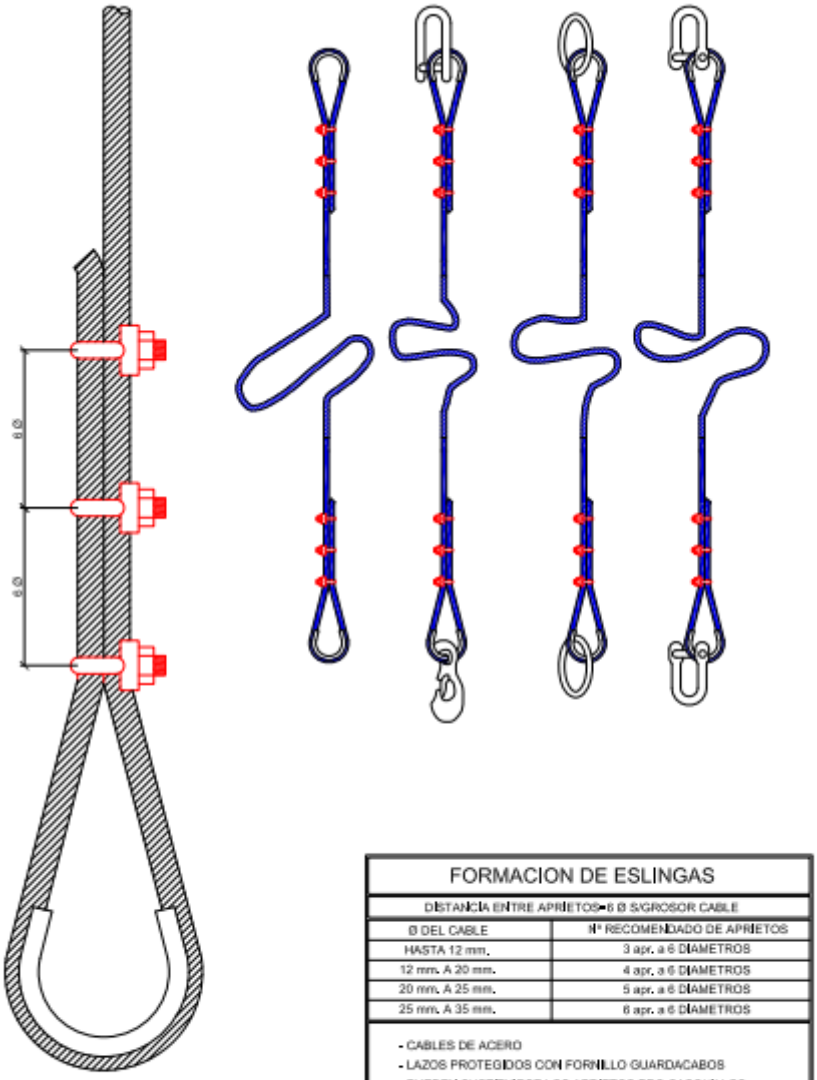
COLOCACIÓN CON BALANCÍN



DETALLE DE AMARRE



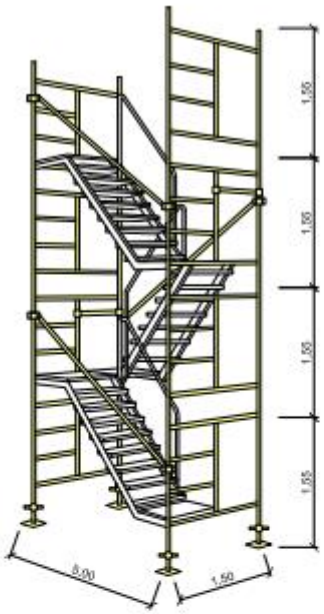
ESTRIBOS, CABLES, CADENAS Y GANCHOS.

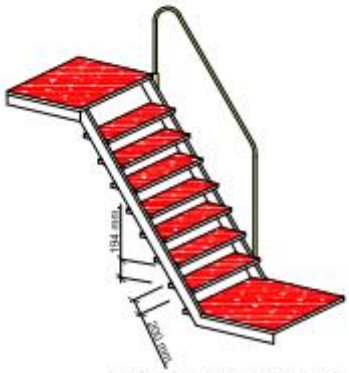


FORMACION DE ESLINGAS	
DISTANCIA ENTRE APRIETOS= 6 Ø S/GROSOR CABLE	
Ø DEL CABLE	Nº RECOMENDADO DE APRIETOS
HASTA 12 mm.	3 apr. a 6 DIAMETROS
12 mm. A 20 mm.	4 apr. a 6 DIAMETROS
20 mm. A 25 mm.	5 apr. a 6 DIAMETROS
25 mm. A 35 mm.	6 apr. a 6 DIAMETROS

- CABLES DE ACERO
- LAZOS PROTEGIDOS CON FORNILLO GUARDACABOS
- PUEDEN SUSTITUIRSE LOS APRIETOS PRO CASQUILLOS SOLDADOS

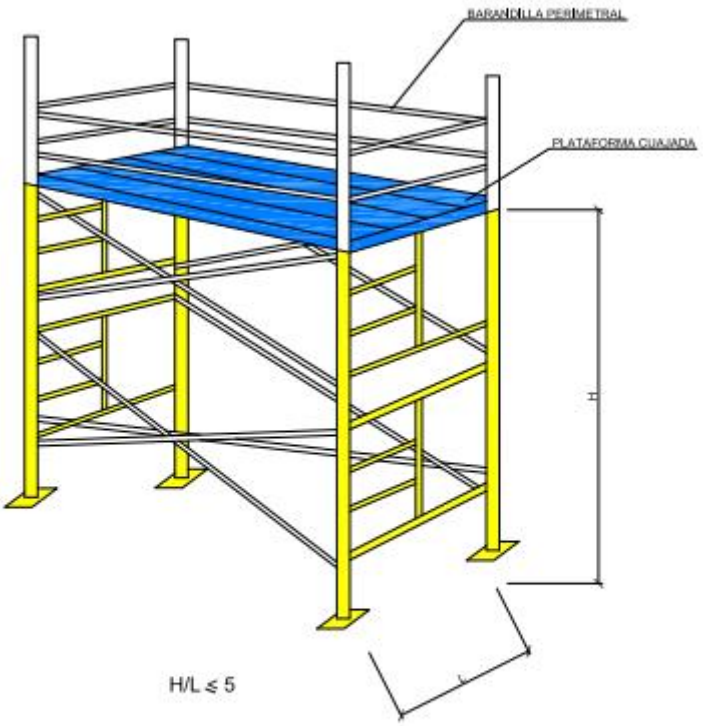
FORMACION DE ESLINGAS



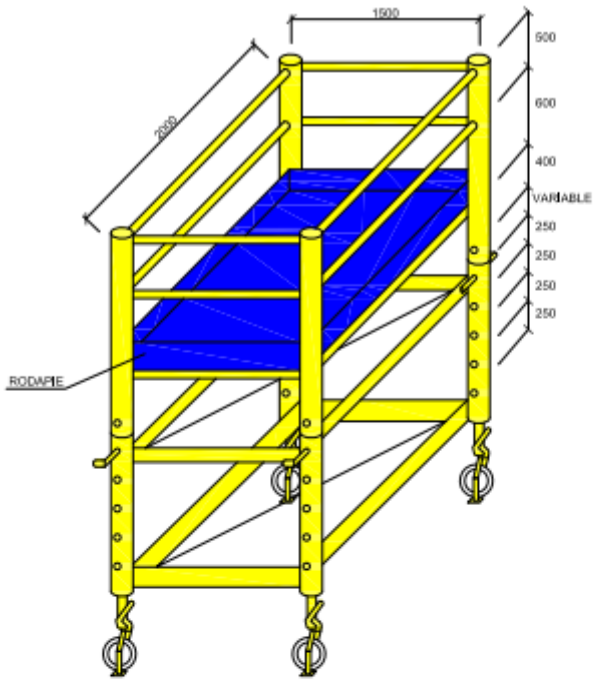


DETALLE DE UN TRAMO

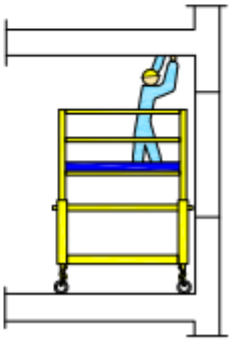
ESCALERAS INTERIORES DE ANDAMIOS



TORRES TUBULARES FIJAS



DETALLE



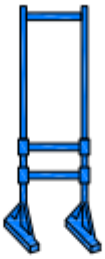
PLATAFORMA DE TRABAJO REGULABLE EN ALTURA PARA INTERIOR DE FORJADOS

BORRIQUETAS DE TIJERA

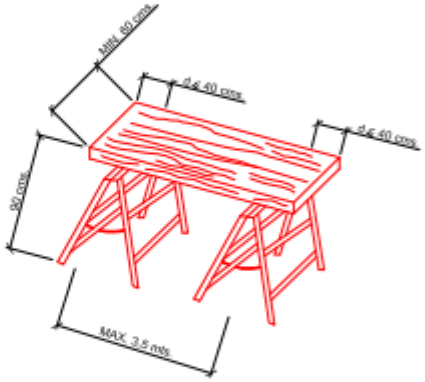
OBLIGATORIO COLOCACIÓN DE CADENA O PASADOR

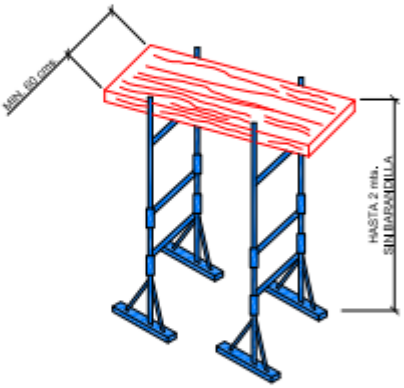


FIJA

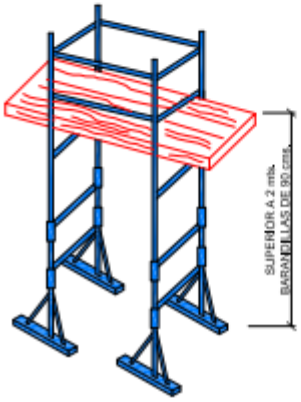


TELESCOPICA

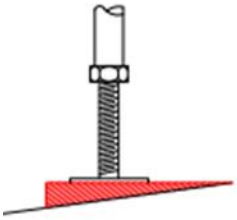




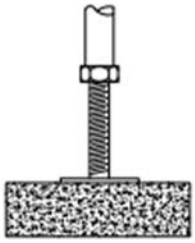
ANDAMIOS DE BORRIQUETAS



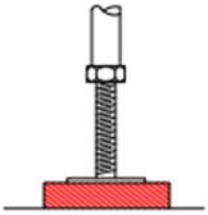
ARRANQUE



TERRENO IRREGULAR

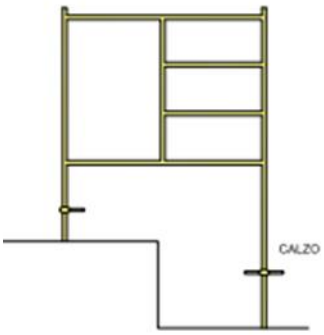


TERRENO CONSTANTE

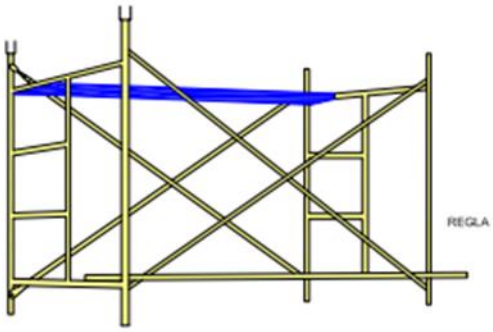


TERRENO NATURAL

NIVELACIÓN

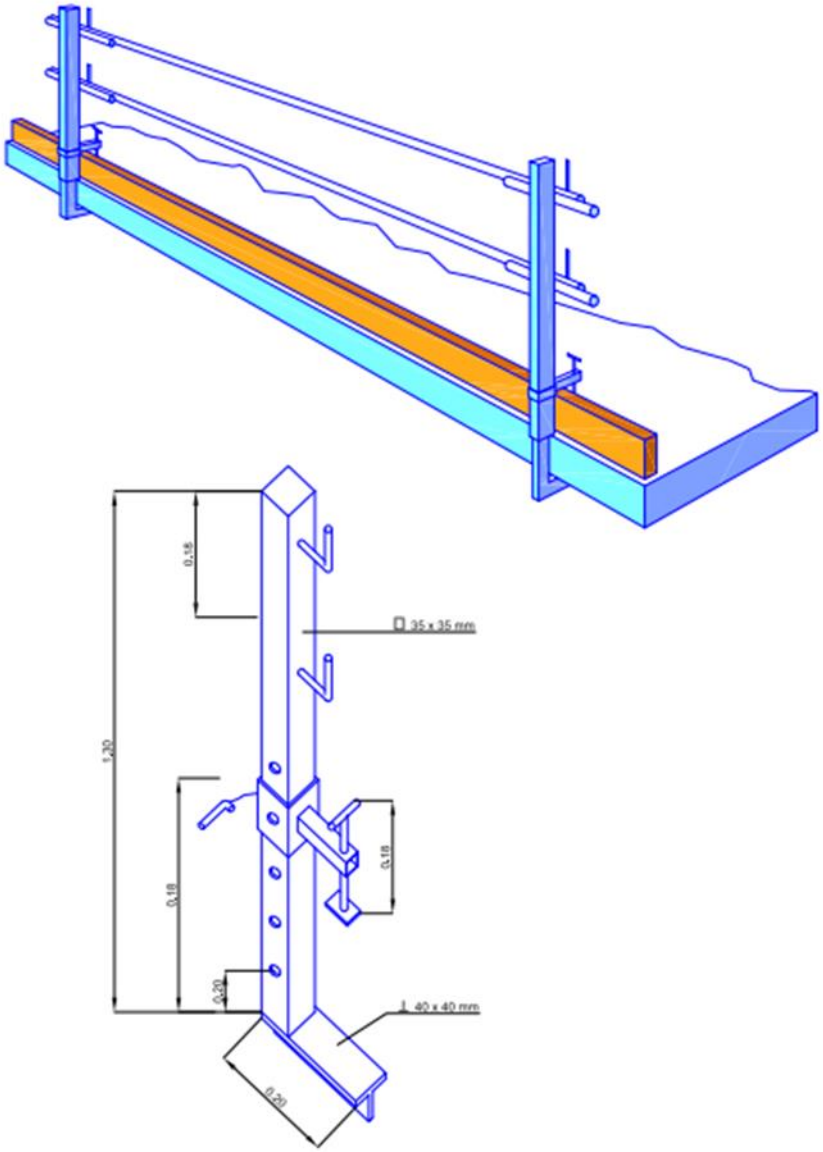


VERTICAL

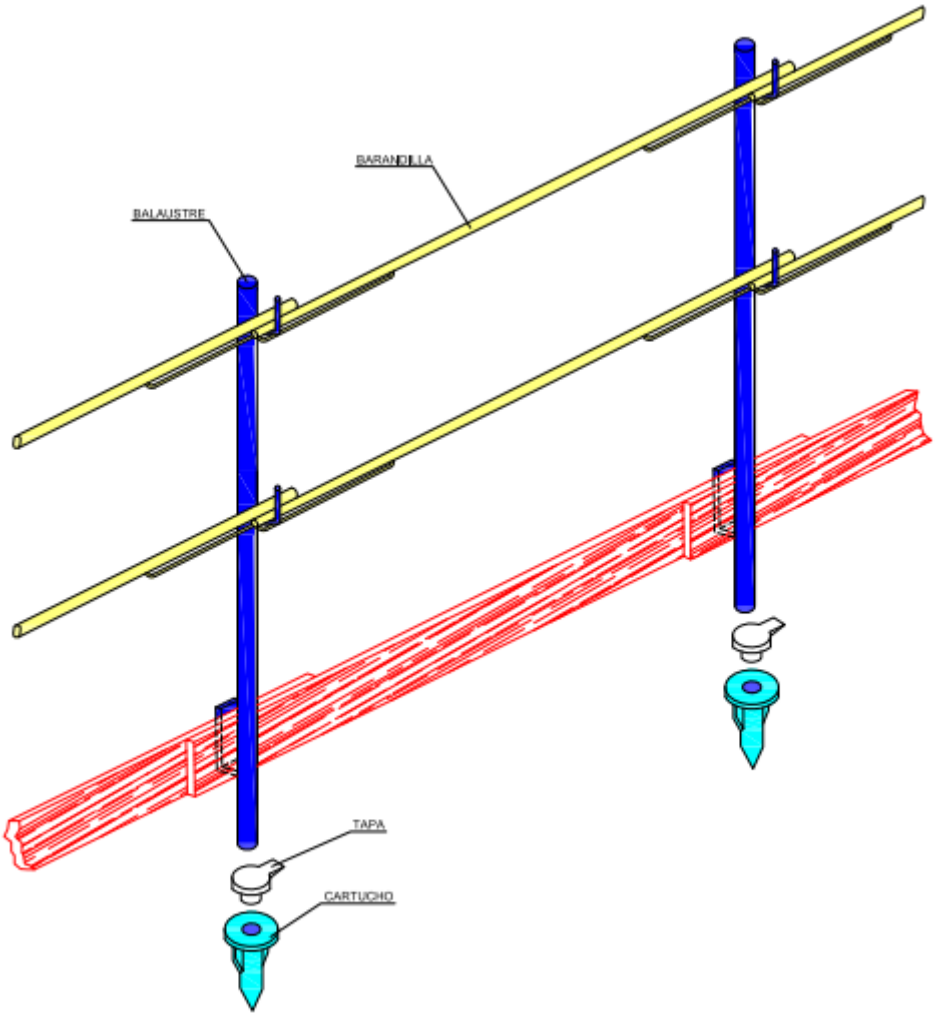


HORIZONTAL

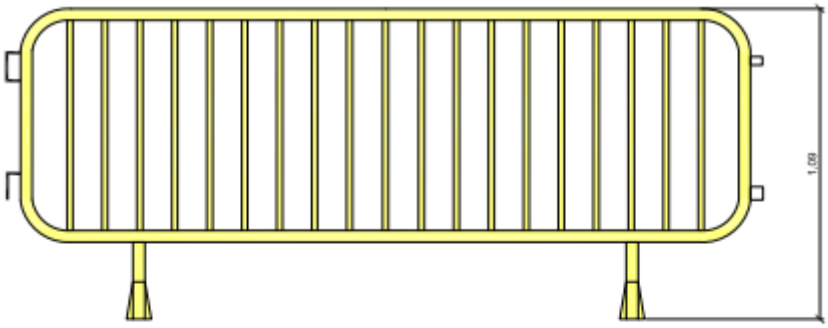
ANDAMIOS TUBULARES: ARRANQUE Y NIVELACIÓN.

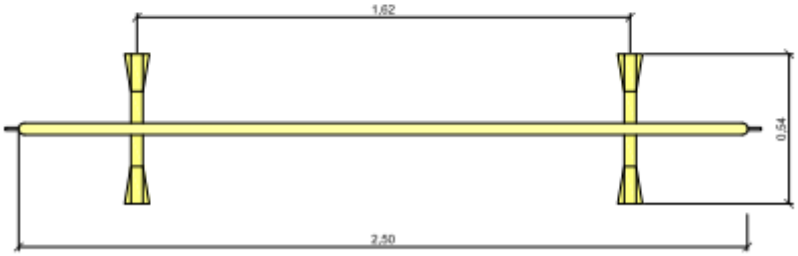


BARANDILLAS TIPO SARGENTO: CON BARANDILLA METÁLICA.

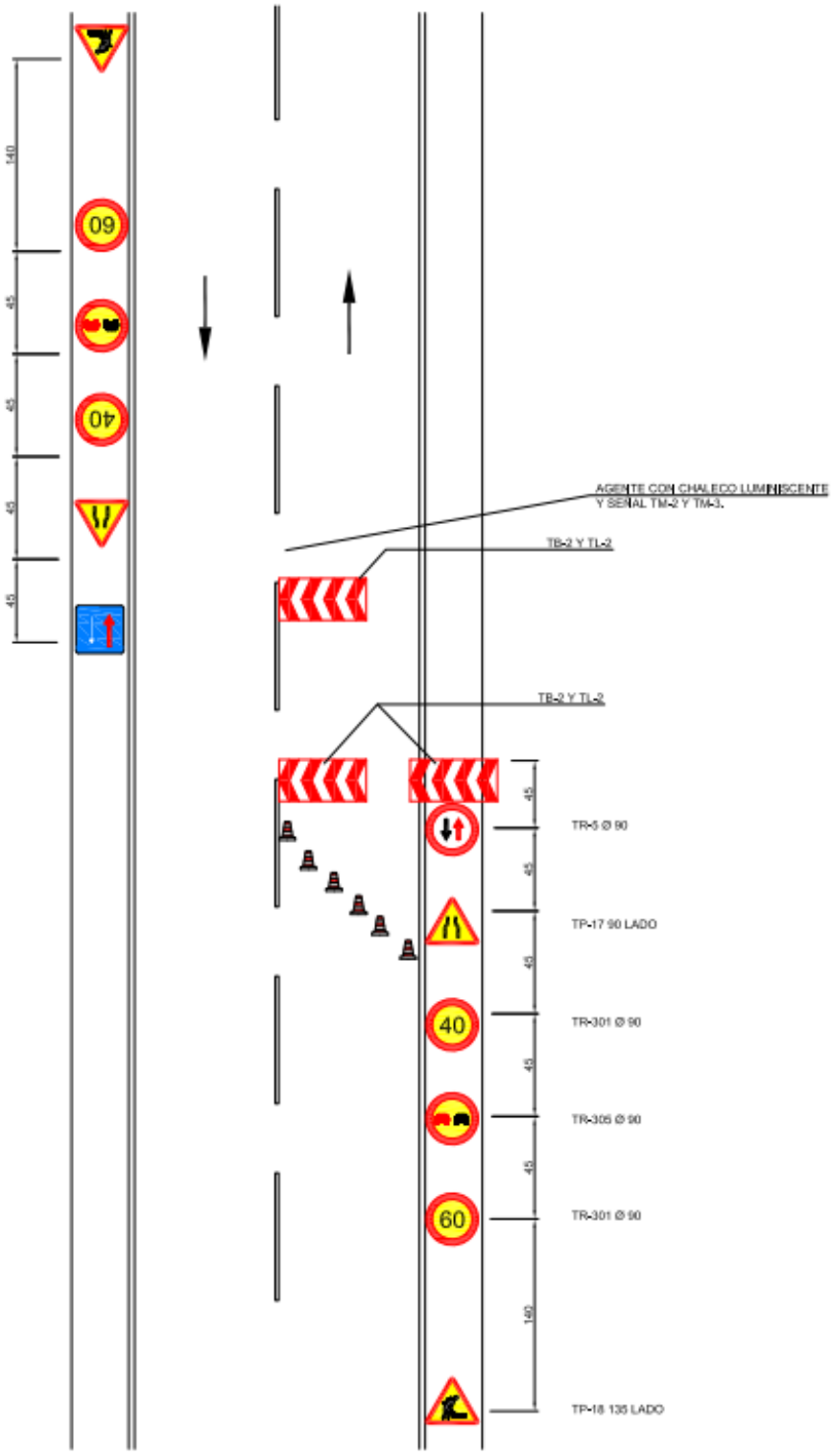


BARANDILLA TIPO BALAUSTRE.



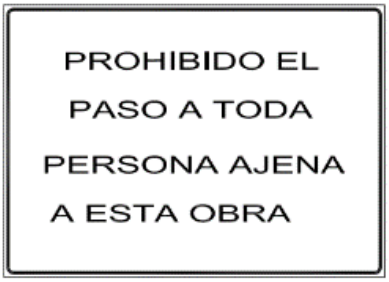


VALLA DE CIERRE PEATONAL


140
45
45
45
45
09
40
AGENTE CON CHALECO LUMINISCENTE Y SEÑAL TM-2 Y TM-3.
TB-2 Y TL-2
TB-2 Y TL-2
TR-5 Ø 90
TP-17 90 LADO
TR-301 Ø 90
TR-305 Ø 90
TR-301 Ø 90
TP-18 135 LADO
40
60


TELEFONOS
DE
EMERGENCIA
DIRECCION DE LA OBRA
BOMBEROS
POLICIA NACIONAL
GUARDIA CIVIL
SERVICIO MEDICO
Dr.
MEDICO ASISTENCIAL PARA LA OBRA
Dr.
AMBULANCIAS
HOSPITALES


OBLIGATORIO
EL USO
DEL CASCO


PROHIBIDO EL
PASO A TODA
PERSONA AJENA
A ESTA OBRA

FORMA, DIMENSIONES Y COLOR DE SEÑALES DE PROHIBICIÓN.

DIMENSIONES (mm.)	
D	d	e
594	420	44
420	297	31
297	210	17
210	148	16
148	105	11
105	74	8

COLOR DE FONDO: BLANCO (*)
BORDE Y BANDA TRANSVERSAL: ROJO (*)
SÍMBOLO O TEXTO: NEGRO (*)
(*): SEGÚN COORDENADAS CROMÁTICAS EN NORMAS UNE 1-115 Y UNE 48-103

SEÑAL	(1)	(1)	(2)	(1)	(3)	(3)
Nº	B-1-1	B-1-2	B-1-3	B-1-4	B-1-5	B-1-6
REFERENCIA	PROHIBIDO FUMAR	PROHIBIDO HACER FUEGO Y LLAMAS NO PROTEGIDAS; PROHIBIDO FUMAR	PROHIBIDO EL PASO A PEATONES	PROHIBIDO APAGAR FUEGO CON AGUA	PROHIBIDO EL PASO	PROHIBIDO EL PASO A TODA PERSONA AJENA A LA OBRA
CONTENIDO GRÁFICO	CIGARRILLO ENCENDIDO	CERILLA ENCENDIDA	PERSONA CAMINANDO	AGUA VERTIDA SOBRE FUEGO	PROHIBIDO EL PASO	PROHIBIDO EL PASO A TODA PERSONA AJENA A LA OBRA

NOTAS:
(1) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 CON EJEMPLO GRÁFICO
(2) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 SIN EJEMPLO GRÁFICO POR NO HABER SIDO AUN ADOPTADA INTERNACIONALMENTE
(3) SEÑAL NO RECOGIDA EN LA NORMA UNE 1-115-85

FORMA, DIMENSIONES Y COLOR DE SEÑALES DE ADVERTENCIA DE PELIGRO

COLOR DE FONDO: AMARILLO (*)
BORDE: NEGRO (*) (EN FORMA DE TRIANGULO)
SIMBOLO O TEXTO: NEGRO (*)
(*): SEGUN COORDENADAS CROMATICAS EN NORMAS UNE 1-115 Y UNE 48-103

DIMENSIONES (mm.)		
L	l	m
594	492	30
420	348	21
297	246	15
210	174	11
148	121	8
105	87	5

NOTAS:
(1) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 CON EJEMPLO GRAFICO
(3) SEÑAL NO RECOGIDA EN LA NORMA UNE 1-115-85

SEÑAL	(1)	(1)	(1)	(1)	(1)	(1)
Nº	B-3-1	B-3-2	B-3-3	B-3-4	B-3-5	B-3-6
REFERENCIA	PRECAUCION	PRECAUCION PELIGRO DE INCENDIO	PRECAUCION PELIGRO DE EXPLOSION	PRECAUCION PELIGRO DE CORROSION	PRECAUCION PELIGRO DE INTOXICACION	PRECAUCION PELIGRO DE SACUDIDA ELECTRICA
CONTENIDO GRAFICO	SIGNO DE ADMIRACION	LLAMA	BOMBA EXPLOSIVA	LIQUIDO QUE CAE GOTA A GOTA SOBRE UNA BARRA Y SOBRE UNA MANO	CALAVERA Y TIBIAS CRUZADAS	FLECHA QUEBRADA (SIMBOLO N 5036 DE LA PUBLICACION 417B DE LA CEI)-HNE 20-057(1)

SEÑAL	(3)	(3)	(3)	(3)	(3)	(3)
Nº	B-3-7	B-3-8	B-3-9	B-3-10	B-3-11	
REFERENCIA	PELIGRO POR DESPRENDIMIENTO	PELIGRO POR MAQUINARIA PESADA EN MOVIMIENTO	PELIGRO POR CAIDAS AL MISMO NIVEL	PELIGRO POR CAIDAS A DISTINTO NIVEL	PELIGRO POR CAIDA DE OBJETOS	PELIGRO POR CARGAS SUSPENDIDAS
CONTENIDO GRAFICO	DESPRENDIMIENTO EN TALUD	MAQUINA EXCAVADORA	CAIDA AL MISMO NIVEL	CAIDA A DISTINTO NIVEL	OBJETOS CAYENDO	CARGA SUSPENDIDA

FORMA, DIMENSIONES Y COLOR DE SEÑALES DE OBLIGACION

COLOR DE FONDO: AZUL (*)
SIMBOLO O TEXTO: BLANCO (*)
(*): SEGUN COORDENADAS CROMATICAS EN NORMAS UNE 1-115 Y UNE 48-103

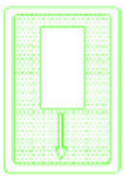
DIMENSIONES (mm.)
D
594
420
297
210
148
105

NOTAS:
(1) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 CON EJEMPLO GRAFICO
(2) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 SIN EJEMPLO GRAFICO POR NO HABER SIDO AUN ADOPTADA INTERNACIONALMENTE
(3) SEÑAL NO RECOGIDA EN LA NORMA UNE 1-115-85

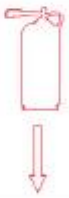
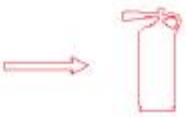
SEÑAL	(1)	(1)	(2)	(1)	(1)
Nº	B-2-1	B-2-2	B-2-3	B-2-4	B-2-5
REFERENCIA	OBLIGACION EN GENERAL	PROTECCION OBLIGATORIA DE LA VISTA	PROTECCION OBLIGATORIA DE LAS VIAS RESPIRATORIAS	PROTECCION OBLIGATORIA DE LA CABEZA	PROTECCION OBLIGATORIA DEL OIDO
CONTENIDO GRAFICO	SIGNO DE ADMIRACION	CABEZA PROVISTA DE GAFAS PROTECTORAS	CABEZA PROVISTA DE UN APARATO RESPIRATORIO	CABEZA PROVISTA DE CASCO	CABEZA PROVISTA DE CASCOS AURICULARES

SEÑAL	(2)	(2)	(3)	(3)	(3)
Nº	B-2-6	B-2-7	B-2-8	B-2-9	B-2-10
REFERENCIA	PROTECCION OBLIGATORIA DE LAS MANOS	PROTECCION OBLIGATORIA DE LOS PIES	ELIMINACION OBLIGATORIA DE PUNTAS	USO OBLIGATORIO CINTURON DE SEGURIDAD	USO DE GAFAS O PANTALLAS
CONTENIDO GRAFICO	GUANTES DE PROTECCION	CALZADO DE SEGURIDAD	TABLON DEL QUE SE EXTRAE UNA PUNTA	CINTURON DE SEGURIDAD	GAFAS Y PANTALLA

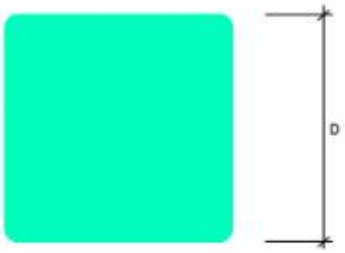
SEÑALES DE SALVAMENTO

Esquema Señal			Colores		Señal Establecida
Significado	Dibujo	Color	Seguridad	Contraste	
EQUIPO DE PRIMEROS AUXILIOS		BLANCO	VERDE	BLANCO	
LOCALIZACION DE PRIMEROS AUXILIOS		BLANCO	VERDE	BLANCO	
DIRECCION HACIA PRIMEROS AUXILIOS		BLANCO	VERDE	BLANCO	
LOCALIZACION SALIDA DE SOCORRO		BLANCO	VERDE	BLANCO	

SEÑALES DE EQUIPOS CONTRA INCENDIOS

Esquema Señal			Colores		Señal Establecida
Significado	Dibujo	Color	Seguridad	Contraste	
EQUIPO CONTRA INCENDIOS		BLANCO	ROJO	BLANCO	
LOCALIZACION DE EQUIPO CONTRA INCENDIOS		BLANCO	ROJO	BLANCO	
DIRECCION HACIA EQUIPO CONTRA INCENDIOS		BLANCO	ROJO	BLANCO	

SEÑALES DE INFORMACIÓN RELATIVAS A LAS CONDICIONES DE SEGURIDAD.



COLOR DE FONDO: VERDE (*)
SIMBOLO O TEXTO: BLANCO (*)

(*): SEGUN COORDENADAS CROMATICAS EN NORMAS UNE 1-115 Y UNE 48-103

SEÑAL	(1) 	(1) 	(3) 	(3) 
Nº	B-4-1	B-4-2	B-4-3	B-4-4
REFERENCIA	PRIMEROS AUXILIOS	INDICACION GENERAL DE DIRECCION HACIA...	LOCALIZACION DE PRIMEROS AUXILIOS	DIRECCION HACIA PRIMEROS AUXILIOS
CONTENIDO GRAFICO	CRUZ GRIEGA	FLECHA DE DIRECCION	CRUZ GRIEGA Y FLECHA DE LOCALIZACION	CRUZ GRIEGA Y FLECHA DE DIRECCION

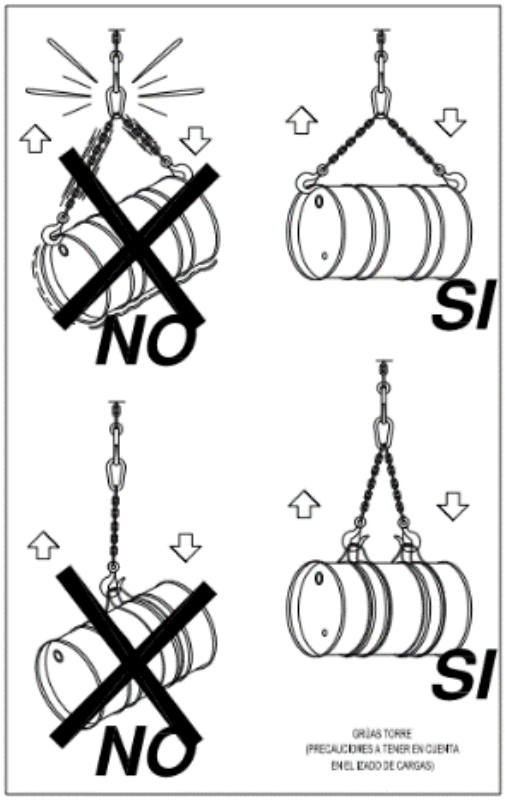
NOTAS:

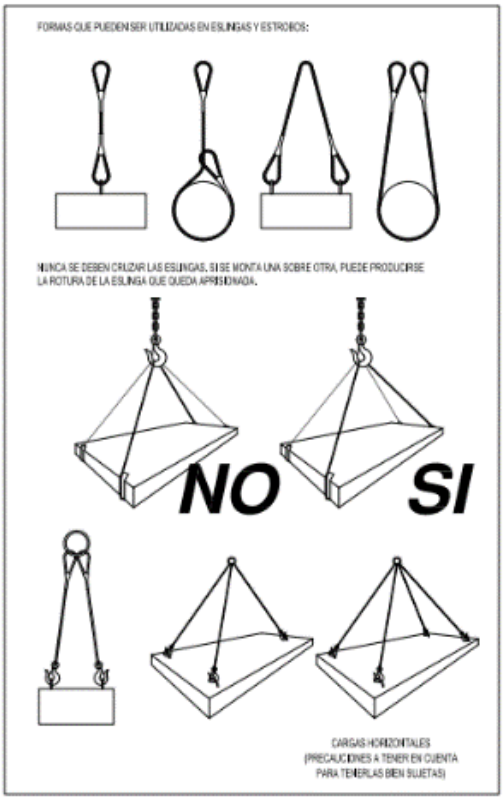
(1) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 CON EJEMPLO GRAFICO
(2) SEÑAL RECOGIDA EN LA NORMA UNE 1-115-85 SIN EJEMPLO GRAFICO POR NO HABER SIDO AUN ADOPTADA INTERNACIONALMENTE
(3) SEÑAL NO RECOGIDA EN LA NORMA UNE 1-115-85

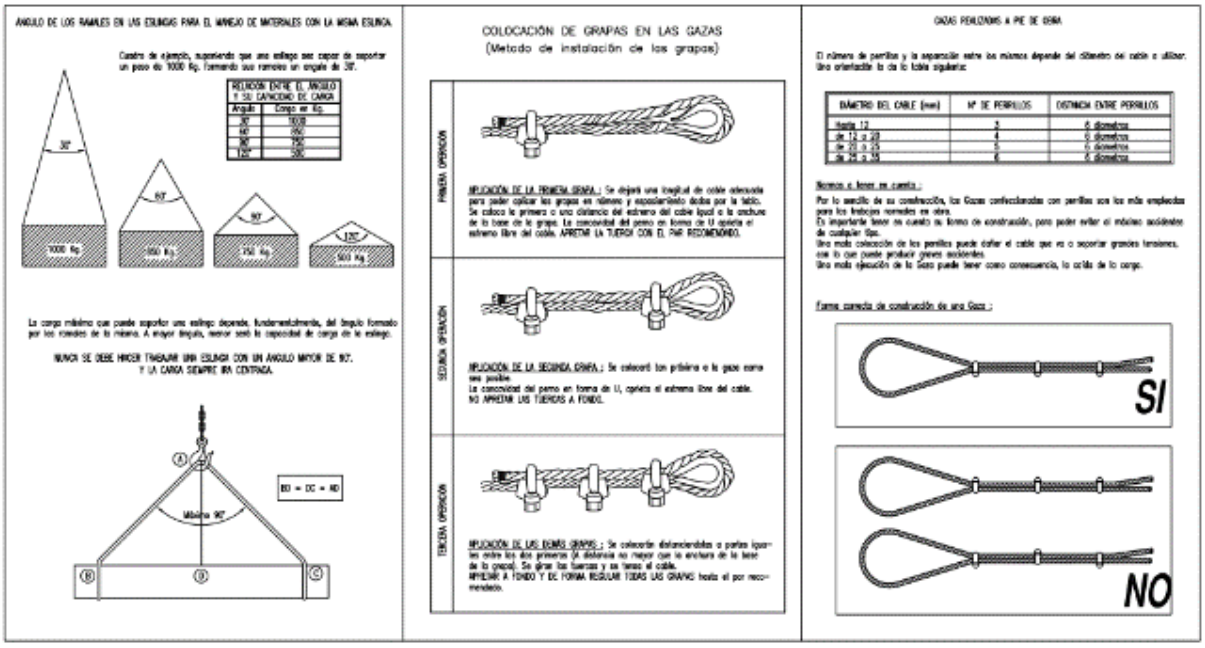
CODIGO DE SEÑALES DE MANIOBRAS

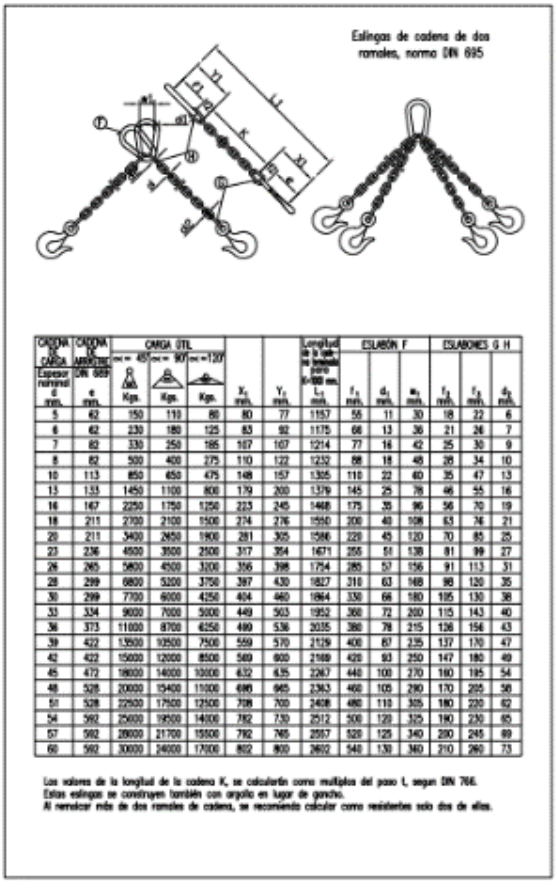
SI SE QUIERE QUE NO HAYA CONFUSIONES PELIGROSAS CUANDO EL MAQUINISTA O ENGANCHADOR CAMBIEN DE UNA MAQUINA A OTRA Y CON MAYOR RAZON DE UN TALLER A OTRO, ES NECESARIO QUE TODO EL MUNDO HABLE EL MISMO IDIOMA Y MANDE CON LAS MISMAS SEÑALES.
NADA MEJOR PARA ELLO QUE SEGUIR LOS MOVIMIENTOS QUE PARA CADA OPERACIÓN SE INSERTAN A CONTINUACIÓN.





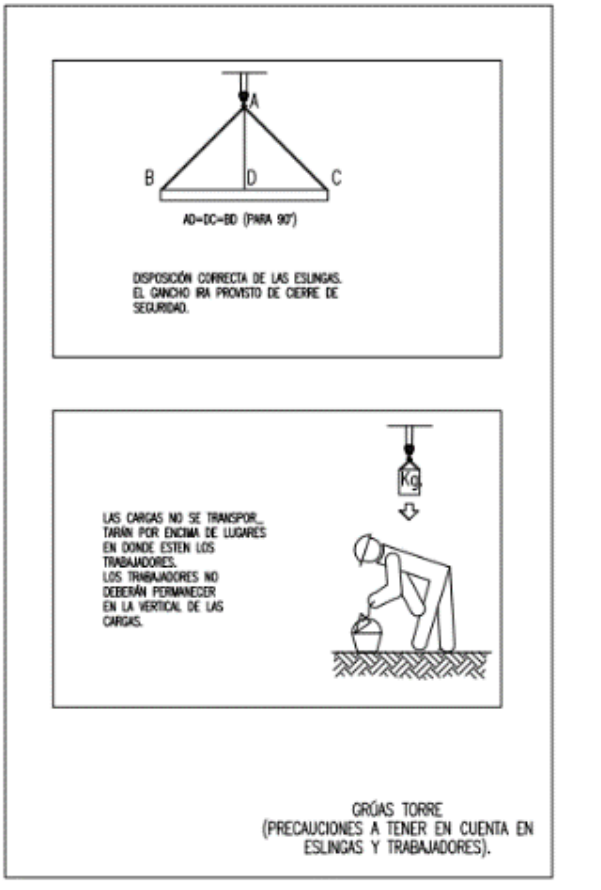




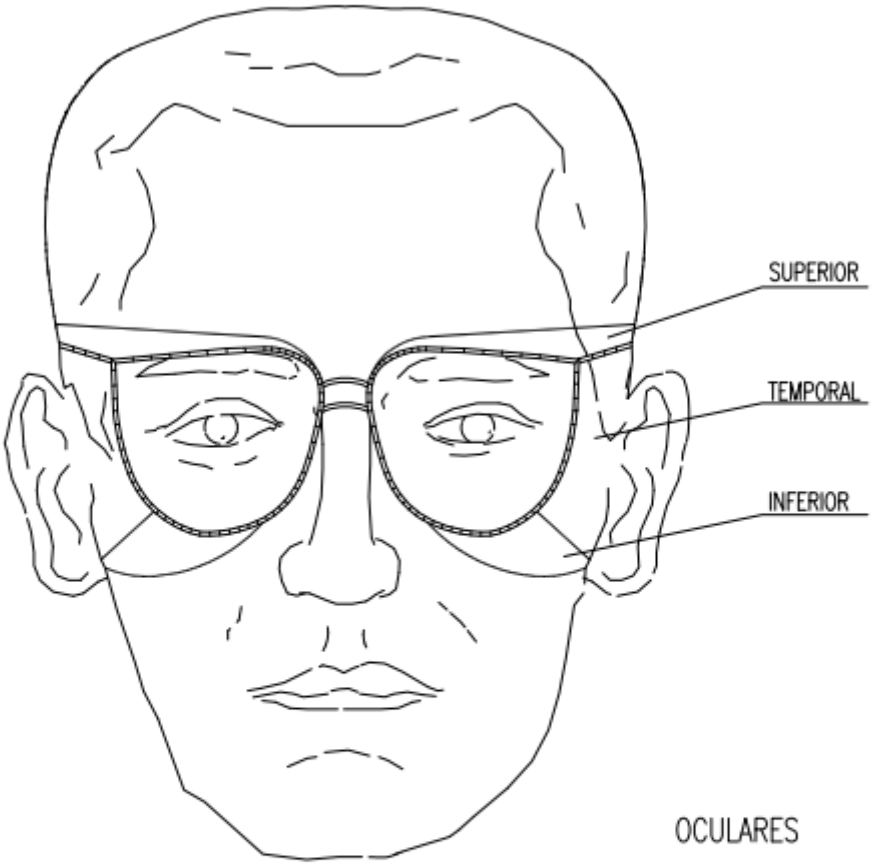


CADENA DE CARGA MÁXIMA	CADENA DE CARGA MÁXIMA	CARGA UTIL					Longitud de la cadena para el cálculo K=500 mm.	ESLABÓN F			ESLABONES G H		
Espesor nominal d mm.	e mm.	α = 45° Kgs.	α = 90° Kgs.	α = 120° Kgs.	X_1 mm.	Y_1 mm.	L_1 mm.	f_1 mm.	d_1 mm.	e_1 mm.	f_2 mm.	f_3 mm.	d_2 mm.
5	42	150	110	80	80	77	1157	55	11	30	18	22	6
6	62	230	180	125	83	92	1175	66	13	36	21	26	7
7	82	330	250	185	107	107	1214	77	16	42	25	30	9
8	82	500	400	275	110	122	1232	88	18	48	28	34	10
10	113	850	650	475	148	157	1305	110	22	60	35	47	13
13	133	1450	1100	800	179	200	1379	145	25	78	46	55	16
16	167	2250	1750	1250	223	245	1468	175	35	96	56	70	19
18	211	2700	2100	1500	274	276	1550	200	40	108	63	76	21
20	211	3400	2650	1900	281	305	1586	220	45	120	70	85	25
23	236	4500	3500	2500	317	354	1671	255	51	138	81	99	27
26	265	5800	4500	3200	356	398	1754	285	57	156	91	113	31
28	299	6800	5200	3750	387	430	1827	310	63	168	98	120	35
30	299	7700	6000	4250	404	460	1864	330	66	180	105	130	38
33	334	9000	7000	5000	449	503	1952	360	72	200	115	143	40
36	373	11000	8700	6250	499	536	2035	380	78	215	126	156	43
39	422	13500	10500	7500	559	570	2129	400	87	235	137	170	47
42	422	15000	12000	8500	589	600	2169	420	93	250	147	180	49
45	472	18000	14000	10000	632	635	2267	440	100	270	160	195	54
48	528	20000	15400	11000	695	665	2362	460	105	290	170	205	58
51	528	22500	17500	12500	709	700	2408	480	110	305	180	220	62
54	592	25000	19500	14000	782	730	2512	500	120	325	190	230	65
57	592	28000	21700	15500	792	765	2557	520	125	340	200	245	69
60	592	30000	24000	17000	802	800	2602	540	130	360	210	260	73

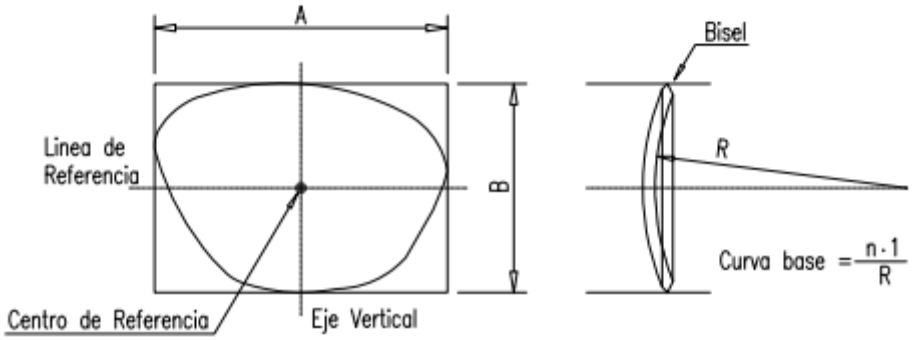
Los valores de la longitud de la cadena K, se calcularán como multiplos del paso t, segun DIN 764.
Estas eslingas se construyen también con argolla en lugar de gancho.
Al sobrepasar más de dos ramales de cadena, se recomienda calcular como resistentes solo dos de ellos.



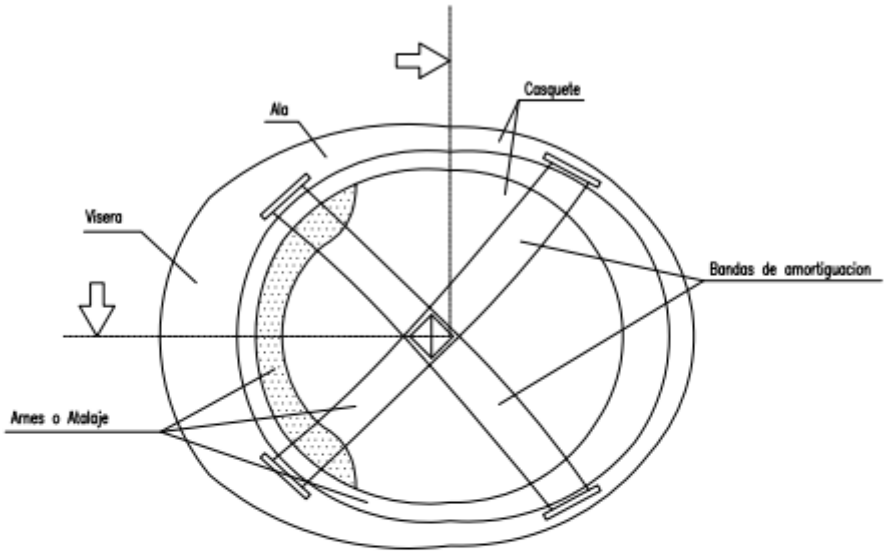
PROTECCIONES INDIVIDUALES (GAFAS DE SEGURIDAD I)

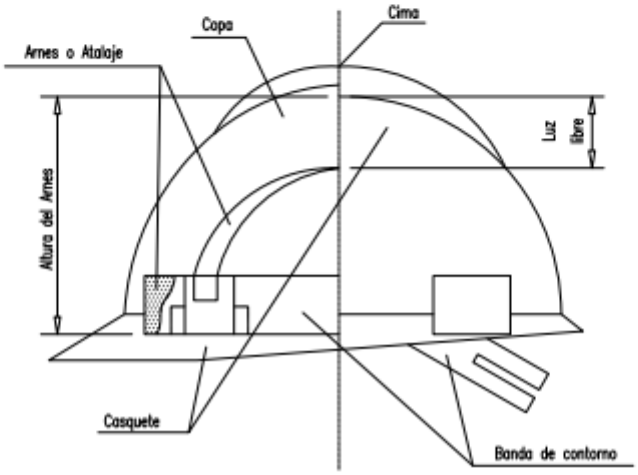


OCULARES



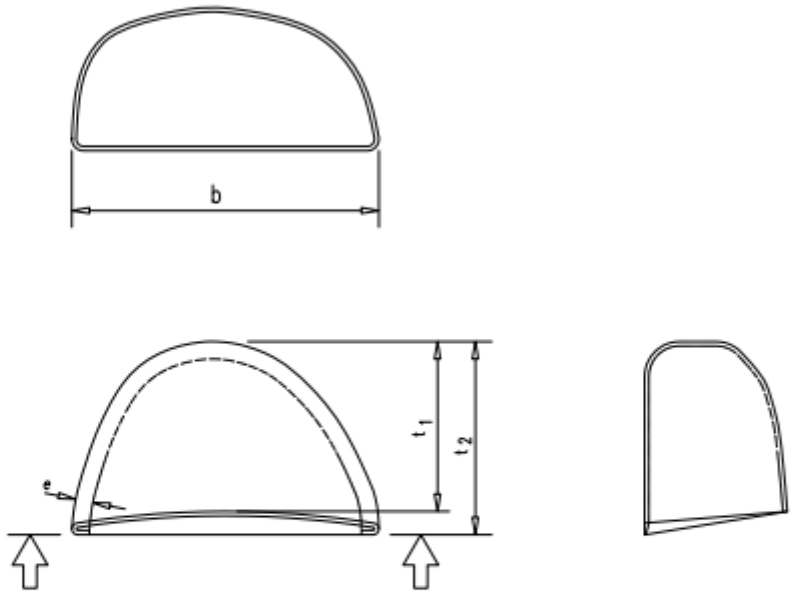
PROTECCIONES INDIVIDUALES (CASCO DE SEGURIDAD)

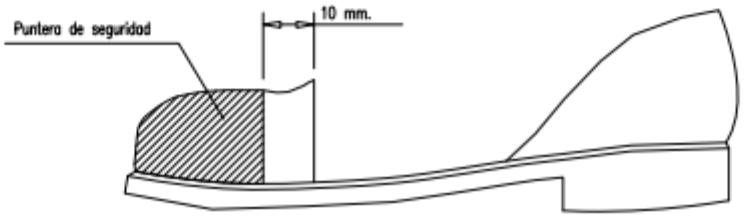




PROTECCIONES INDIVIDUALES (BOTAS DE SEGURIDAD -REFUERZOS-)

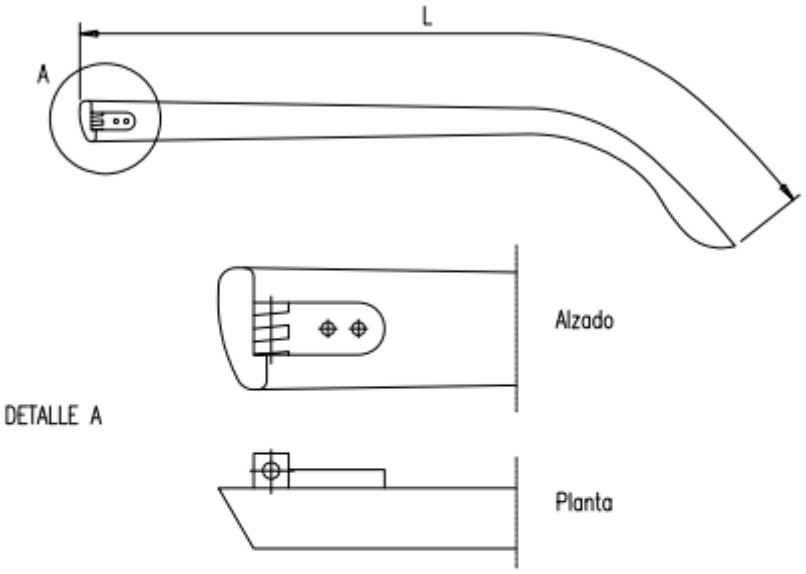
PUNTERA



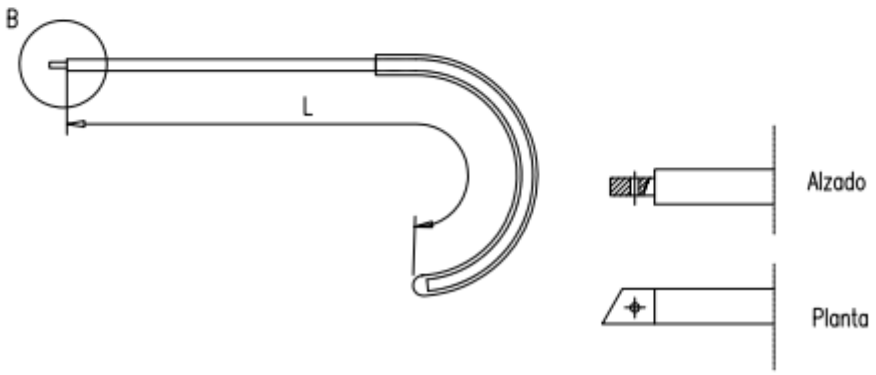


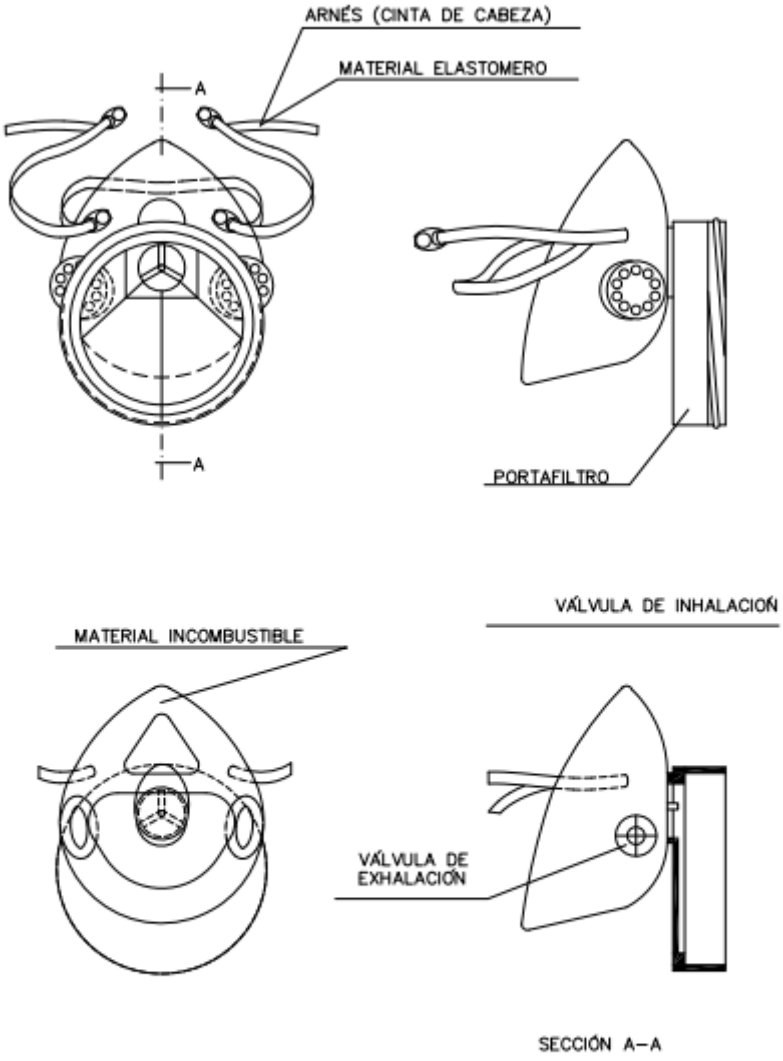
PROTECCIONES INDIVIDUALES (GAFAS DE SEGURIDAD II)

PATILLA DE SUJECCION TIPO ESPATULA

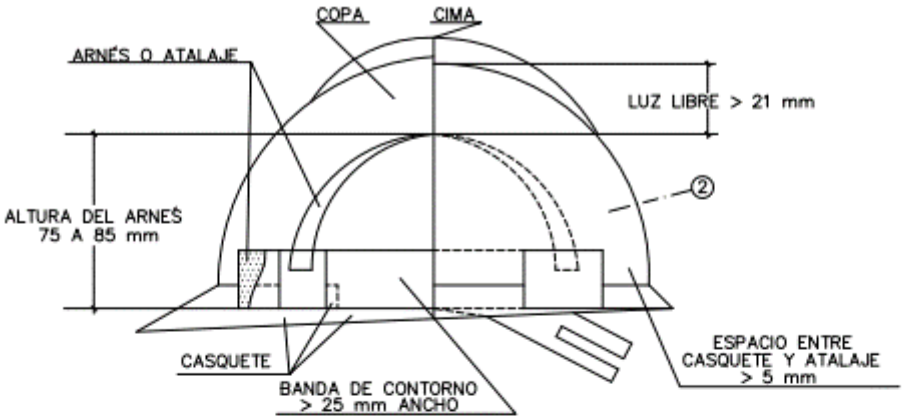


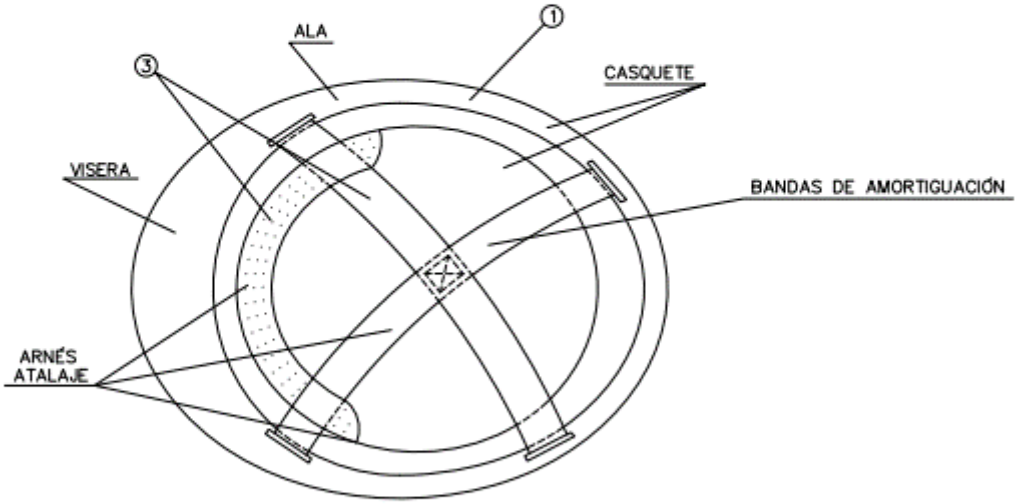
PATILLA DE SUJECCION TIPO CABLE





MASCARILLA ANTIPOLVO

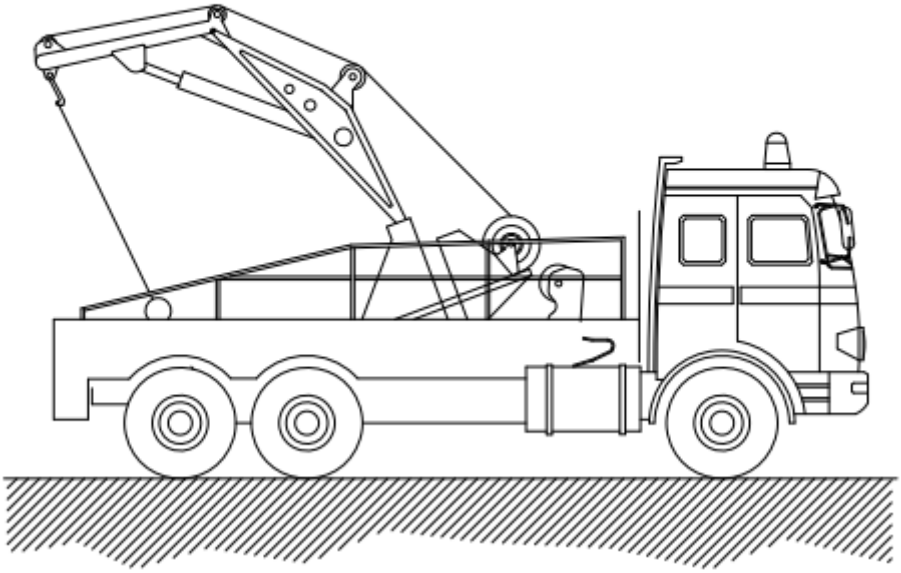




1. MATERIAL INCOMBUSTIBLE, RESISTENTE A GRASAS, SALES Y AGUA
2. CLASE N AISLANTE A 1000 V CLASE E–AT AISLANTE A 25000 V
3. MATERIAL NO RÍGIDO HIDRÓFUGO, FÁCIL LIMPIEZA Y DESINFECCIÓN

CASCO DE SEGURIDAD NO METÁLICO

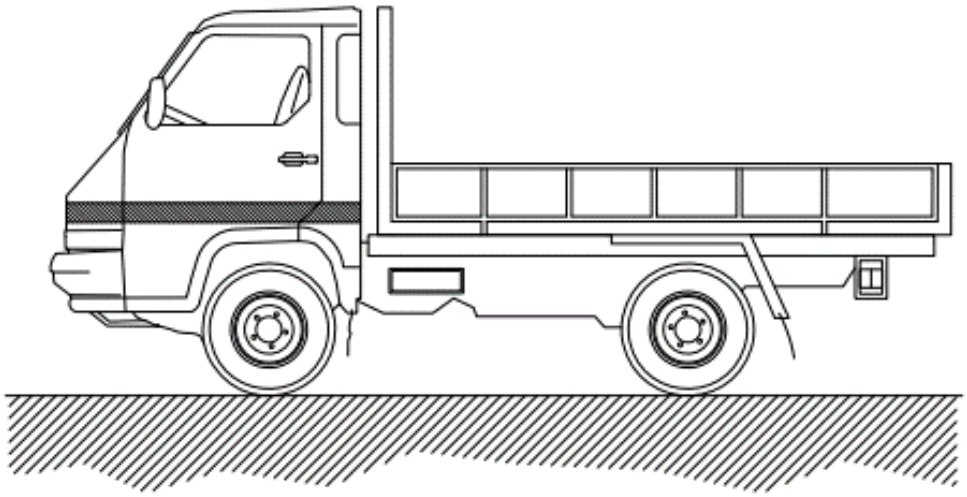
ELEMENTOS AUXILIARES Y MAQUINARIA
(Camión grúa de carga-descarga)



NORMAS BÁSICAS DE SEGURIDAD Y PROTECCIONES COLECTIVAS :

- Las maniobras en la grúa serán dirigidas por un especialista.
- Los ganchos de la grúa tendrán cerradura de seguridad.
- Se prohibirá sobrepasar la carga máxima admisible.
- El gruista tendrá en todo momento la carga suspendida a la vista. Si eso no es posible las maniobras serán dirigidas por un especialista.
- Las rampas de circulación no superarán en ningún caso una inclinación superior al 20%.
- Se prohibirá estacionar el camión a menos de 2 metros del borde superior de los taludes.
- Se prohibirá arrastrar cargas con el camión.
- Se prohibirá la permanencia de personas a distancias inferiores a los 5 metros del camión.
- Se prohibirá la permanencia de operarios bajo las cargas en suspensión.
- El conductor tendrá el certificado de capacitación correspondiente.
- Se extremarán las precauciones durante las maniobras de suspensión de objetos estructurales para su colocación en obra, ya que habrán operarios trabajando en el lugar, y un pequeño movimiento inesperado puede provocar graves accidentes.
- No se trabajará en ningún caso con vientos superiores a los 50 Km./h.

ELEMENTOS AUXILIARES Y MAQUINARIA
(Camión de carga)



NORMAS BASICAS DE SEGURIDAD Y PROTECCIONES COLECTIVAS :

- Todos los camiones que realicen labores de transporte en esta obra estarán en perfectas condiciones de mantenimiento y conservación.

- Antes de iniciar las labores de carga y descarga estará el freno de mano puesto y las ruedas estarán inmovilizadas con cuñas.

- El izado y descenso de la caja se realizará con escalera metálica sujeta al camión.

- Si hace falta, las maniobras de carga y descarga serán dirigidas por el encargado de seguridad.

- La carga se tapará con una lona para evitar desprendimientos.

- Las cargas se repartirán uniformemente por la caja, y si es necesario se atarán.

MEDIDAS PREVENTIVAS a seguir en los trabajos de carga y descarga.

- El encargado de seguridad o el encargado de obra, entregará por escrito el siguiente listado de medidas preventivas al Jefe de la cuadrilla de carga y descarga. De esta entrega quedará constancia con la firma del Jefe de cuadrilla al pié de este escrito.

- Pedir guantes de trabajo antes de hacer trabajos de carga y descarga, se evitarán lesiones molestas en las manos.

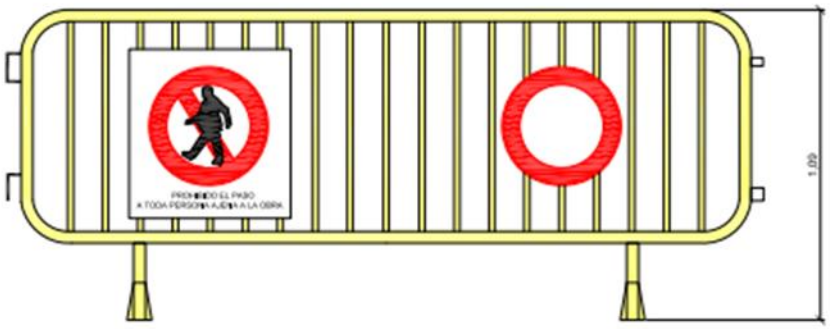
- Usar siempre botas de seguridad, se evitarán golpes en los pies.

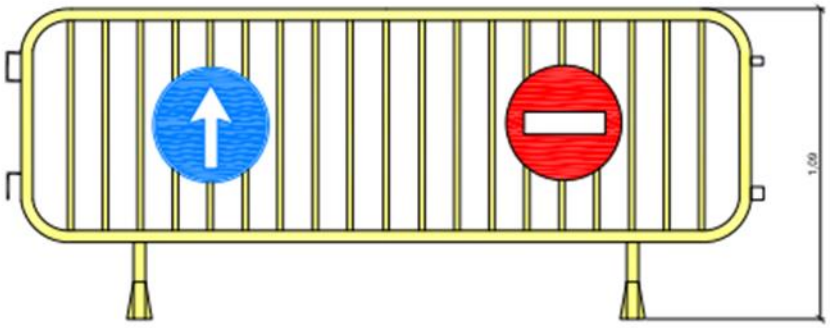
- Subir a la caja del camión con una escalera.

- Seguir siempre las indicaciones del Jefe del equipo, es un experto que vigila que no hayan accidente.

- Las cargas suspendidas se han de conducir con cuerdas y no tocarlas nunca directamente con las manos.

- No saltar a tierra desde la caja, peligro de fractura de los talones.





VALLA DE CIERRE
COMO AUXILIAR DE SEÑALIZACIÓN

12.6. PLANOS

Los Planos correspondientes a Seguridad y Salud, se adjuntan a continuación y en el documento del Proyecto PLANOS

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

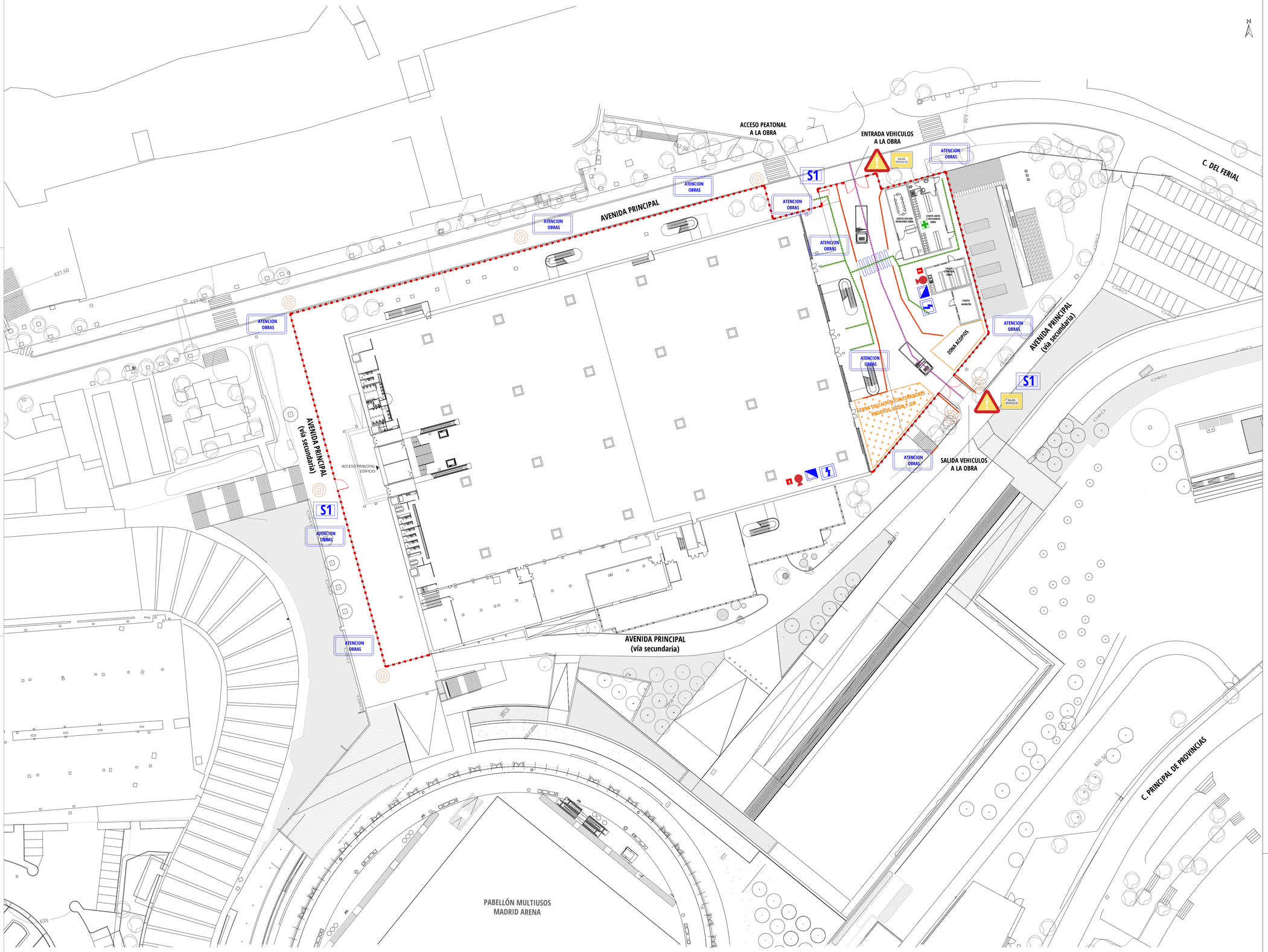
El Arquitecto:



D. José Moriana Pericet

Arquitecto Colegiado nº 375 COACo

Fecha: Noviembre de 2024



S1 SEÑALIZACIÓN RIESGOS GENERALES

ATENCION OBRAS SEÑALIZACIÓN RIESGOS GENERALES

SALIDA VEHICULOS SEÑALIZACIÓN RIESGO SALIDA DE VEHÍCULOS

VALLADO PERIMETRAL DE OBRA

VALLADO MÓVIL PEATONES / VEHÍCULOS EN MOVIMIENTO

RECORRIDO PEATONAL

RECORRIDO VEHÍCULOS OBRA

CONTENEDOR CONTENEDOR DE ESCOMBROS

CUADRO ELECTRICO AUXILIAR

PELIGRO ELÉCTRICO

EXTINTOR DE CO2

EXTINTOR ABC 6 KG

BOTIQUÍN

LUMINARIA SEÑALIZACIÓN

CARTEL DE OBRA S1

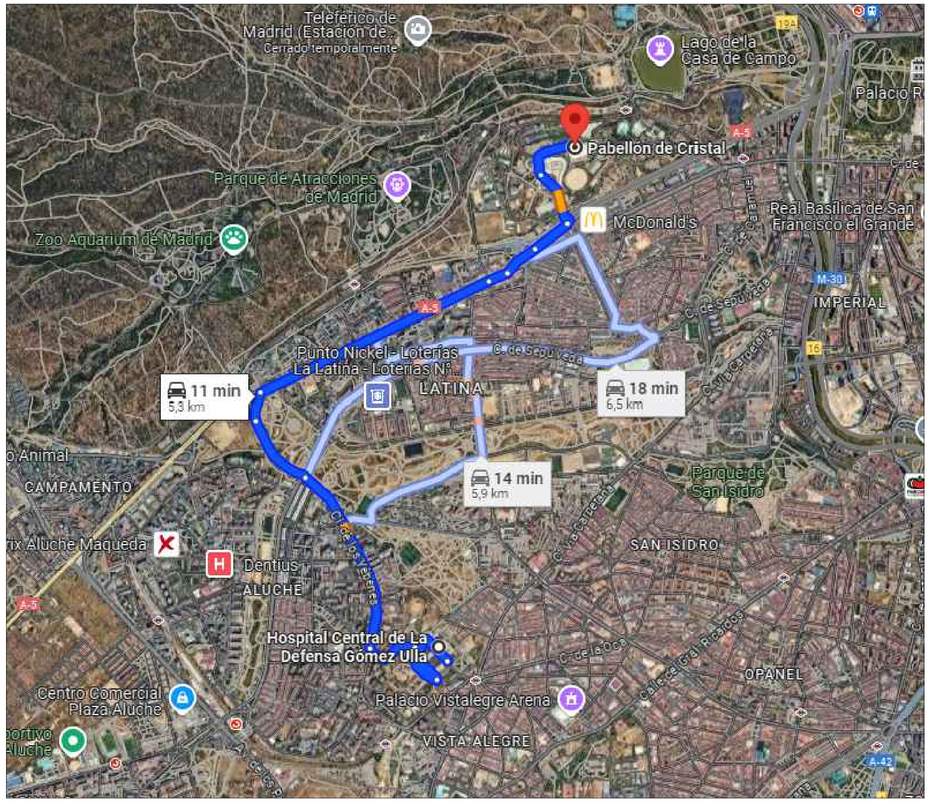


Financiado por la Unión Europea NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE	PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN	AVENIDA PRINCIPAL, 14, 28011, MADRID
PROYECTO	MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE	BÁSICO Y DE EJECUCIÓN
EQUIPO REDACTOR	CEMOSA
ARQUITECTO	José Mariano Pericet Colegiado nº 375 C.O.A.A.Co
	FIRMA ELECTRÓNICA
PLANO	EA_SS_01
ESCALA	1:500
FECHA	11/2024
	SEGURIDAD Y SALUD IMPLANTACIÓN
DIBUJADO	GMM
PROPIETARIO	DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



HOSPITAL CENTRAL DE LA DEFENSA GÓMEZ ULLA
Dirección: Glorieta del Ejército 1, Latina, 28047, Madrid
Teléfono: 914 22 20 00



CENTRO DE SALUD PASCUAL RODRÍGUEZ
Dirección: Calle Pascual Rodríguez, 21 , Latina 28011, Madrid
Teléfono: 914 64 64 45

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

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INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA

TÍTULO: EA_SS_02
Sustituye a los anteriores
SEGURIDAD Y SALUD CENTROS ASISTENCIALES
ESCALA: S/E
FECHA: 11/2024
DIBUJADO: GMM

PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

12.7. NORMAS DE ACTUACIÓN EN CASO DE EMERGENCIA

12.7.1. MEMORIA

Ante una situación de emergencia es muy importante valorar con calma y realismo el incidente, comunicándolo inmediatamente a los teléfonos de emergencia de la comunidad autónoma o al 112, indicando de forma clara, concreta y concisa:

- Identificación de quién llama.
- Qué sucede.
- Dónde.
- Cuándo.
- Cómo.
- Número de implicados.
- Gravedad del incidente.

Como criterio general es aconsejable:

- Actuar con calma y serenidad.
- No contribuir al pánico y a la histeria.
- Solicitar ayuda inmediatamente.
- No actuar de forma individual.
- Colaborar activamente con las personas necesitadas.
- Evitar las aglomeraciones y los empujones.
- Salir de forma ordenada, sin precipitaciones.
- No volver al lugar del siniestro por ningún motivo.
- Evitar los riesgos personales.
- Estar a disposición de los servicios de emergencia, siguiendo sus instrucciones.

12.7.2. DEL CONJUNTO DEL EDIFICIO

Fugas o rotura de agua

En el caso de fugas o roturas de las tuberías de conducción de agua del edificio, es aconsejable proceder según las siguientes recomendaciones:

- Cerrar la llave de paso del núcleo húmedo objeto de la fuga o rotura.
- Si el problema persiste, cerrar la llave general.
- Desconectar la red eléctrica para evitar cortocircuitos o accidentes.
- Localizar la fuga o rotura, avisando al fontanero o a la compañía suministradora.
- Recoger el agua.
- Reparar la avería o fuga de agua.
- Realizar una limpieza general.

Fallo en el suministro eléctrico

Cuando se produzca un fallo en el suministro eléctrico, es conveniente seguir las siguientes recomendaciones:

- Reponer la iluminación con linternas o velas en caso de que el fallo se produzca por la noche y no se disponga de iluminación de emergencia.
- Avisar y tranquilizar a los que hayan quedado atrapados en el ascensor; no deben abrirse las puertas o ayudar a salir al personal atrapado, ya que el restablecimiento del suministro eléctrico puede poner en marcha el ascensor y ocasionar graves accidentes.
- Comprobar si el fallo de suministro eléctrico corresponde al edificio o a la compañía suministradora (apagón general).
- En el caso de que el fallo se deba a la compañía suministradora, se le avisará lo antes posible y se procederá a la desconexión de los aparatos de mayor consumo.
- Cuando el fallo de suministro sea interno, como es el caso de sobrecargas, cortocircuitos y contactos indirectos (derivaciones a tierra), se procederá a la localización y subsanación de la avería por parte de personal competente.

Incendio

En ocasiones se producen pequeños incendios que pueden ser controlados con una sola intervención, si se procede de manera adecuada. Combatir un fuego exige conocer algunos principios básicos, una gran dosis de tranquilidad y cierta rapidez para analizar y comprender la situación; por lo tanto, es conveniente seguir las siguientes recomendaciones:

- Nunca se detenga a apagar un fuego si se da alguna de estas circunstancias:
- Las llamas amenazan con cerrar la única salida disponible.
- La propagación de las llamas es rápida.
- El fuego no está limitado a un área pequeña que pueda controlarse fácilmente.
- Conservar la calma, pensando en todas las posibles salidas seguras del edificio, sin olvidar que las escaleras o salidas principales pueden estar bloqueadas por las llamas.
- Si el fuego se inicia en un aparato eléctrico, antes de proceder a su extinción, corte el suministro de energía eléctrica.
- No intente utilizar el extintor si no conoce su funcionamiento. En caso de hacerlo, recuerde que la carga se vacía en muy pocos segundos y debe aprovechar su eficacia, apuntando con el chorro hacia la base de las llamas, barriendo toda la superficie del fuego.
- En el caso de utilizar bocas de incendio equipadas flexibles (BIE-F) de 25 mm, debe extenderse la manguera en toda su longitud antes de abrir la llave de paso. Para su eficaz utilización, es conveniente la presencia, al menos, de dos personas, una de las cuales se encargará de sujetar firmemente la lanza de la manguera, y la otra de la apertura de la llave.
- Sólo en el caso de utilizar bocas de incendio equipadas semirrígidas (BIE-SR) de 25 mm, no es necesario extender la manguera en toda su longitud antes de abrir la llave de paso, pudiendo manejarla una sola persona.
- El agua no siempre es la mejor solución para extinguir un fuego; incluso podría, en algunas ocasiones, ser contraproducente (sistemas eléctricos).
- Si se encuentra con humo en la huida, debe caminar agachado y, si fuera necesario, a gatas, ya que cerca del suelo el aire es más puro. Avance tan deprisa como pueda, dejando las puertas cerradas, sin perder tiempo en trabarlas. Si en el avance se encuentra alguna puerta cerrada que está caliente, no debe abrirla, pues el calor indica que detrás hay fuego.

- No deben utilizarse los ascensores, ya que, en el caso de corte de la corriente eléctrica, quedará atrapado y sin salida posible.
- Una vez fuera del edificio, no debe volver sobre sus pasos.
- Si alguien sufre una quemadura, hay que actuar con rapidez y avisar o acudir inmediatamente a un médico.
- Si alguna prenda personal empieza a arder, no debe salir corriendo ni hacer movimientos bruscos con los brazos, ya que se avivarán las llamas; siempre pida que le echen encima una manta que no sea de material sintético, preferiblemente ignífuga. En su defecto, rodar por el suelo es una buena solución para eliminar las llamas.

Vendaval

En caso de que se produzca un vendaval es aconsejable:

- Cerrar puertas y ventanas y ponerse a cubierto.
- Sujetar al máximo las persianas y recoger los toldos.
- Retirar de los lugares expuestos al viento las macetas u otros objetos que puedan caer al vacío.
- Alejarse de los vidrios de grandes dimensiones para evitar posibles desgracias en caso de rotura.

Fugas de gas

Si en alguna ocasión se produce un escape de gas, se aconseja seguir las siguientes recomendaciones:

- Si el escape de gas es sin fuego, se deberá cerrar la llave de paso y ventilar el local, avisando inmediatamente a un técnico autorizado o al servicio de urgencias de la compañía suministradora.
- En el caso de que el escape de gas se produzca con fuego en primer lugar se cerrará la llave de paso y después se extinguirá el fuego con un trapo mojado o un extintor adecuado, evitando que la acumulación de gas provoque una explosión. Se avisará rápidamente a un técnico autorizado o al servicio de urgencias de la compañía suministradora.

Inundación

En caso de inundación o riada, es importante informarse sobre el alcance y el peligro que pueda suponer la inundación en los momentos posteriores, con el fin de tomar las decisiones más oportunas y seguras. Para paliar los efectos de una inundación, es conveniente:

- Taponar todas las puertas y los huecos al nivel de la calle, así como las ventanas, entradas, las rampas de acceso al sótano y cualquier punto de entrada de agua. Se debe hacer, preferiblemente, desde el exterior, de forma hermética, y de manera que soporte el empuje de la presión del agua.
- Desconectar la red eléctrica para evitar cortocircuitos o accidentes.
- Desalojar las zonas inundables, tales como sótanos, plantas bajas, etc., ocupando las zonas más altas del edificio.
- Una vez que el agua haya penetrado en el edificio, no conviene frenar su paso con barreras o parapetos, ya que podría provocar solicitaciones no previstas en la estructura que acarrearían futuras patologías.
- No utilizar el ascensor.

Explosión

En caso de una explosión se aconseja:

- Cerrar la llave de gas.
- Desconectar la red eléctrica para evitar cortocircuitos o accidentes.
- Atender a los heridos.
- Avisar a los teléfonos de emergencia o al 112.

De origen atmosférico: gran nevada, caída de rayo

En caso de una gran nevada:

- Se comprobará que las ventilaciones no hayan quedado obstruidas.
- No se lanzará la nieve desde las partes altas del edificio: balcones, terrazas y cubierta.
- Se procederá al deshielo de la nieve con sal o potasa.
- Se cerrarán todos los elementos plegables, como toldos y parasoles.

Cuando se produzca un pedrisco:

- Todas las personas se pondrán a cubierto.
- Se protegerán o retirarán, en su caso, todos los elementos que puedan romperse, como claraboyas, lucernarios, ventanas de tejados, vidrieras cenitales, etc.
- Se evitará que los sumideros y desagües queden taponados.

- Se cerrarán todos los elementos plegables, como toldos y parasoles.
- En caso de una tormenta o caída de rayos:
- Todo el personal se pondrá a cubierto en las partes más seguras del edificio.
- Se cerrarán todas las puertas, ventanas y persianas, trabándolas y sujetándolas con elementos resistentes.
- Se cerrarán todos los elementos plegables, como toldos y parasoles.
- Se desconectarán de la red eléctrica aquellos electrodomésticos que puedan verse afectados.

Movimiento en la estructura sustentante

Los terremotos son fenómenos que se ocasionan de forma inesperada cada cierto periodo de tiempo.

Sus consecuencias suelen ser destructivas y poco previsibles, siendo sus efectos perceptibles en función de su intensidad. Como referencia informativa, se describen los efectos correspondientes a los grados sísmicos IV al VIII de la escala M.S.K., incluidos en el mapa de peligrosidad sísmica de la normativa española NCSE-02.

- Grado IV: Equivalente al paso de un camión pesado con carga, los muebles se mueven.
- Grado V: Puertas y ventanas baten con violencia.
- Grado VI: Los muebles pesados pueden llegar a moverse.
- Grado VII: Las construcciones nuevas sufren daños ligeros, y algunas de mampostería se derrumban.
- Grado VIII: Las construcciones nuevas sufren daños moderados, y algunas de mampostería se derrumban.

Cuando se produce un terremoto, lo primero que se percibe es el golpeteo de pequeños objetos, aumentando el sonido en la medida en que se incrementa la intensidad del seísmo, llegando a vibraciones o movimientos considerables según su grado sísmico, pudiendo las personas llegar a marearse, sentir vibraciones violentas, tener dificultad para caminar o mantenerse en pie, o incluso ser derribadas por una fuerte sacudida.

Las medidas que se aconsejan cuando comienza un terremoto son las siguientes:

- Protegerse con algún objeto resistente, especialmente la cabeza, la cara y los ojos, e inmediatamente buscar algún lugar próximo seguro, no tratando de salir precipitadamente, ya que puede ser alcanzado por los materiales que se desploman.

- Puede considerarse un buen refugio el estar debajo de un elemento resistente que soporte los pesos de los desplomes, como una mesa de comedor, un escritorio pesado, etc. Hay que procurar que sea lo suficientemente grande para que albergue suficiente aire en caso de derrumbe del edificio.
- Las bóvedas de la escalera, paredes internas y los marcos de las puertas son los elementos constructivos que más resisten los derrumbamientos, y sirven de espacio de protección para los posibles objetos que puedan caer durante el terremoto.
- Es conveniente huir de las ventanas acristaladas y de los muebles que contengan estantes de vidrio, vajillas cerámicas o cristalerías.
- Se debe alejar o proteger de cualquier objeto que cuelgue del techo o de las paredes, como lámparas, cuadros, plafones, etc., así como de todo gran mobiliario, librería o estantería que contenga objetos pesados o que tenga puertas que puedan abrirse bruscamente.
- En el caso de que las luces se apaguen, no se debe utilizar velas, cerillas, o encendedores durante y después del terremoto, que puedan provocar una explosión por una fuga de gas. Se procurará una linterna de pilas.
- Si el horno o la cocina a gas están encendidos, apáguelos lo antes posible y busque un refugio seguro.
- Nunca debe situarse cerca de las fachadas del edificio, ni en las puertas de entrada, pues son lugares considerados como muy peligrosos por los objetos que puedan caer. Quédese fuera del edificio hasta que termine totalmente el terremoto, esperando al menos una hora para asegurarse de que no se desprende ningún objeto inestable y descartar otra repetición sísmica.
- Si el terremoto ocurre cuando se encuentra fuera del edificio, aléjese de él y de los cables de energía eléctrica.

Después del terremoto es aconsejable:

- Revisar los servicios de gas, luz y agua, ya que puede haber averías o roturas de las tuberías.
- En el caso de que huela a gas, abrir todas las ventanas, cerrar la llave principal, no accionar o apagar aparatos eléctricos o electrodomésticos, salir lo antes posible al aire libre, informar a la compañía suministradora y/o a las autoridades, y no volver a entrar en el edificio hasta que un experto determine que no existe peligro alguno.
- Revisar la red de saneamiento, alcantarillado y todos los conductos de evacuación de humos, antes de usar los baños o la chimenea.

- No tocar cables de energía eléctrica derribados, ni los objetos que estén en contacto con ellos.
- Ponerse en contacto con las autoridades y/o la compañía suministradora para comunicarles dónde y en qué estado se encuentran dichos cables.
- Mantener las líneas de teléfono libres y asegurar que todos estén colgados, utilizando el móvil para comunicar las emergencias.
- Alejarse de las zonas afectadas para facilitar el rescate y el restablecimiento de la situación por parte de los bomberos o de las autoridades, evitando además el peligro para su integridad.
- Cooperar con las autoridades si solicitan la ayuda voluntaria, participando en lo posible con la policía, los bomberos o los servicios de emergencia, evitando entrar en las zonas afectadas sin el permiso y consentimiento de éstos.

12.7.3. DE CADA UNIDAD DE OCUPACIÓN

Fugas o rotura de agua

En el caso de fugas o roturas de las tuberías de conducción de agua del local o unidad de ocupación, es aconsejable proceder según las recomendaciones siguientes:

- Cerrar la llave de paso del núcleo húmedo objeto de la fuga o rotura.
- Si el problema persiste, cerrar la llave general.
- Localización de la fuga o rotura, avisando al fontanero.
- Recoger el agua.
- Reparar la avería o fuga de agua.
- Realizar una limpieza general.

Fallo en el suministro eléctrico

Cuando se produzca un fallo en el suministro eléctrico, es conveniente seguir las siguientes recomendaciones:

- Reponer la iluminación con linternas o velas en caso de que el fallo se produzca por la noche y no se disponga de iluminación de emergencia.
- Comprobar si el fallo de suministro eléctrico corresponde al local o a la compañía suministradora (apagón general).

- En el caso de que el fallo se deba a la compañía suministradora, se le avisará lo antes posible y se procederá a la desconexión de los aparatos de mayor consumo.
- Cuando el fallo de suministro sea interno, como es el caso de sobrecargas, cortocircuitos y contactos indirectos (derivaciones a tierra), se procederá a la localización y subsanación de la avería por parte de personal competente.

Incendio

Nunca se detenga a apagar un fuego si se da alguna de estas circunstancias:

- Las llamas amenazan con cerrar la única salida disponible.
- La propagación de las llamas es rápida.
- El fuego no está limitado a un área pequeña que pueda controlarse fácilmente.
- Conservar la calma, pensando en todas las posibles salidas seguras del edificio, sin olvidar que las escaleras o salidas principales pueden estar bloqueadas por las llamas.
- Si el fuego se inicia en un aparato eléctrico, antes de proceder a su extinción, corte el suministro de energía eléctrica.
- No intente utilizar el extintor si no conoce su funcionamiento. En caso de hacerlo, recuerde que la carga se vacía en muy pocos segundos y debe aprovechar su eficacia, apuntando con el chorro hacia la base de las llamas, barriendo toda la superficie del fuego.
- En el caso de utilizar bocas de incendio equipadas flexibles (BIE-F) de 25 mm, debe extenderse la manguera en toda su longitud antes de abrir la llave de paso. Para su eficaz utilización, es conveniente la presencia, al menos, de dos personas, una de las cuales se encargará de sujetar firmemente la lanza de la manguera, y la otra de la apertura de la llave.
- Sólo en el caso de utilizar bocas de incendio equipadas semirrígidas (BIE-SR) de 25 mm, no es necesario extender la manguera en toda su longitud antes de abrir la llave de paso, pudiendo manejarla una sola persona.
- El agua no siempre es la mejor solución para extinguir un fuego; incluso podría, en algunas ocasiones, ser contraproducente (sistemas eléctricos).
- Si se encuentra con humo en la huida, debe caminar agachado y, si fuera necesario, a gatas, ya que cerca del suelo el aire es más puro. Avance tan deprisa como pueda, dejando las puertas cerradas,

sin perder tiempo en trabarlas. Si en el avance se encuentra alguna puerta cerrada que está caliente, no debe abrirla, pues el calor indica que detrás hay fuego.

- No deben utilizarse los ascensores, ya que, en el caso de corte de la corriente eléctrica, quedará atrapado y sin salida posible.
- Una vez fuera del edificio, no debe volver sobre sus pasos.
- Si alguien sufre una quemadura, hay que actuar con rapidez y avisar o acudir inmediatamente a un médico.
- Si alguna prenda personal empieza a arder, no debe salir corriendo ni hacer movimientos bruscos con los brazos, ya que se avivarán las llamas; siempre pida que le echen encima una manta que no sea de material sintético, preferiblemente ignífuga. En su defecto, rodar por el suelo es una buena solución para eliminar las llamas.

Vendaval

En caso de que se produzca un vendaval es aconsejable:

- Cerrar puertas y ventanas y ponerse a cubierto.
- Sujetar al máximo las persianas y recoger los toldos.
- Retirar de los lugares expuestos al viento las macetas u otros objetos que puedan caer al vacío.
- Alejarse de los vidrios de grandes dimensiones para evitar posibles desgracias en caso de rotura.

Fugas de gas

Si en alguna ocasión se produce un escape de gas, se aconseja seguir las siguientes recomendaciones:

- Si el escape de gas es sin fuego, se deberá cerrar la llave de paso y ventilar el local, avisando inmediatamente a un técnico autorizado o al servicio de urgencias de la compañía suministradora.
- En el caso de que el escape de gas se produzca con fuego, en primer lugar se cerrará la llave de paso y después se extinguirá el fuego con un trapo mojado o un extintor adecuado, evitando que la acumulación de gas provoque una explosión. Se avisará rápidamente a un técnico autorizado o al servicio de urgencias de la compañía suministradora.

Inundación

En caso de inundación o riada, es importante informarse sobre el alcance y el peligro que pueda suponer la inundación en los momentos posteriores, con el fin de tomar las decisiones más oportunas y seguras. Para paliar los efectos de una inundación, es conveniente:

- Taponar todas las puertas y los huecos al nivel de la calle, así como las ventanas, entradas, las rampas de acceso al sótano y cualquier punto de entrada de agua. Se debe hacer, preferiblemente, desde el exterior, de forma hermética, y de manera que soporte el empuje de la presión del agua.
- Desconectar la red eléctrica para evitar cortocircuitos o accidentes.
- Desalojar las zonas inundables, tales como sótanos, plantas bajas, etc., ocupando las zonas más altas del edificio.
- Una vez que el agua haya penetrado en el edificio, no conviene frenar su paso con barreras o parapetos, ya que podría provocar solicitaciones no previstas en la estructura que acarrearían futuras patologías.
- No utilizar el ascensor.

Explosión

En caso de una explosión se aconseja:

- Cerrar la llave de gas.
- Desconectar la red eléctrica para evitar cortocircuitos o accidentes.
- Atender a los heridos.
- Avisar a los teléfonos de emergencia o al 112.

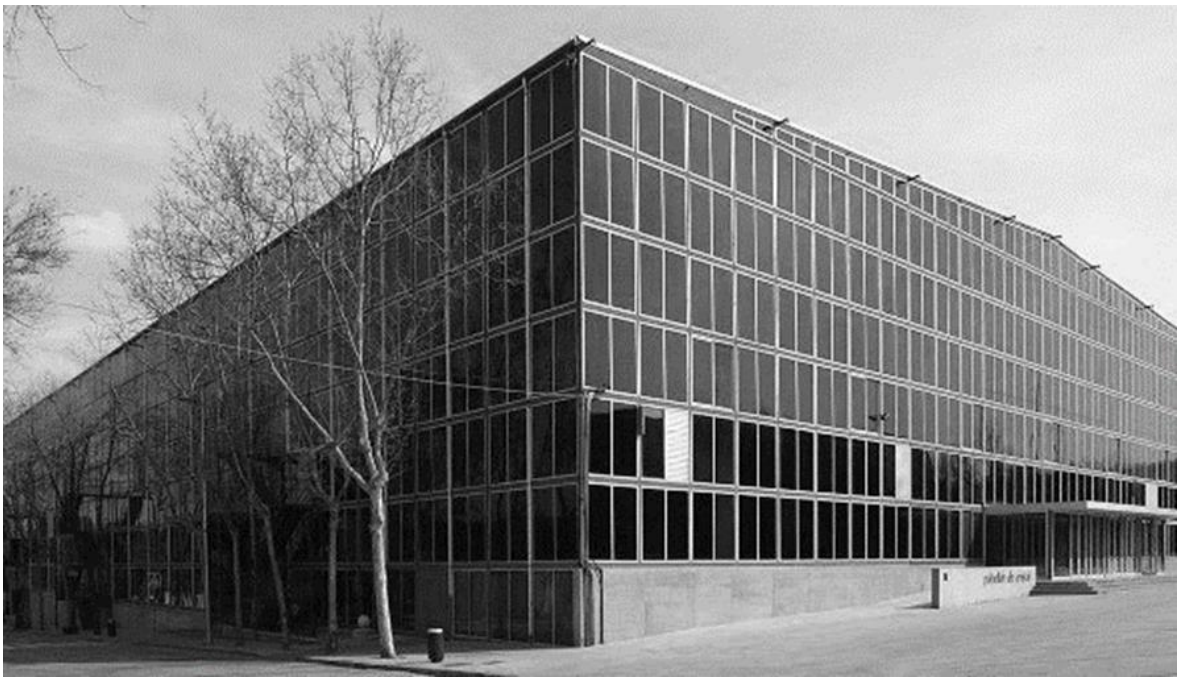
Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL
El Arquitecto:



D. José Moriana Pericet
Arquitecto Colegiado nº 375 COACo
Fecha: Noviembre de 2024

PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA

PABELLÓN DE CRISTAL DE LA CASA DE CAMPO



PROMOTOR

Madrid Destino

EQUIPO REDACTOR

CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRAS S.A.

ARQUITECTO: D. JOSÉ MORIANA PERICET

III. PLANOS

cemosa Ingeniería y Control

Madrid Destino

LISTADO DE PLANOS

PABELLÓN DE CRISTAL		PLANIMETRÍA PROYECTO PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA			
DIRECCIÓN:Avenida Principal, 16. Moncloa-Aravaca. Madrid					
PLANO		**TÍTULO DE PLANO**	**ESCALA**	**FECHA**	**Nº PLANO**
GENERALES					
SITUACIÓN Y EMPLAZAMIENTO					
01_PBA_CRISTAL_ST_Emplazamiento	ST_01	Emplazamiento. Estado actual	1/1500 (A1)	nov-24	ST_01
01_PBA_CRISTAL_ST_Situacion	ST_02	Situación. Estado Actual	1/500 (A1)	nov-24	ST_02
ARQUITECTURA. ESTADO ACTUAL (PASIVAS)					
DISTRIBUCIÓN. PLANTAS					
01_PBA_CRISTAL_EA_Plantas	EA_AR 01	ARQUITECTURA-ESTADO ACTUAL. PLANTA BAJA	1/200 (A1)	nov-24	EA_AR 01
01_PBA_CRISTAL_EA_Plantas	EA_AR 02	ARQUITECTURA-ESTADO ACTUAL. ENTREPLANTA	1/200 (A1)	nov-24	EA_AR 02
01_PBA_CRISTAL_EA_Plantas	EA_AR 03	ARQUITECTURA-ESTADO ACTUAL. PLANTA ALTA	1/200 (A1)	nov-24	EA_AR 03
DISTRIBUCIÓN. ALZADOS					
01_PBA_CRISTAL_EA_Alzados	EA_AR 04	ARQUITECTURA-ESTADO ACTUAL. ALZADOS NORTE Y ESTE	1/200 (A1)	nov-24	EA_AR 04
01_PBA_CRISTAL_EA_Alzados	EA_AR 05	ARQUITECTURA-ESTADO ACTUAL. ALZADOS SUR Y OESTE	1/200 (A1)	nov-24	EA_AR 05
DISTRIBUCIÓN. SECCIONES					
01_PBA_CRISTAL_EA_Secciones	EA_AR 06	ARQUITECTURA-ESTADO ACTUAL. SECCIONES	1/200 (A1)	nov-24	EA_AR 06
01_PBA_CRISTAL_EA_Secciones	EA_AR 07	ARQUITECTURA-ESTADO ACTUAL. SECCIONES	1/200 (A1)	nov-24	EA_AR 07
INSTALACIONES.					
INSTALACIONES					
PC_CLI_COND_PLANTAALTA	ER_IN_01	CLIMATIZACIÓN-CONDUCTOS. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_01
PC_CLI_TUB_BAJA	ER_IN_02	CLIMATIZACIÓN-TUBERÍAS AF. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_02
PC_CLI_TUB_BAJA	ER_IN_03	CLIMATIZACIÓN-TUBERÍAS AC. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_03
PC_CLI_TUB_PLANTAALTA	ER_IN_04	CLIMATIZACIÓN-TUBERÍAS AF. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_04
PC_CLI_TUB_PLANTAALTA	ER_IN_05	CLIMATIZACIÓN-TUBERÍAS AC. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_05
PC_CLI_ESQ	ER_IN_06	CLIMATIZACIÓN-ESQUEMA DE PRINCIPIO	S/E (A1)	nov-24	ER_IN_06
PC_CLI_SAN_BAJA	ER_IN_07	CLIMATIZACIÓN-EVAC. CONDENSADOS. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_07
PC_CLI_SAN_ALTA	ER_IN_08	CLIMATIZACIÓN-EVAC. CONDENSADOS. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_08
PC_BT_BANDEJAS_BAJA	ER_IN_09	ELECTRICIDAD-BANDEJAS ELÉCTRICAS. PLANTA BAJA	1/200 (A1)	nov-24	ER_IN_09
PC_BT_BANDEJAS_ALTA	ER_IN_10	ELECTRICIDAD-BANDEJAS ELÉCTRICAS. PLANTA ALTA	1/200 (A1)	nov-24	ER_IN_10
PC_BT_UNIFILAR	ER_IN_11	ELECTRICIDAD. UNIFILAR	S/E (A1)	nov-24	ER_IN_11
SEGURIDAD Y SALUD					
SEGURIDAD Y SALUD					
01_PBA_CRISTAL_SS_Seguridad y Salud	EA_SS 01	SEGURIDAD Y SALUD. IMPLANTACIÓN	1/500 (A1)	nov-24	EA_SS 01
01_PBA_CRISTAL_SS_Seguridad y Salud	EA_SS 02	SEGURIDAD Y SALUD. CENTROS ASISTENCIALES	S/E (A1)	nov-24	EA_SS 02

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

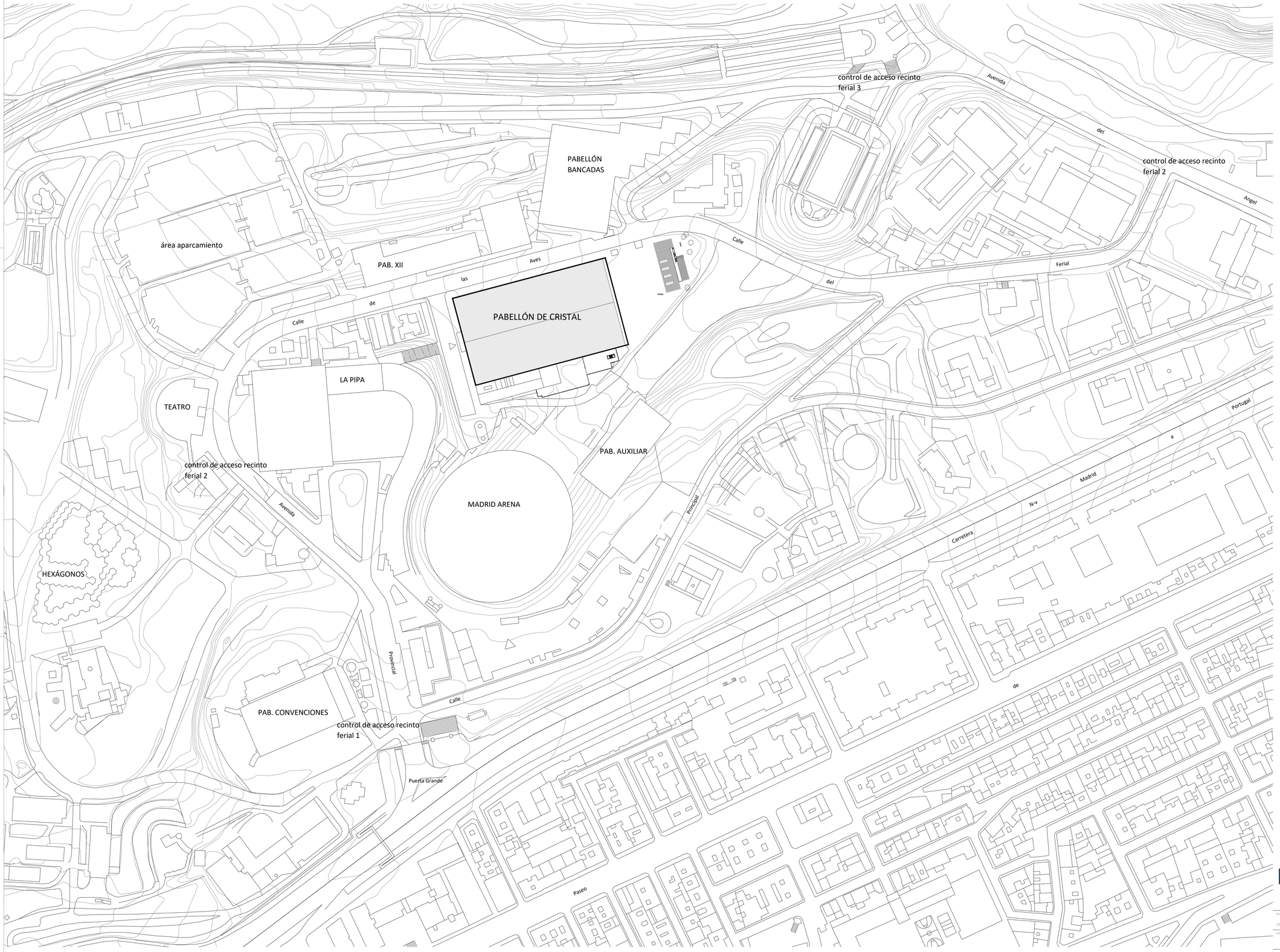
El Arquitecto:

MORIANA PERICET JOSE - 48866714V

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D. José Moriana Pericet
Arquitecto Colegiado nº 375 COACo
Fecha: noviembre de 2024

LEYENDA



Financiado por la Unión Europea NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA
-FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO

DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

FASE: BÁSICO Y DE EJECUCION

EQUIPO REDACTOR: CEMOSA

ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Cc

FIRMA ELECTRÓNICA

PLANO: ST_01
Sustituye a los anteriores

EMPLAZAMIENTO
ESTADO ACTUAL

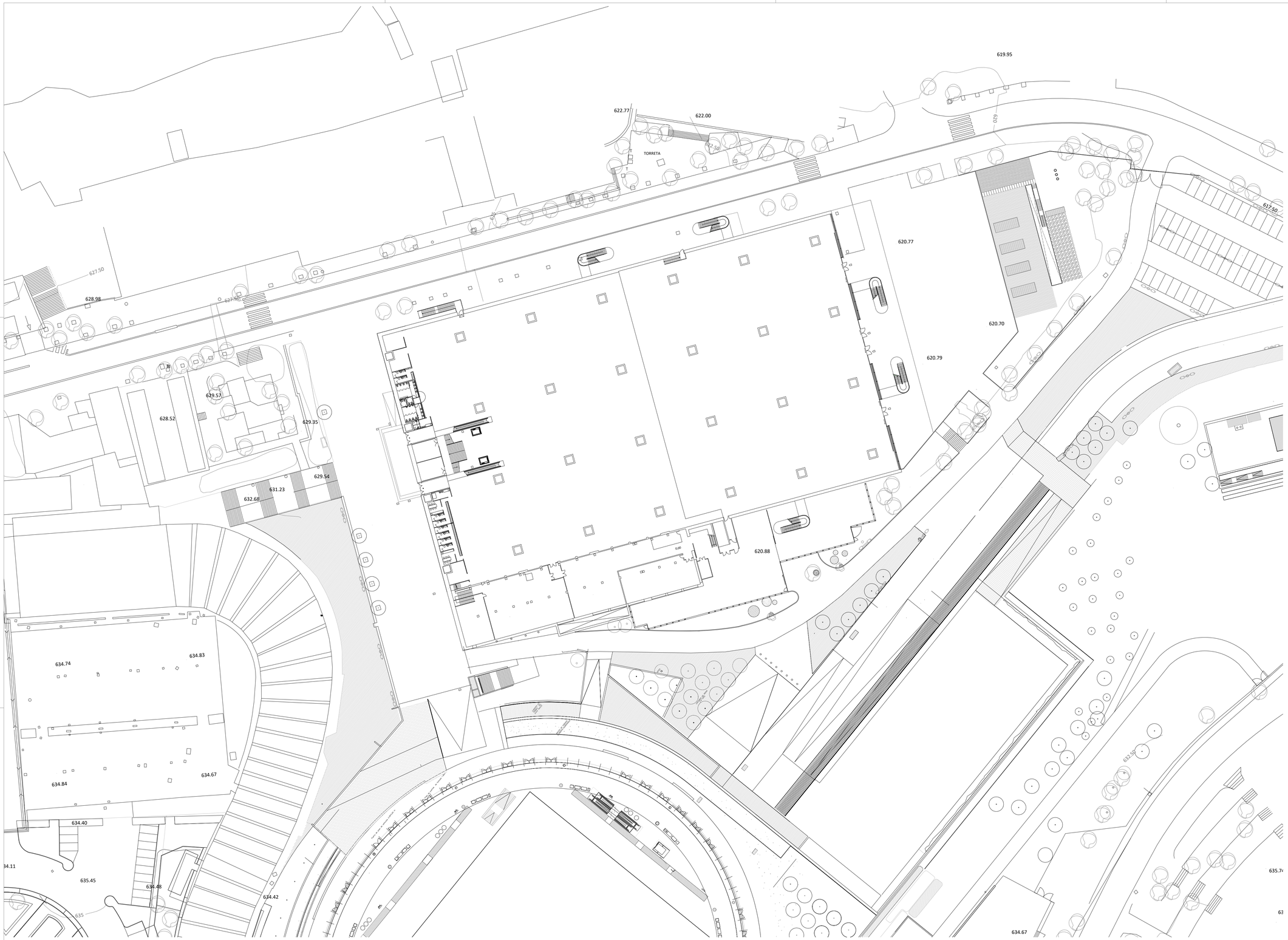
ESCALA: 1:1500

FECHA: 11/2024

DIBUJADO: GMM

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

LEYENDA



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Plan de Recuperación, Transformación y Resiliencia

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INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO

DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA

ARQUITECTO: José Mariano Peinzet, Colegiado nº 375 C.O.A.Co.

FIRMA ELECTRÓNICA

PLANO: ST_02
Sustituye a los anteriores

SITUACIÓN
ESTADO ACTUAL

ESCALA: 1:500

FECHA: 11/2024

DIBUJADO: GMM

PROMOVIDO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

Almacén 1
25.12 m2

Almacén 2
26.22 m2

Azafatas
17.37 m2

Aseos
54.57 m2

Montadores
11.63 m2

Almacén 3
35.54 m2

Almacén 4
35.54 m2

(+2,80)

0,00

Ascensor de Vidrio
5.50 m2

Ascensor de Vidrio
5.50 m2

Limpieza
11.05 m2

Seguridad
89.72 m2

Almacén 5
26.03 m2

Deposito fluxores
8.05 m2

Salon PB
8.522.86 m2

SALA 5
48.49 m2

Circulación
112.17 m2

SALA 4
25.18 m2

Cuadro eléctrico clima
443.87 m2

Bombas y
Climatizadores
193.07 m2

SALA 1
31.97 m2

SALA 2
72.28 m2

SALA 3
38.00 m2

617.15

617.15

617.15

VENTILACION
EVACUACION

Portones correderos
con puertas de evacuación

Portones correderos
con puertas de evacuación

Portones correderos
con puertas de evacuación

planta intermedia. cota +2.85

Cafetería
72.73 m2
+2,85

+2,85

CUADRO DE SUPERFICIES PABELLÓN DE CRISTAL
(ESTADO ACTUAL)

PLANTA BAJA

ALMACÉN 1	25,12 m²
ALMACÉN 2	26,22 m²
ALMACÉN 3	35,54 m²
ALMACÉN 4	35,54 m²
ALMACÉN 5	26,03 m²
ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS	54,57 m²
AZAFATAS	17,37 m²
BOMBAS Y CLIMATIZADORES	193,07 m²
CIRCULACIÓN	112,17 m²
CUADRO ELÉCTRICO CLIMA	443,87 m²
DEPOSITO FLUXORES	8,05 m²
LIMPIEZA	11,05 m²
MONTADORES	11,63 m²
SALA 1	31,97 m²
SALA 2	72,28 m²
SALA 3	31,97 m²
SALA 4	25,18 m²
SALA 5	48,49 m²
SALON PB	8.522,86 m²
SEGURIDAD	89,72 m²
ÚTIL PLANTA BAJA	**9.833,70 m²**

PLANTA INTERMEDIA

CAFETERIA	72,73 m²
ÚTIL PLANTA INTERMEDIA	**72,73 m²**

PLANTA ENTREPLANTA

ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS	69,99 m²
CAFETERÍA	114,31 m²
CIRCULACIÓN	33,88 m²
COCINA	64,67 m²
COMEDOR	200,31 m²
SALA 6	28,33 m²
ESCALERAS	124,42 m²
LIMPIEZA/MONTADORES	23,44 m²
RAMPA	22.97 m²
SALON EP	4.157,83 m²
SERVICIO MÉDICO	59,80 m²
TELEFONÍA	121,24 m²
VESTÍBULO INGRESO	197,87 m²
ÚTIL PLANTA ENTREPLANTA	**5.230,06 m²**

PLANTA PRIMERA

ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS 1	15,64 m²
ASEOS 2	92,96 m²
SALON	8.088,91 m²
ESCALERA	58,49 m²
ÚTIL PLANTA PRIMERA	**8.267,00 m²**
TOTAL SUPERFICIE ÚTIL	**23.403,49 m²**

SUPERFICIE CONSTRUÍDA PLANTA BAJA
10.541,88 m²

SUPERFICIE CONSTRUÍDA PLANTA INTERMEDIA
86,62 m²

SUPERFICIE CONSTRUÍDA PLANTA ENTREPLANTA
6014,37 m²

SUPERFICIE CONSTRUÍDA PLANTA PRIMERA
9310,18 m²

TOTAL SUPERFICIE CONSTRUIDA 25.953,05 m²

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA
-FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

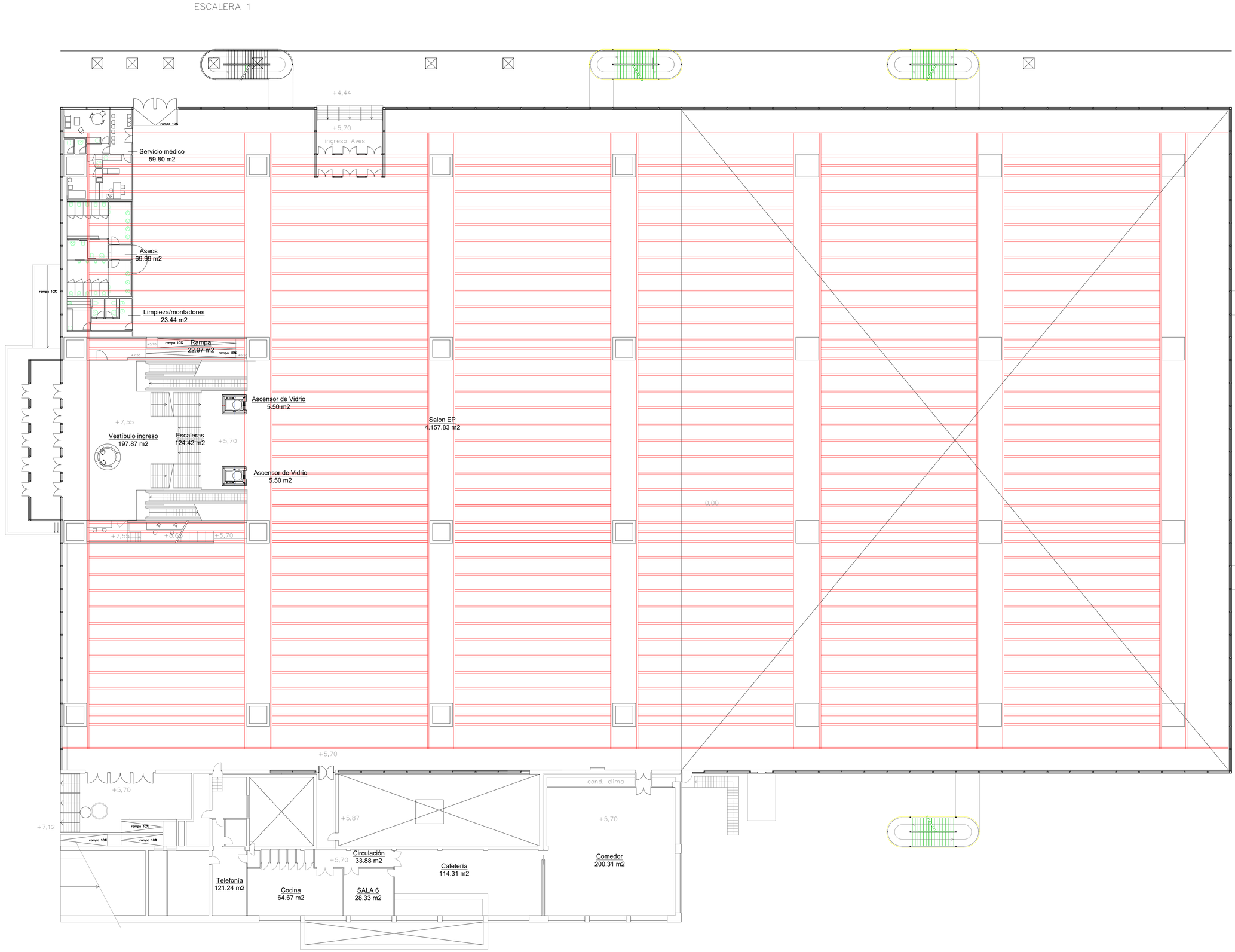
INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 373 C.O.A.ICo
FIRMA ELECTRÓNICA

PLANO: EA_AR_01
Sustituye a los anteriores
ARQUITECTURA - ESTADO ACTUAL
PLANTA BAJA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM

PROMOVIDO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



CUADRO DE SUPERFICIES PABELLÓN DE CRISTAL
(ESTADO ACTUAL)

PLANTA BAJA

ALMACÉN 1	25,12 m²
ALMACÉN 2	26,22 m²
ALMACÉN 3	35,54 m²
ALMACÉN 4	35,54 m²
ALMACÉN 5	26,03 m²
ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS	54,57 m²
AZAFATAS	17,37 m²
BOMBAS Y CLIMATIZADORES	193,07 m²
CIRCULACIÓN	112,17 m²
CUADRO ELÉCTRICO CLIMA	443,87 m²
DEPOSITO FLUXORES	8,05 m²
LIMPIEZA	11,05 m²
MONTADORES	11,63 m²
SALA 1	31,97 m²
SALA 2	72,28 m²
SALA 3	31,97 m²
SALA 4	25,18 m²
SALA 5	48,49 m²
SALON PB	8.522,86 m²
SEGURIDAD	89,72 m²
ÚTIL PLANTA BAJA	**9.833,70 m²**

PLANTA INTERMEDIA

CAFETERIA	72,73 m²
ÚTIL PLANTA INTERMEDIA	**72,73 m²**

PLANTA ENTREPLANTA

ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS	69,99 m²
CAFETERÍA	114,31 m²
CIRCULACIÓN	33,88 m²
COCINA	64,67 m²
COMEDOR	200,31 m²
SALA 6	28,33 m²
ESCALERAS	124,42 m²
LIMPIEZA/MONTADORES	23,44 m²
RAMPA	22.97 m²
SALON EP	4.157,83 m²
SERVICIO MÉDICO	59,80 m²
TELEFONÍA	121,24 m²
VESTÍBULO INGRESO	197,87 m²
ÚTIL PLANTA ENTREPLANTA	**5.230,06 m²**

PLANTA PRIMERA

ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS 1	15,64 m²
ASEOS 2	92,96 m²
SALON	8.088,91 m²
ESCALERA	58,49 m²
ÚTIL PLANTA PRIMERA	**8.267,00 m²**
TOTAL SUPERFICIE ÚTIL	**23.403,49 m²**

SUPERFICIE CONSTRUÍDA PLANTA BAJA
10.541,88 m²

SUPERFICIE CONSTRUÍDA PLANTA INTERMEDIA
86,62 m²

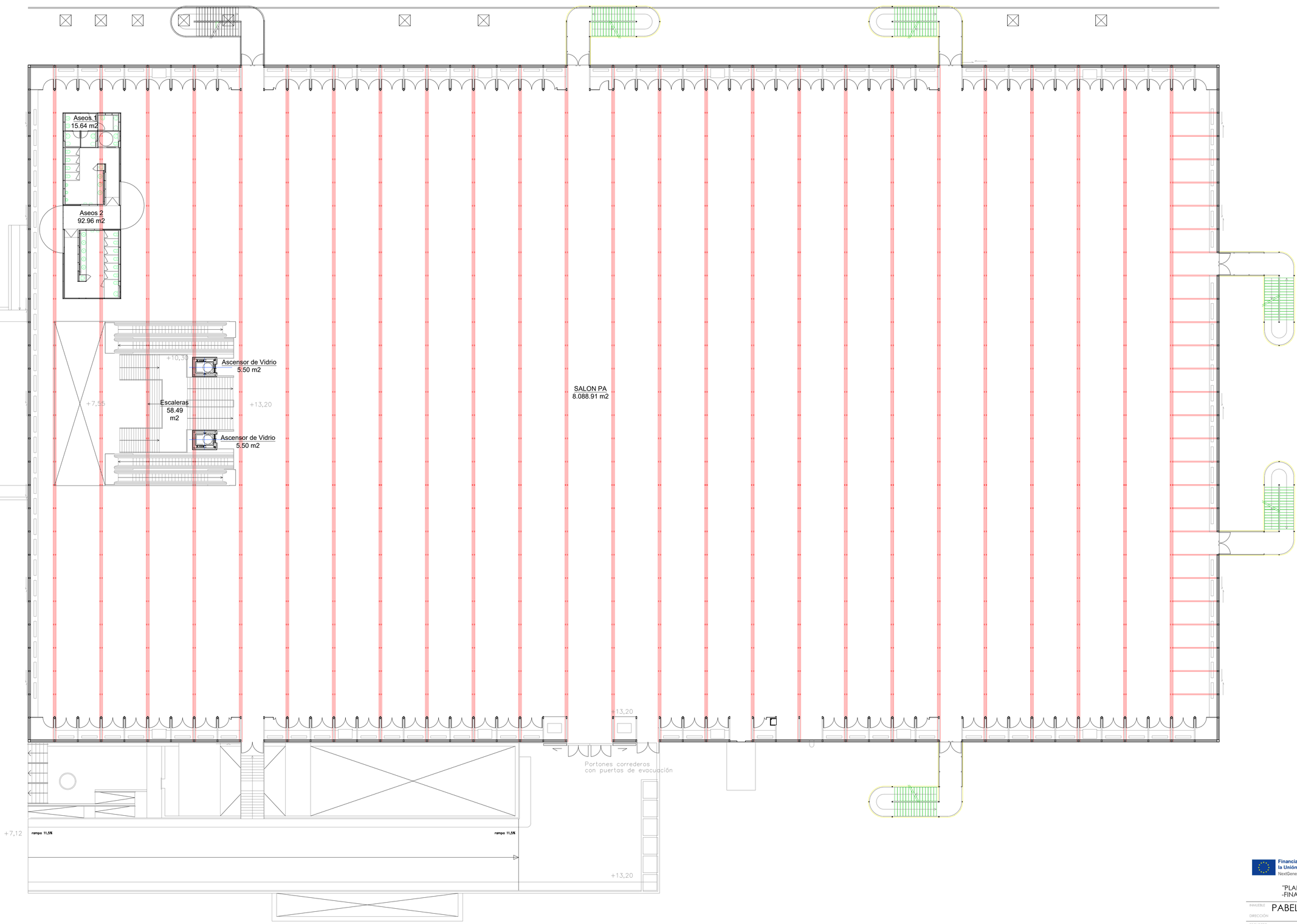
SUPERFICIE CONSTRUÍDA PLANTA ENTREPLANTA
6014,37 m²

SUPERFICIE CONSTRUÍDA PLANTA PRIMERA
9310,18 m²

TOTAL SUPERFICIE CONSTRUIDA 25.953,05 m²

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL 16, 28011, MADRID
PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCION
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA
PLANO: EA_AR_02 (Sustituye a los anteriores)
ARQUITECTURA - ESTADO ACTUAL ENTREPLANTA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM
PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



CUADRO DE SUPERFICIES PABELLÓN DE CRISTAL
(ESTADO ACTUAL)

PLANTA BAJA

ALMACÉN 1	25,12 m²
ALMACÉN 2	26,22 m²
ALMACÉN 3	35,54 m²
ALMACÉN 4	35,54 m²
ALMACÉN 5	26,03 m²
ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
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AZAFATAS	17,37 m²
BOMBAS Y CLIMATIZADORES	193,07 m²
CIRCULACIÓN	112,17 m²
CUADRO ELÉCTRICO CLIMA	443,87 m²
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LIMPIEZA	11,05 m²
MONTADORES	11,63 m²
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SALA 2	72,28 m²
SALA 3	31,97 m²
SALA 4	25,18 m²
SALA 5	48,49 m²
SALON PB	8.522,86 m²
SEGURIDAD	89,72 m²
ÚTIL PLANTA BAJA	**9.833,70 m²**

PLANTA INTERMEDIA

CAFETERIA	72,73 m²
ÚTIL PLANTA INTERMEDIA	**72,73 m²**

PLANTA ENTREPLANTA

ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS	69,99 m²
CAFETERÍA	114,31 m²
CIRCULACIÓN	33,88 m²
COCINA	64,67 m²
COMEDOR	200,31 m²
SALA 6	28,33 m²
ESCALERAS	124,42 m²
LIMPIEZA/MONTADORES	23,44 m²
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SERVICIO MÉDICO	59,80 m²
TELEFONÍA	121,24 m²
VESTÍBULO INGRESO	197,87 m²
ÚTIL PLANTA ENTREPLANTA	**5.230,06 m²**

PLANTA PRIMERA

ASCENSOR DE VIDRIO	5,50 m²
ASCENSOR DE VIDRIO	5,50 m²
ASEOS 1	15,64 m²
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SALON	8.088,91 m²
ESCALERA	58,49 m²
ÚTIL PLANTA PRIMERA	**8.267,00 m²**

TOTAL SUPERFICIE ÚTIL 23.403,49 m²

SUPERFICIE CONSTRUÍDA PLANTA BAJA
10.541,88 m²

SUPERFICIE CONSTRUÍDA PLANTA INTERMEDIA
86,62 m²

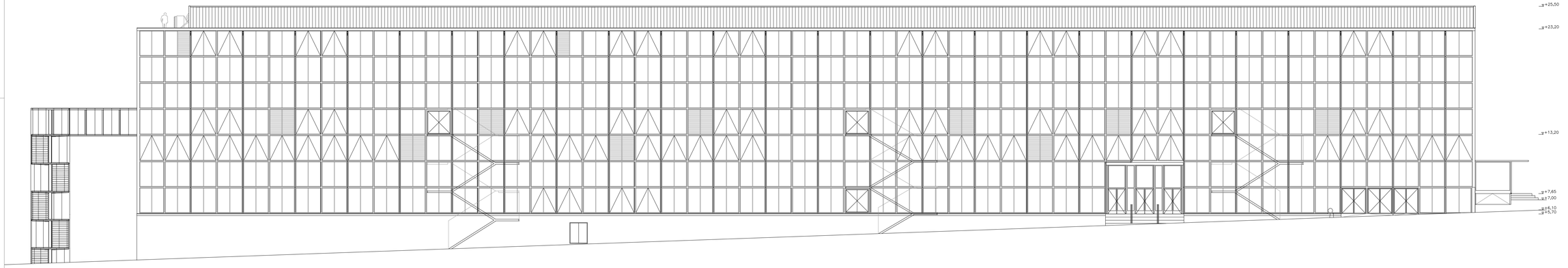
SUPERFICIE CONSTRUÍDA PLANTA ENTREPLANTA
6014,37 m²

SUPERFICIE CONSTRUÍDA PLANTA PRIMERA
9310,18 m²

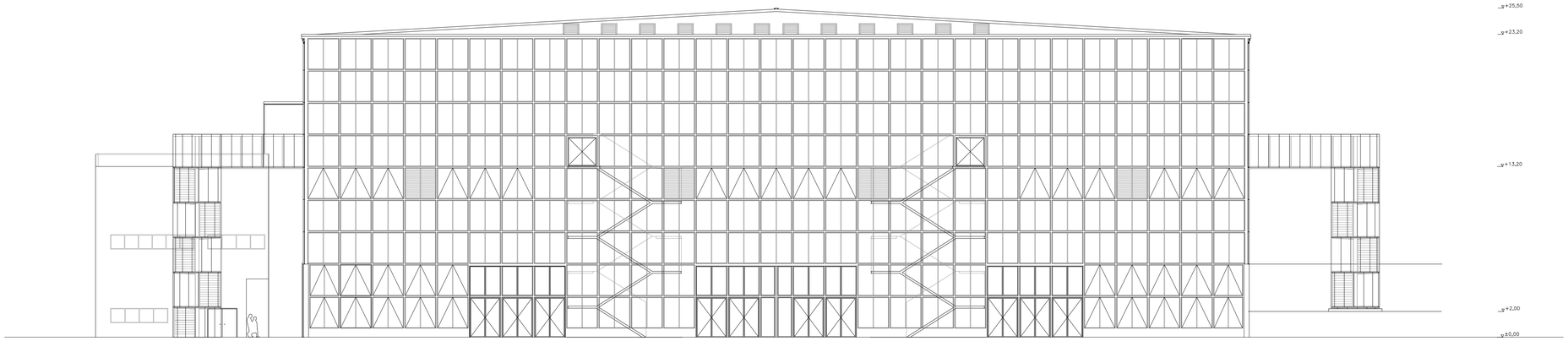
TOTAL SUPERFICIE CONSTRUIDA 25.953,05 m²

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16. 28011, MADRID
PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Periceli, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA
PLANO: EA_AR_03 (Estimado en la entrega)
ARQUITECTURA - ESTADO ACTUAL
PLANTA ALTA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM
PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



ALZADO NORTE



ALZADO ESTE

Financiado por la Unión Europea NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO

DIRECCIÓN: AVENIDA PRINCIPAL 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA

ARQUITECTO: José Mariano Preciet, Colegiado nº 375 C.O.A.C.o

FIRMA ELECTRÓNICA:

PLANO: EA_AR_04

AUTOR DE LA INTERVENCIÓN

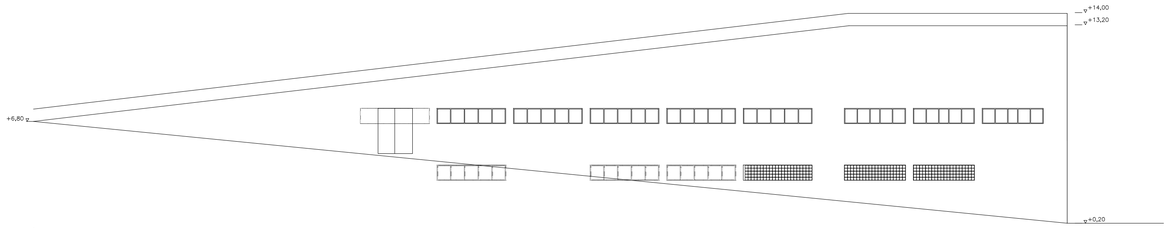
ARQUITECTURA - ESTADO ACTUAL
ALZADOS NORTE Y ESTE

ESCALA: 1:200

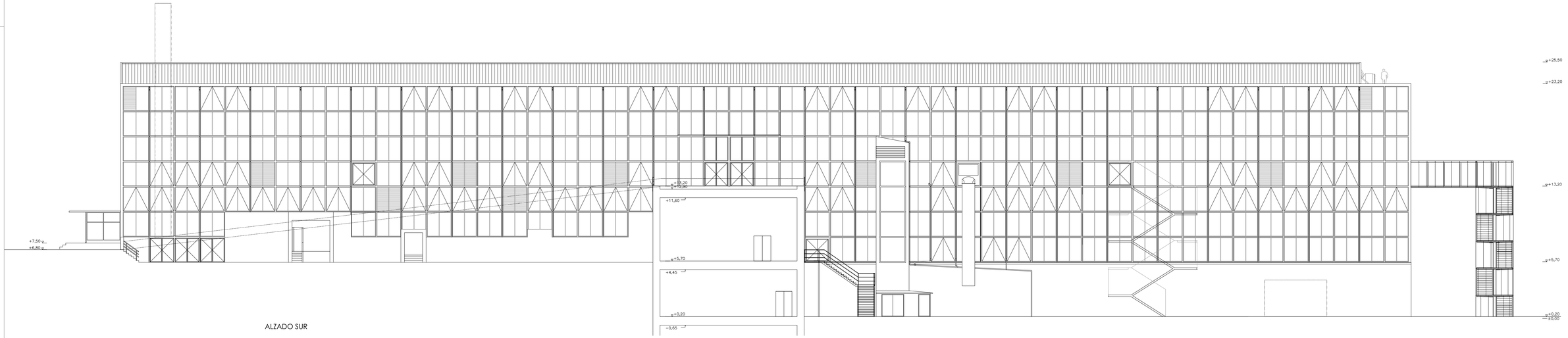
FECHA: 11/2024

DIBUJADO: GMM

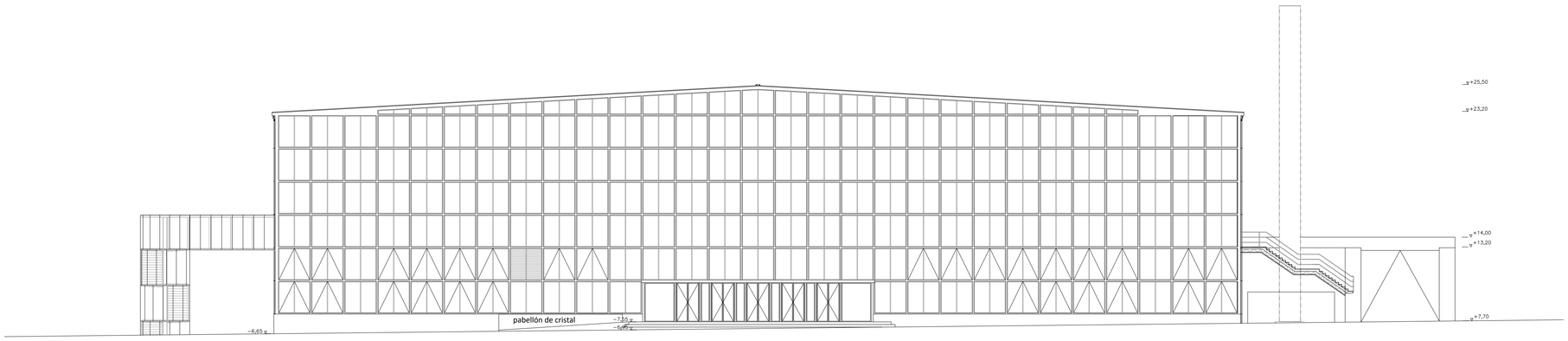
PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



ALZADO SUR´



ALZADO SUR



ALZADO OESTE

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA
-FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO

DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA

ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Co

FIRMA ELECTRÓNICA

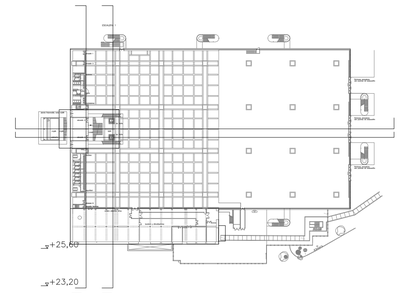
PLANO: EA_AR_05
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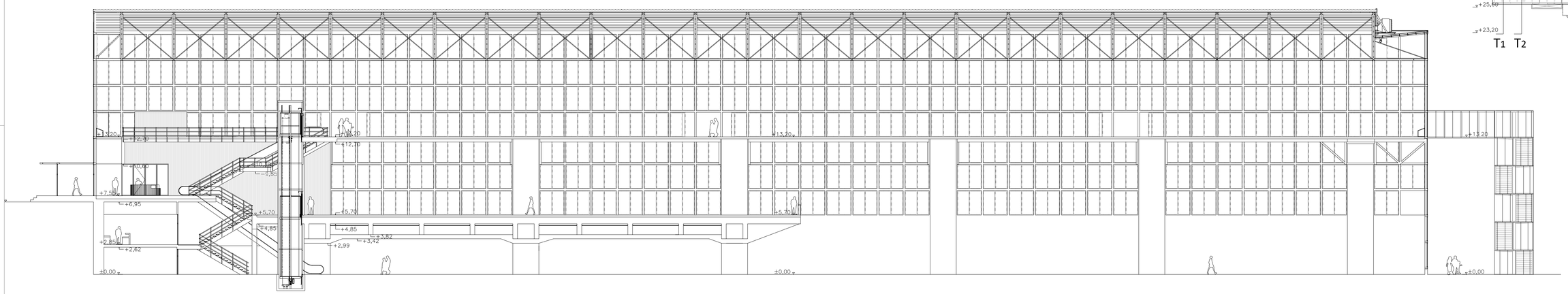
ARQUITECTURA - ESTADO ACTUAL
ALZADOS SUR Y OESTE

ESCALA: 1/200
FECHA: 11/2024
DIBUJADO: GMM

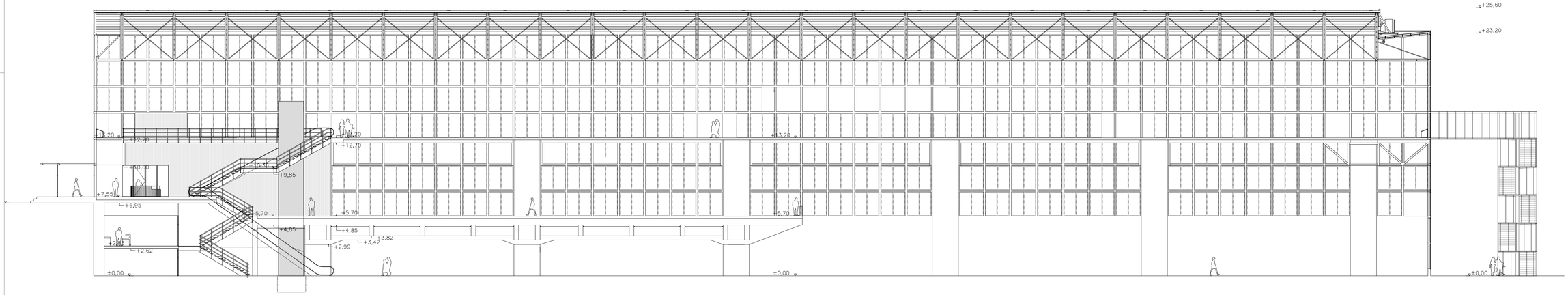
PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

LEYENDA





SECCIÓN L4 - LONGITUDINAL POR ASCENSORES



SECCIÓN L3

Financiado por la Unión Europea NextGenerationEU · Ministerio para la Transición Ecológica y el Reto Demográfico · Plan de Recuperación, Transformación y Resiliencia · Comunidad de Madrid · madrid

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA
-FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

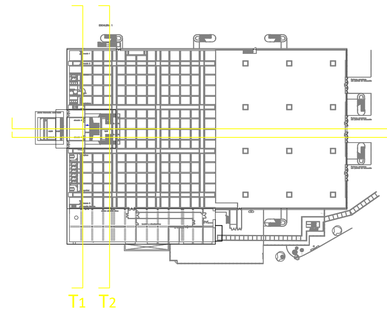
PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

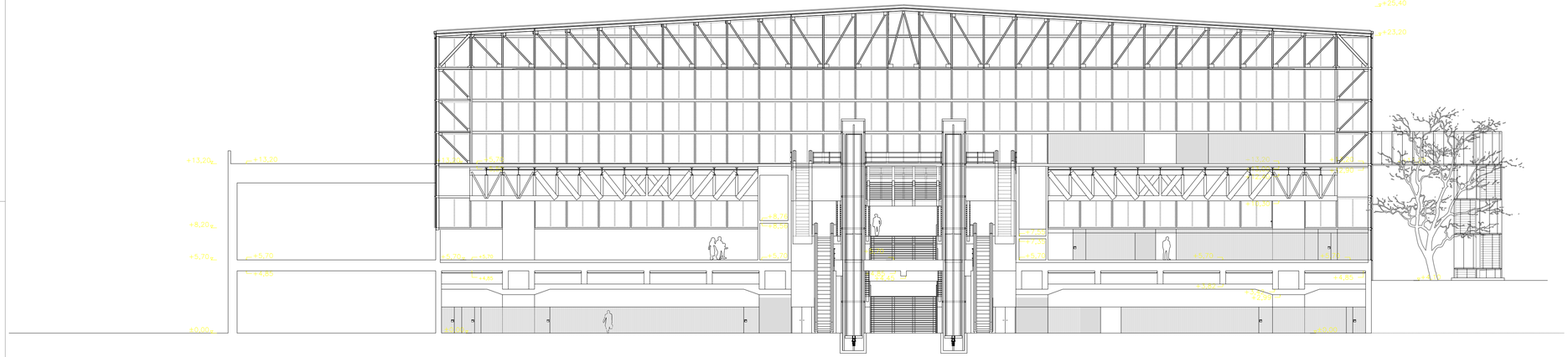
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Preciet, Colegiado nº 375 C.O.A.C.o
FIRMA ELECTRÓNICA:

PLANO: EA_AR_06 (AUTOCAD 14 CAL INTERIORES)
ARQUITECTURA - ESTADO ACTUAL
SECCIONES
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM

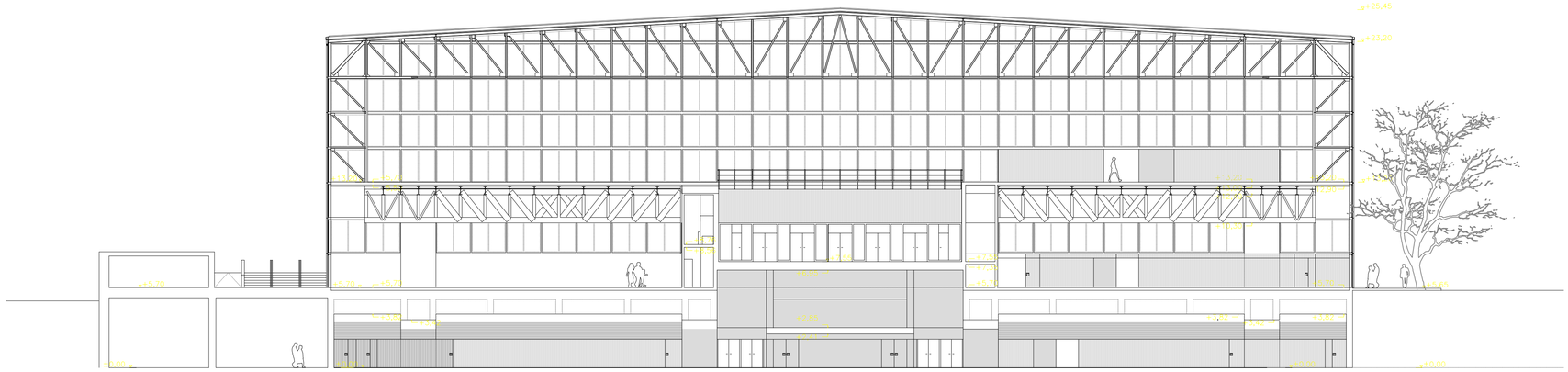
PROPIETARIO: Madrid Destino — DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

LEYENDA





SECCIÓN T2 - TRANSVERSAL POR ASCENSORES



SECCIÓN T1

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

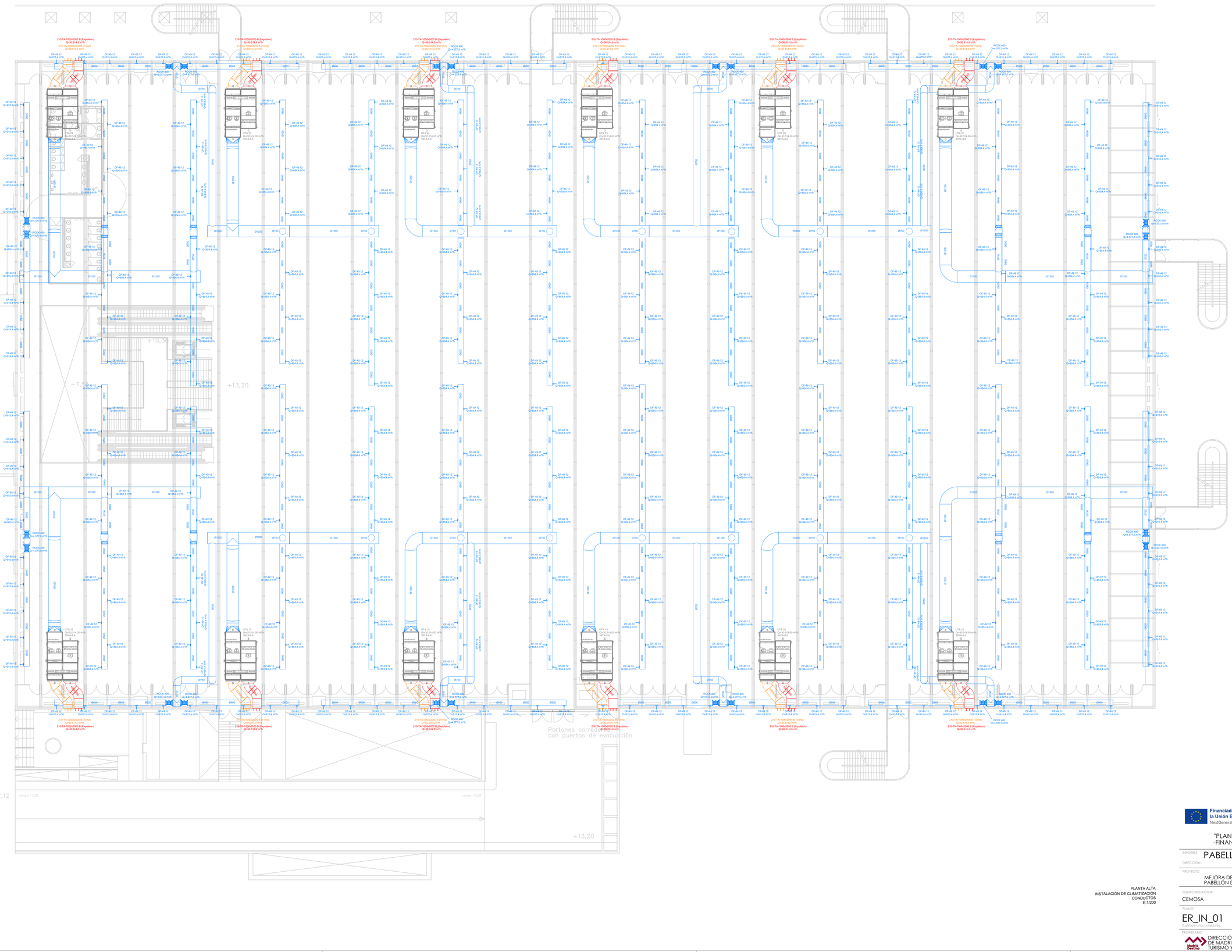
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Preciert, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA:

PLANO: EA_AR_07
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM

ARQUITECTURA - ESTADO ACTUAL
SECCIONES

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

ESCALERA 1



LEYENDA

LEYENDA

- CONDUCTO DE ADMISIÓN DE AIRE EXTERIOR CON AISLAMIENTO CLIMAVER NETO 25 mm DE ESPESOR
- CONDUCTO DE EXPULSIÓN DE AIRE EXTERIOR CON AISLAMIENTO CLIMAVER NETO 25 mm DE ESPESOR
- CONDUCTO DE RETORNO DE AIRE CON AISLAMIENTO CLIMAVER NETO 25 mm DE ESPESOR
- CONDUCTO DE IMPULSIÓN DE AIRE CON AISLAMIENTO CLIMAVER NETO 25 mm DE ESPESOR
- CONDUCTO DE EXPULSIÓN DE AIRE EXTERIOR RESISTENTE AL FUEGO E600/120 PARA SISTEMA DE EXTRACCIÓN DE HUMOS
- DIFUSOR TERMORREGULABLE DE GEOMETRÍA VARIABLE
- TOBERA TERMORREGULABLE DE LARGO ALCANCE
- REJILLA DE RETÍCULA PARA RETORNO DE AIRE
- REJILLA DE TOMA DE AIRE EXTERIOR
- REJILLA DE EXPULSIÓN DE AIRE EXTERIOR
- UNIDAD DE TRATAMIENTO DE AIRE
- RECUPERADOR DE CALOR ROTATIVO (PLANTA ENTREPLANTA)
- COMPUERTA DE REGULACIÓN CIRCULAR DE CAUDAL DE AIRE CONSTANTE
- COMPUERTA CORTAFUEGOS RECTANGULAR, REARME AUTOMÁTICO MEDIANTE SERVOMOTOR

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

1.- Las unidades de tratamiento de aire dispondrán de ventilador con variador de frecuencia y sonda de CO2
2.- Las unidades de tratamiento de aire se apoyarán sobre silentoloc o se colgarán mediante soportes elásticos.
3.- En los pasos de los conductos por los cerramientos se dispondrá un pasamuros y se enmasillará interiormente.
4.- Todos los conductos serán rectangulares de chapa o helicoidales galvanizados, aislados interiormente con Climaver Neto de 25 mm.
5.- Las TAE exteriores, incorporarán malla antipájaros y mosquitera.
6.- Las TAE ubicadas en fachada serán con rejilla de perfil antilluvia.
7.- Las TAE se colocarán y orientarán sus lamas de tal forma que no se produzca bypass térmico entre la toma de aire y la expulsión.
8.- En planta baja los conductos de la red de impulsión de clima se utilizarán para la extracción de humos en caso de incendio mediante un juego de compuertas cortafuegos (ver plano PCI).
9.- En planta baja los conductos de la red de impulsión de clima serán resistentes al fuego mediante aislamiento, con una clasificación E 600/120

NOTAS DIFUSIÓN

TRATAMIENTO INTERIOR 25 Ud / MAQUINA - TOBERAS DF-49-TR-12-INJ

Decalaje: - 45º / Tarado frío: + 10º / Tarado calor: - 10º

- Qo = 854,4 m3/h Ud
- Vk = 12,6 m/s
- ΔP = 77 Pa
- Lw = 32 dB(A)

TRATAMIENTO PERIMETRAL 10 Ud / MAQUINA - TOBERAS DF-49-12-INJ

Decalaje: - 45º / Tarado frío y calor: - 5º

- Qo = 915,4 m3/h Ud
- Vk = 12,6 m/s
- ΔP = 79 Pa
- Lw = 32 dB(A)

*NOTA:
- Altura de instalación toberas tratamiento interior 7,00 m.
- Altura de instalación toberas perimetrales 7,00 m.

PLANTA ALTA
INSTALACIÓN DE CLIMATIZACIÓN
CONDUCTOS
E:1/200

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA
-FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

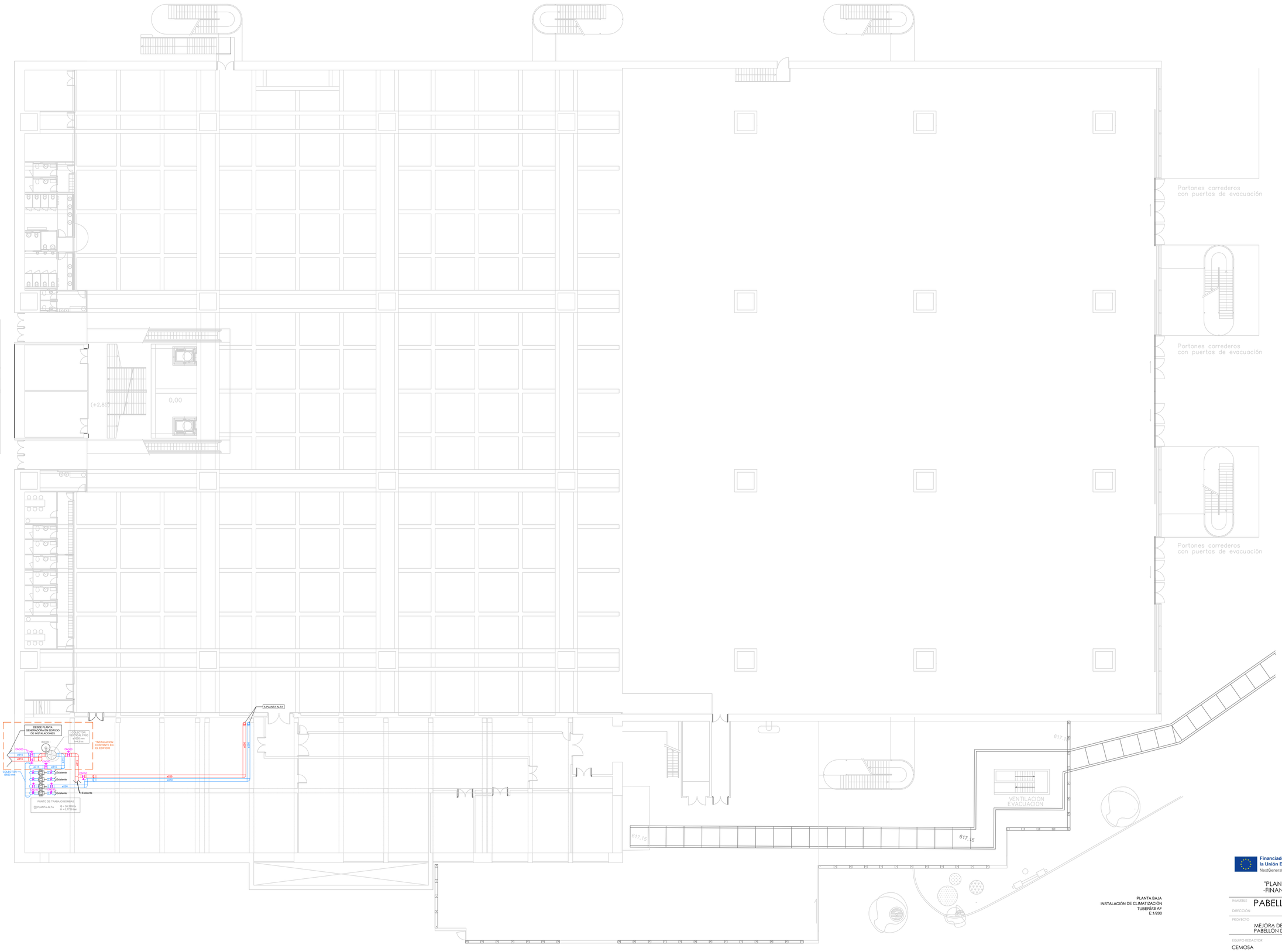
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Moliano Pericet, Colegiado nº 375 C.O.A.Co

FIRMA ELECTRÓNICA

TÍTULO: ER_IN_01 (Sustituye a los anteriores)
CLIMATIZACIÓN - CONDUCTOS
PLANTA ALTA

ESCALA: 1/200
FECHA: 11/2024
DIBUJADO: GMM

PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



PLANTA BAJA
INSTALACIÓN DE CLIMATIZACIÓN
TUBERÍAS AF
E:1/200

LEYENDA

LEYENDA

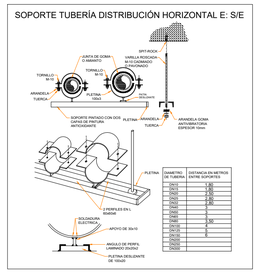
- TUBERÍA DE IMPULSIÓN DE AGUA DE POLIPROPILENO COPOLÍMERO RANDOM (PP-R) SERIE 3,2
- TUBERÍA DE RETORNO DE AGUA DE POLIPROPILENO COPOLÍMERO RANDOM (PP-R) SERIE 3,2
- VÁLVULA DE MARIPOSA
- VÁLVULA DE EQUILIBRADO TOUR-ANDERSON STAF-SG
- VÁLVULA 2 VÍAS MOTORIZADA
- GRUPOS DE BOMBAS SECUNDARIO
- COLECTOR HORIZONTAL
- COLECTOR VERTICAL
- VASO DE EXPANSIÓN CON VÁLVULA DE SEGURIDAD
- UNIDAD DE TRATAMIENTO DE AIRE

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

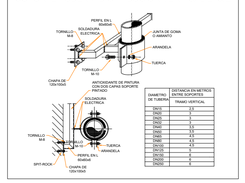
1.- Las tuberías de agua serán de tipo Polipropileno Copolímero Random (PP-R) SDR11 Serie 5 e irán aisladas con espuma elastomérica de espesor 40 mm.
2.- En las tuberías se dispondrán anclajes cada 1,5 m, y serán del tipo isofónico.
3.- Las tuberías se dispondrán con pendiente hacia la unidad exterior, de forma que permita vaciar el máximo circuito posible.
4.- Los vaciados de agua se dirigirán hacia la red de evacuación de aguas pluviales.
5.- Las tuberías exteriores iran aisladas con espuma elastomérica flexible e=60 mm modelo K-Flex ST, bajo el conjunto recubierto con virola de aluminio para protección contra agentes ambientales.

SOPORTE TUBERÍA DISTRIBUCIÓN HORIZONTAL E: S/E



DIAMETRO DE TUBERIA	DISTANCIA EN METROS ENTRE SOPORTES
20x3	0,5
25x3	0,75
32x3	0,85
40x3	0,9
50x3	1
63x3	1,2
75x3	1,3
90x3	1,5
110x3	1,6
125x3	1,8
140x3	2
160x3	2
180x3	2
200x3	2
225x3	2
250x3	2
280x3	2
315x3	2

SOPORTE TUBERÍA DISTRIBUCIÓN VERTICAL E: S/E

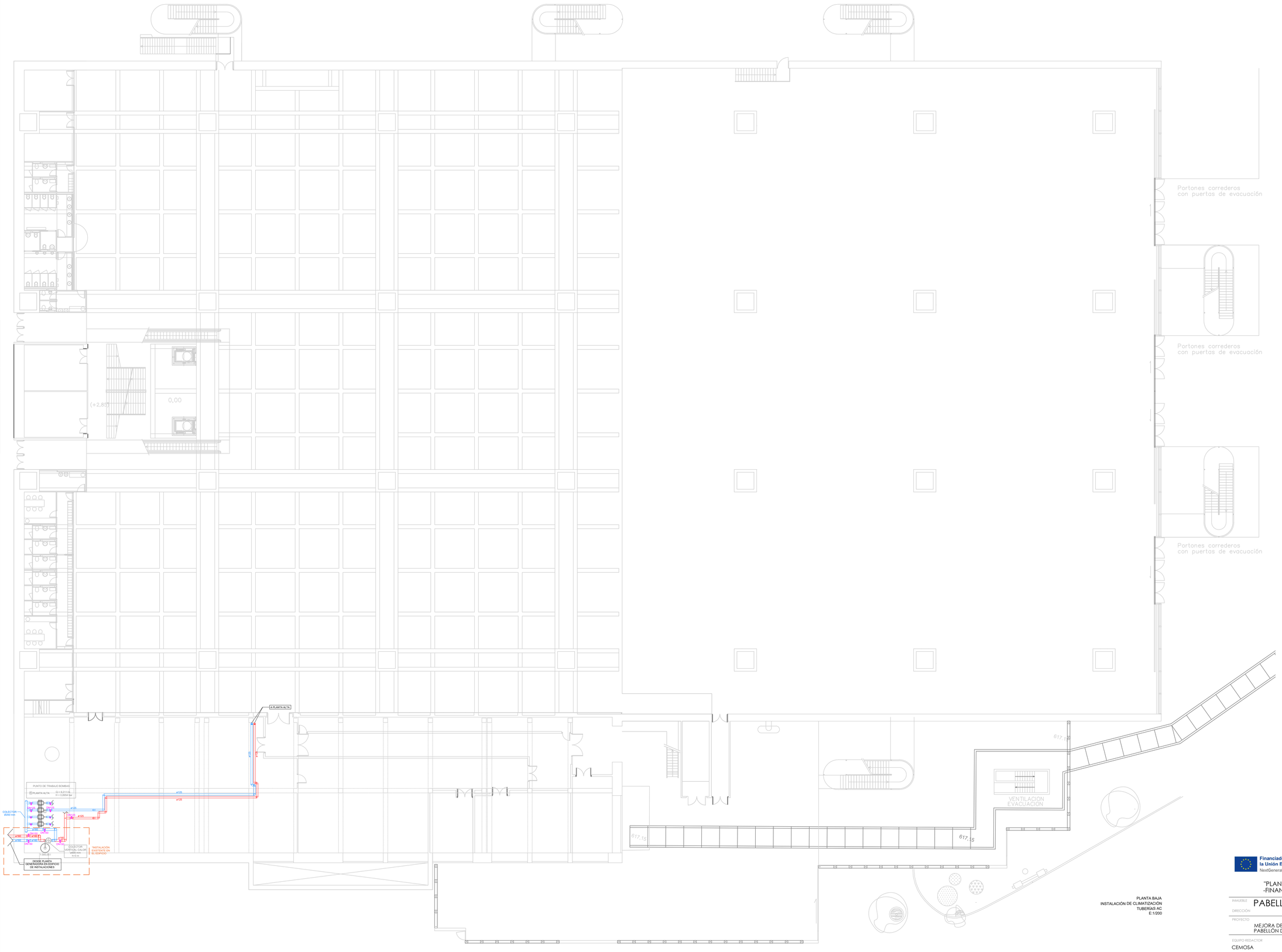


DIAMETRO DE TUBERIA	DISTANCIA EN METROS ENTRE SOPORTES TRAMO VERTICAL
20x3	0
25x3	0
32x3	1
40x3	1
50x3	1,5
63x3	1,5
75x3	1,5
90x3	1,5
110x3	1,5
125x3	2
140x3	2
160x3	2
180x3	2
200x3	2
225x3	2
250x3	2
280x3	2
315x3	2

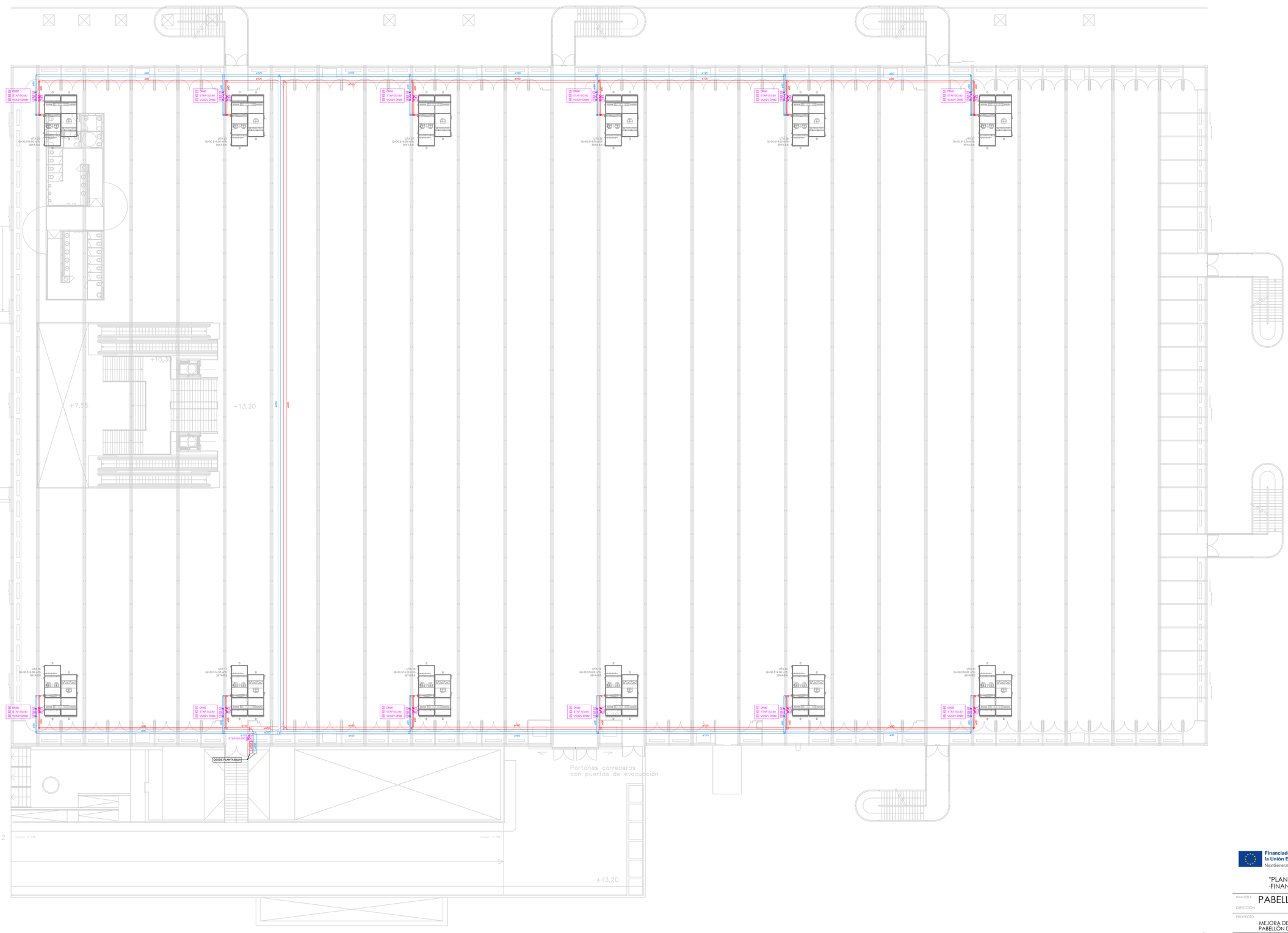
Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PERIOF AL 16, 28011, MADRID
PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Moisés Pericet, Colegiado nº 375 C.O.A.Co.
FIRMA ELECTRÓNICA:
PLANO: ER_IN_02 (Sustituye a los anteriores)
CLIMATIZACIÓN - TUBERÍAS AF
PLANTA BAJA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM
PROMOTORES: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.


ESCALERA 1
(+2,85)
0,00
Portones correderos
con puertas de evacuación
Portones correderos
con puertas de evacuación
Portones correderos
con puertas de evacuación
A PLANTA ALTA
ø125
ø125
PUNTO DE TRABAJO BOMBAS
PLANTA ALTA: Q = 9.211 l/s
H = 0.9054 bar
COLECTOR Ø250 mm
ø125
ø125
ø125

ESCALERA 1



LEYENDA

LEYENDA

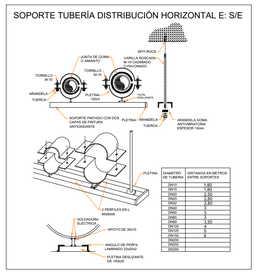
- TUBERÍA DE IMPULSIÓN DE AGUA DE POLIPROPILENO COPOLÍMERO RANDOM (PP-R) SERIE 3,2
- TUBERÍA DE RETORNO DE AGUA DE POLIPROPILENO COPOLÍMERO RANDOM (PP-R) SERIE 3,2
- VÁLVULA DE MARIPOSA
- VÁLVULA DE EQUILIBRADO TOUR-ANDERSON STAF-SG
- VÁLVULA 2 VÍAS MOTORIZADA
- GRUPOS DE BOMBAS SECUNDARIO
- COLECTOR HORIZONTAL
- COLECTOR VERTICAL
- VASO DE EXPANSIÓN CON VÁLVULA DE SEGURIDAD
- UNIDAD DE TRATAMIENTO DE AIRE

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

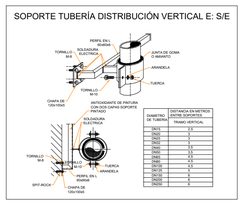
1.- Las tuberías de agua serán de tipo Polipropileno Copolímero Random (PP-R) SDR11 Serie 5 e irán aisladas con espuma elastomérica de espesor 40 mm.
2.- En las tuberías se dispondrán anclajes cada 1,5 m, y serán del tipo isofónico.
3.- Las tuberías se dispondrán con pendiente hacia la unidad exterior, de forma que permita vaciar el máximo circuito posible.
4.- Los vaciados de agua se dirigirán hacia la red de evacuación de aguas pluviales.
5.- Las tuberías exteriores iran aisladas con espuma elastomérica flexible e=60 mm modelo K-Flex ST. Irá el conjunto recubierto con virola de aluminio para protección contra agentes ambientales.

SOPORTE TUBERÍA DISTRIBUCIÓN HORIZONTAL E: S/E



DIAMETRO DE TUBERÍA	DISTANCIA EN METROS ENTRE SOPORTES
DN 16	0,35
DN 20	0,40
DN 25	0,45
DN 32	0,50
DN 40	0,60
DN 50	0,70
DN 63	0,80
DN 75	0,90
DN 90	1,00
DN 110	1,10
DN 125	1,20
DN 140	1,30
DN 160	1,40
DN 200	1,50
DN 225	1,60
DN 250	1,70
DN 280	1,80
DN 315	1,90
DN 355	2,00
DN 400	2,10
DN 450	2,20
DN 500	2,30
DN 560	2,40
DN 630	2,50

SOPORTE TUBERÍA DISTRIBUCIÓN VERTICAL E: S/E



DIAMETRO DE TUBERÍA	DISTANCIA EN METROS ENTRE SOPORTES TRAMO VERTICAL
DN 16	0,35
DN 20	0,40
DN 25	0,45
DN 32	0,50
DN 40	0,60
DN 50	0,70
DN 63	0,80
DN 75	0,90
DN 90	1,00
DN 110	1,10
DN 125	1,20
DN 140	1,30
DN 160	1,40
DN 200	1,50
DN 225	1,60
DN 250	1,70
DN 280	1,80
DN 315	1,90
DN 355	2,00
DN 400	2,10
DN 450	2,20
DN 500	2,30
DN 560	2,40
DN 630	2,50

PLANTA ALTA
INSTALACIÓN DE CLIMATIZACIÓN
TUBERÍAS AF
E:1/200

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 14, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 373 C.O.A.Co

FIRMA ELECTRÓNICA:

PLANO: ER_IN_04 (NUEVO Nº DE ORDENACIÓN)
CLIMATIZACIÓN - TUBERÍAS AF
PLANTA ALTA

ESCALA: 1/200
FECHA: 11/2024
DIBUJADO: GMM

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

ESCALERA 1

+10,30

+7,55

+13,20

+7,12

rampa 11,5%

rampa 11,5%

Portones correderos
con puertas de evacuación

DESDE PLANTA BAJA

UTA 15
Qn=30.514,00 m³/h
39YA-6.5

UTA 16
Qn=30.514,00 m³/h
39YA-6.6

UTA 17
Qn=30.514,00 m³/h
39YA-6.7

UTA 18
Qn=30.514,00 m³/h
39YA-6.8

UTA 19
Qn=30.514,00 m³/h
39YA-6.9

UTA 20
Qn=30.514,00 m³/h
39YA-6.10

UTA 21
Qn=30.514,00 m³/h
39YA-6.11

DN90
STAF-SG-80
VCSDV DN80

DN63
DN75
DN90
DN110
DN125
DN140

LEYENDA

LEYENDA

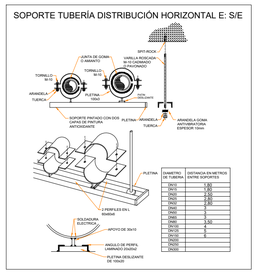
- TUBERÍA DE IMPULSIÓN DE AGUA DE POLIPROPILENO COPOLÍMERO RANDOM (PP-R) SERIE 3,2
- TUBERÍA DE RETORNO DE AGUA DE POLIPROPILENO COPOLÍMERO RANDOM (PP-R) SERIE 3,2
- VÁLVULA DE MARIPOSA
- VÁLVULA DE EQUILIBRADO TOUR-ANDERSON STAF-SG
- VÁLVULA 2 VÍAS MOTORIZADA
- GRUPOS DE BOMBAS SECUNDARIO
- COLECTOR HORIZONTAL
- COLECTOR VERTICAL
- VASO DE EXPANSIÓN CON VÁLVULA DE SEGURIDAD
- UNIDAD DE TRATAMIENTO DE AIRE

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

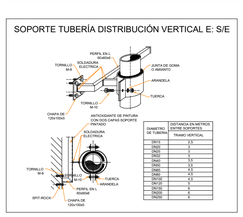
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2.- En las tuberías se dispondrán anclajes cada 1,5 m, y serán del tipo isofónico.
3.- Las tuberías se dispondrán con pendiente hacia la unidad exterior, de forma que permita vaciar el máximo circuito posible.
4.- Los vaciados de agua se dirigirán hacia la red de evacuación de aguas pluviales.
5.- Las tuberías exteriores iran aisladas con espuma elastomérica flexible e=60 mm modelo K-Flex ST. Irá el conjunto recubierto con virola de aluminio para protección contra agentes ambientales.

SOPORTE TUBERÍA DISTRIBUCIÓN HORIZONTAL E: S/E



DIAMETRO DE TUBERÍA	DISTANCIA EN METROS ENTRE SOPORTES
DN 16	0,80
DN 20	0,90
DN 25	1,00
DN 32	1,20
DN 40	1,40
DN 50	1,60
DN 63	1,80
DN 75	2,00
DN 90	2,20
DN 110	2,40
DN 125	2,70
DN 140	3,00
DN 160	3,30

SOPORTE TUBERÍA DISTRIBUCIÓN VERTICAL E: S/E



DIAMETRO DE TUBERÍA	DISTANCIA EN METROS ENTRE SOPORTES TRAMO VERTICAL
DN 16	1
DN 20	1
DN 25	1
DN 32	1,5
DN 40	1,5
DN 50	1,5
DN 63	1,5
DN 75	2
DN 90	2
DN 110	2,5
DN 125	2,5
DN 140	3
DN 160	3

PLANTA ALTA
INSTALACIÓN DE CLIMATIZACIÓN
TUBERÍAS AC
E:1/200

Financiado por la Unión Europea NextGenerationEU
Ministerio para la Transición Ecológica y el Reto Demográfico
Plan de Recuperación, Transformación y Resiliencia
Comunidad de Madrid
madrid

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

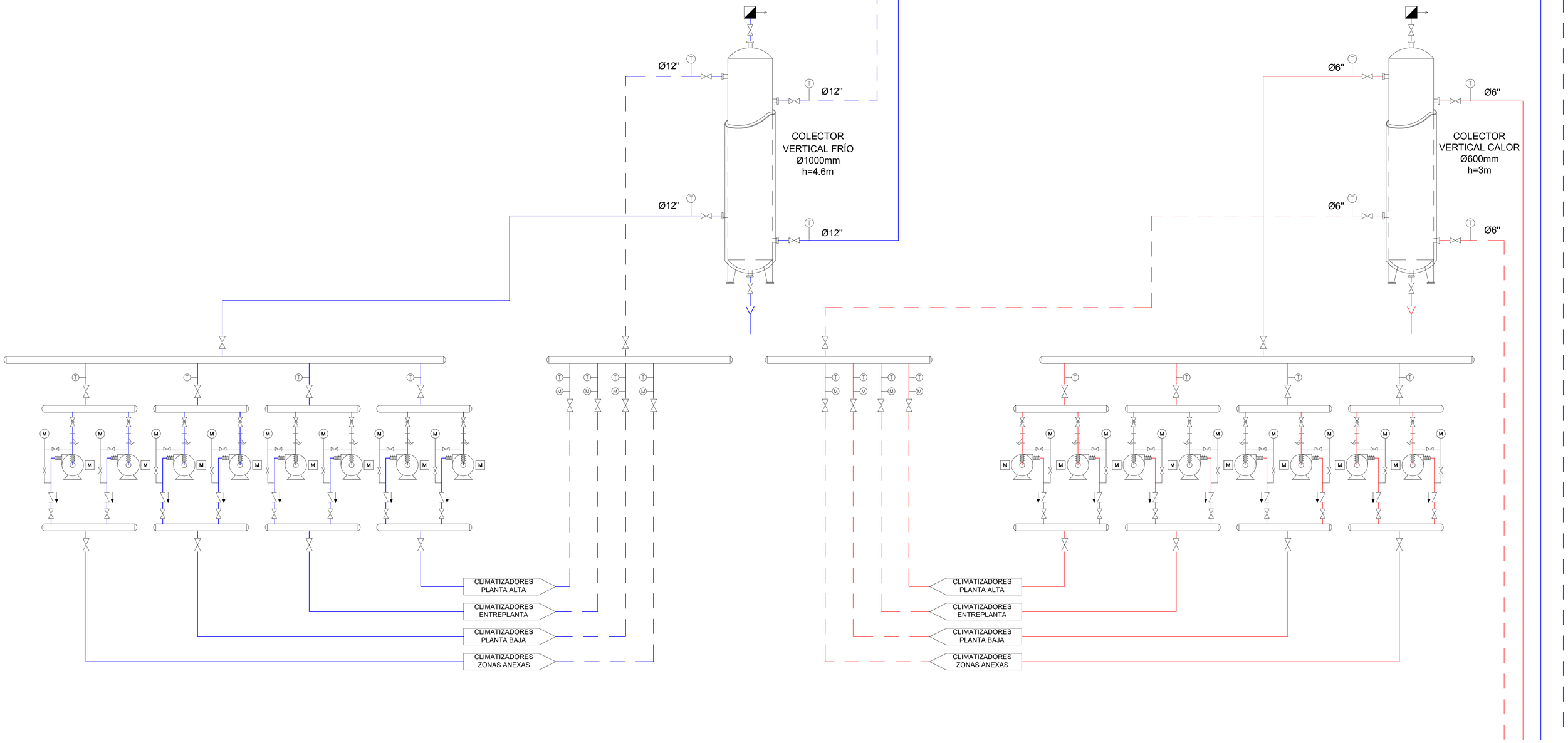
INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 14, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 373 C.O.A.Co
FIRMA ELECTRÓNICA:

PLANO: ER_IN_05 (NUEVO DE LOS EXISTENTES)
CLIMATIZACIÓN - TUBERÍAS AC
PLANTA ALTA
ESCALA: 1/200
FECHA: 11/2024
DIBUJADO: GMM

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



LEYENDA

- VÁLVULA DE SEGURIDAD
- VÁLVULA DE CORTE MENOR 3" DE ESFERA IGUAL O MAYOR DE 3" DE MARIPOSA
- VÁLVULA DE CONTROL DE ASIENTO
- VÁLVULA DE RETENCIÓN
- VÁLVULA DE TRES VÍA S PROPORCIONAL
- VÁLVULA DE DOS VÍAS
- FILTRO DE CESTA
- TERMÓMETRO
- MANÓMETRO
- JUNTA ANTIVIBRATORIA
- CONEXIÓN A SANEAMIENTO
- VARIADOR DE VELOCIDAD

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA
-FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO

DIRECCIÓN: AVENIDA PERIOD AL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA

ARQUITECTO: José Moreno Pericet, Colegiado nº 375 C.O.A.ICo

FIRMA ELECTRÓNICA:

PLANO: ER_IN_06

Sustituye a los anteriores

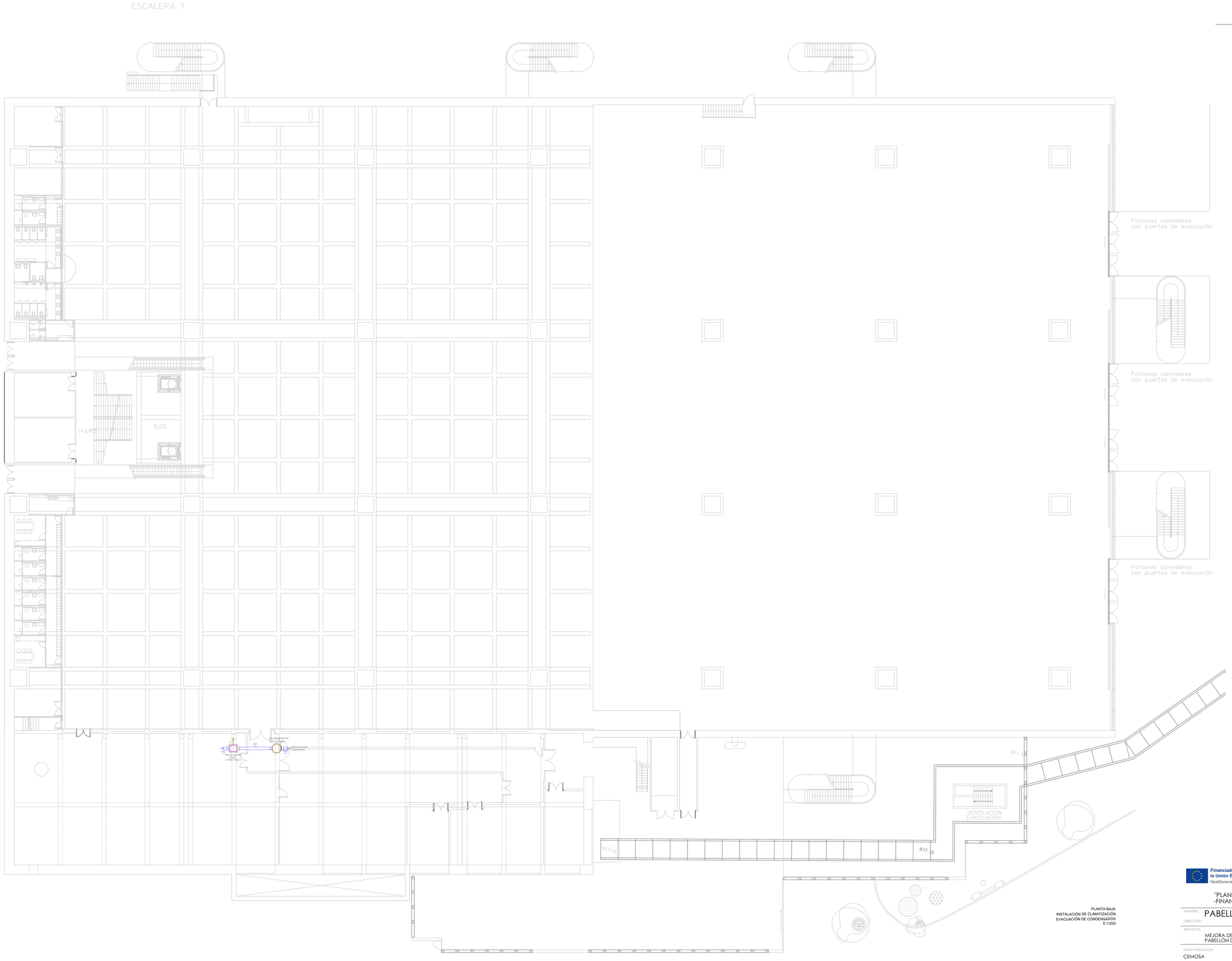
CLIMATIZACIÓN - ESQ. PRINCIPIO

ESCALA: S/E

FECHA: 11/2024

DIBUJADO: GMM

PROMOTORES: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



PLANTA BAJA
INSTALACIÓN DE CLIMATIZACIÓN
EVACUACIÓN DE CONDENSADOS
E:1/200

LEYENDA

LEYENDA

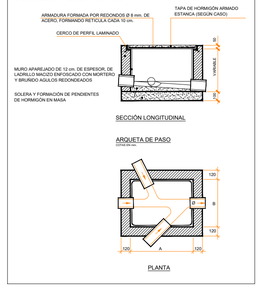
- PEQUEÑA EVACUACIÓN COLGADA DE PVC, RIGIDEZ ANULAR SN1- RESIDUALES
- COLECTOR ENTERRADO DE PVC, RIGIDEZ ANULAR SN1 - RESIDUALES (EXISTENTE)
- PEQUEÑA EVACUACIÓN ENTERRADA DE PVC, RIGIDEZ ANULAR SN1 - RESIDUALES
- BAJANTE DE PVC, RIGIDEZ ANULAR SN1
- DESAGÜE SIFÓNICO PARA CONDENSADOS DE EQUIPOS DE CLIMATIZACIÓN
- POZO DE REGISTRO DE LA INSTALACIÓN. EXISTENTE
- ARQUETA DE PASO REGISTRABLE CON TAPA ESTANCA. EXISTENTE
- ARQUETA DE PIE DE BAJANTE REGISTRABLE CON TAPA ESTANCA
- UNIDAD DE TRATAMIENTO DE AIRE

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

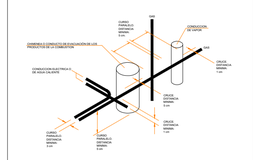
NOTAS

1. Colectores colgados: en los tramos rectos, en cada encuentro o acoplamiento tanto en horizontal como en vertical, así como en las derivaciones, se dispondrán registros, de tal manera que los tramos entre ellos no superen los 15 m.
2. Colectores enterrados: en los tramos rectos así como en cambios de dirección , se dispondrán registros, de tal manera que los tramos entre ellos no superen los 15 m.
3. Todas las conducciones de aguas de condensados de equipos de climatización serán de PVC de rigidez anular SN1 s/Norma UNE-EN 1401.
4. La pendiente de los colectores colgados será del 1%.
5. La pendiente de los colectores enterrados será al menos del 2%, excepto en los casos en que se indique lo contrario.
6. Se emplearán pasamuros en el paso de las conducciones por cerramientos, particiones o forjados.
7. En los colectores colgados se dispondrán soportes del tipo isofónico.
8. Las arquetas de registro ubicadas en el interior del edificio serán practicables con tapa estanca.
9. Se implementarán mochetas para ocultar las bajantes en los diferentes pasos por las plantas del edificio.
10. Los sumideros serán de tipo sifónico
11. El desagüe de los equipos de climatización se conectará a la red de evacuación de aguas existente en el edificio.
12. En la ENTREPLANTA se realizará un replanteo in-situ de la red de condensados con una pendiente al 1% y se verificará que la altura mínima libre de obstáculos sea tal que no suponga ningún problema para el tránsito de las personas y las necesidades de la propiedad. En caso de no cumplir con dicha altura se permitirá reducir la pendiente hasta un máximo del 0,5% como situación excepcional y a aceptar por la dirección facultativa.

DETALLE ARQUETA E: S/E



DETALLE SEPARACIÓN OTRAS INSTALACIONES E: S/E



	CURSO PARALELO	CRUCE
CONDUCCION DE AGUA CALIENTE	3 cm	1 cm
CONDUCCION ELECTRICA	3 cm	1 cm
CONDUCCION DE VAPOR	5 cm	1 cm
CHIMENEAS	5 cm	5 cm
SUELO	5 cm	------

* NO SE CONSIDERA COMO TALES LOS CABLES DE TELEFONIA, ANTENAS DE TELEVISION, TELECONTROL, ETC.

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA

PLANO: ER_IN_07
ACTUALIZACIÓN DEL ENTREGADO
CLIMATIZACIÓN - EVAC. CONDENSADOS
PLANTA BAJA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

ESCALERA 1

UTA 17
Qn=30.514,00 m3/h
39YA-E6

UTA 20
Qn=30.514,00 m3/h
39YA-E9

UTA 24
Qn=30.514,00 m3/h
39YA-E4

UTA 21
Qn=30.514,00 m3/h
39YA-E7

UTA 25
Qn=30.514,00 m3/h
39YA-E8

UTA 27
Qn=30.514,00 m3/h
39YA-E8

+10,30

+7,55

+13,20

UTA 16
Qn=30.514,00 m3/h
39YA-B3

UTA 19
Qn=30.514,00 m3/h
39YA-B3

UTA 18
Qn=30.514,00 m3/h
39YA-B3

UTA 22
Qn=30.514,00 m3/h
39YA-B3

UTA 23
Qn=30.514,00 m3/h
39YA-B3

Portones correderos
con puertas de evacuación

rampa 11,5%

rampa 11,5%

+13,20

PLANTA ALTA
INSTALACIÓN DE CLIMATIZACIÓN
EVACUACIÓN DE CONDENSADOS
E:1/200

LEYENDA

LEYENDA

- PEQUEÑA EVACUACIÓN COLGADA DE PVC, RIGIDEZ ANULAR SN1- RESIDUALES
- COLECTOR ENTERRADO DE PVC, RIGIDEZ ANULAR SN1 - RESIDUALES (EXISTENTE)
- PEQUEÑA EVACUACIÓN ENTERRADA DE PVC, RIGIDEZ ANULAR SN1 - RESIDUALES
- BAJANTE DE PVC, RIGIDEZ ANULAR SN1
- DESAGÜE SIFÓNICO PARA CONDENSADOS DE EQUIPOS DE CLIMATIZACIÓN
- POZO DE REGISTRO DE LA INSTALACIÓN. EXISTENTE
- ARQUETA DE PASO REGISTRABLE CON TAPA ESTANCA. EXISTENTE
- ARQUETA DE PIE DE BAJANTE REGISTRABLE CON TAPA ESTANCA
- UNIDAD DE TRATAMIENTO DE AIRE

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

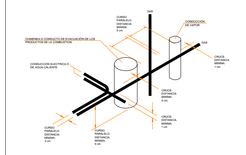
1. Colectores colgados: en los tramos rectos, en cada encuentro o acoplamiento tanto en horizontal como en vertical, así como en las derivaciones, se dispondrán registros, de tal manera que los tramos entre ellos no superen los 15 m.
2. Colectores enterrados: en los tramos rectos así como en cambios de dirección , se dispondrán registros, de tal manera que los tramos entre ellos no superen los 15 m.
3. Todas las conducciones de aguas de condensados de equipos de climatización serán de PVC de rigidez anular SN1 s/Norma UNE-EN 1401.
4. La pendiente de los colectores colgados será del 1%.
5. La pendiente de los colectores enterrados será al menos del 2%, excepto en los casos en que se indique lo contrario.
6. Se emplearán pasamuros en el paso de las conducciones por cerramientos, particiones o forjados.
7. En los colectores colgados se dispondrán soportes del tipo isofónico.
8. Las arquetas de registro ubicadas en el interior del edificio serán practicables con tapa estanca.
9. Se implementarán mochetas para ocultar las bajantes en los diferentes pasos por las plantas del edificio.
10. Los sumideros serán de tipo sifónico
11. El desagüe de los equipos de climatización se conectará a la red de evacuación de aguas existente en el edificio.
12. En la ENTREPLANTA se realizará un replanteo in-situ de la red de condensados con una pendiente al 1% y se verificará que la altura mínima libre de obstáculos sea tal que no suponga ningún problema para el tránsito de las personas y las necesidades de la propiedad. En caso de no cumplir con dicha altura se permitirá reducir la pendiente hasta un máximo del 0,5% como situación excepcional y a aceptar por la dirección facultativa.

DETALLE ARQUETA E: S/E



PLANTA

DETALLE SEPARACIÓN OTRAS INSTALACIONES E: S/E



	CURSO PARALELO	CRUCE
CONDUCCION DE AGUA CALIENTE	3 cm	1 cm
CONDUCCION ELECTRICA	3 cm	1 cm
CONDUCCION DE VAPOR	5 cm	1 cm
CHIMENEAS	5 cm	5 cm
SUELO	5 cm	------

* NO SE CONSIDERA COMO TALES LOS CABLES DE TELEFONIA, ANTENAS DE TELEVISION, TELECONTROL, ETC.

Financiado por la Unión Europea NextGenerationEU · Ministerio para la Transformación Digital y de la Función Pública · Plan de Recuperación, Transformación y Resiliencia · Comunidad de Madrid · madrid

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 1s, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 371 C.O.A.Co
FIRMA ELECTRÓNICA

PLANO: ER_IN_08
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM
CLIMATIZACIÓN - EVAC. CONDENSADOS
PLANTA ALTA

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

ESCALERA 1

(+2,85)

0,00

Portones correderos
con puertas de evacuación

Portones correderos
con puertas de evacuación

Portones correderos
con puertas de evacuación

VENTILACION
EVACUACION

617,15

617,15

617,15

BANDEJA DISCURRE EN VERTICAL
DESDE BAJA A PLANTA ALTA

BANDEJA PERFORADA
CON TAPA PEMSABAND
DE 60x200

Las emergencias nuevas
se alimentarán desde la
emergencia más cercana

Nuevo armario
0,700.78x2,5

INSTALACIÓN
EXISTENTE

60x150
REJIBAND

60x150
REJIBAND

60x150
REJIBAND

8(5x4 mm2)

8(5x4 mm2)

LEYENDA

Cuadro secundario de climatización

Bandejas, dimensiones según el plano:
- Tipo Rejiband de acero tipo GC, en plantas, para alimentación a UTAS.
- Tipo Pemsaband en baja y verticales para las plantas entreplanta y alta.

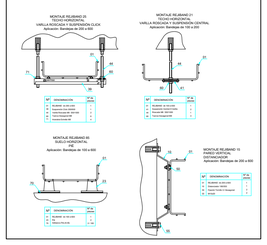
A — Luminaria emergencia superficie techo estanca Daisalux modelo NAOS N5 A + KES NAOS

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

1.- La alimentación de los equipos se realizará mediante el conductor definido en planos y en esquemas unifilares.
2.- Los diámetros de los tubos de protección de los cables desde las bandejas (si fueran necesarios) serán constantes desde la salida de la misma hasta la alimentación al último equipo.
3.- Las secciones de los conductores quedan reflejadas en los planos.
4.- Los tubos para canalización serán libres de halógenos, así como todas las cajas de conexión y derivación.
4.- Los conductores serán: del tipo RZ1-K 0'6/1 KV todos los que discurran por el interior de las bandejas metálicas, tanto las colgadas en techo como las de suelo; del tipo RZ1-K 0'6/1 KV todos los conductores que discurran por falso suelo, tanto por bandeja como por tubo; del tipo H07Z-K desde la bandeja hasta el punto terminal, solo en el caso de la instalación por falso techo y siempre bajo tubo; los cables de alimentación eléctrica a los cuadros secundarios serán del tipo RZ1-K 0'6/1 KV.
8.- Las bandejas colgadas se sustentarán sobre soportes de acero galvanizado distanciados 1 m.
10.- Por el interior de la bandejas, y desde el cuadro secundario o general desde donde partan, se dispondrá un conductor de cobre desnudo de 1x16 mm2 para la puesta a tierra de aquellas. Se dispondrá una unión a la bandeja con tornillo de apriete cada 2 m como máximo.
15.- Los recorridos de las canalizaciones eléctricas serán ortogonales, y no se permiten trazados desordenados y oblicuos.
17.- Todos los cables dispondrán código CPR Cca-s1b, d1, a1.

DETALLES BANDEJAS TIPO REJIBAND



PLANTA BAJA
INSTALACIÓN DE ELECTRICIDAD
BANDEJAS ELÉCTRICAS
E:1/200

Financiado por la Unión Europea NextGenerationEU · Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA

PLANO: ER_IN_09
ELECTRICIDAD - BANDEJAS ELÉCTRICAS
PLANTA BAJA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM

PROPIETARIO: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

ESCALERA 1

60x100 REJIBAND
1(5x25 mm2)

2(5x25 mm2)
2(5x35 mm2)

60x150 REJIBAND

60x150 REJIBAND
2(5x35 mm2)
1(5x25 mm2)

60x100 REJIBAND
2(5x35 mm2)

60x100 REJIBAND
1(5x35 mm2)

60x200 REJIBAND
3(5x25 mm2)
2(5x35 mm2)
1(1x16 mm2)

60x200 REJIBAND

+10,30
+7,55
+13,20

UTA16: 1(5x10 mm2)
UTA17: 1(5x10 mm2)
UTA18: 1(5x10 mm2)
UTA19: 1(5x16 mm2)
UTA20: 1(5x16 mm2)
UTA21: 1(5x25 mm2)
UTA22: 1(5x25 mm2)
UTA23: 1(5x16 mm2)
UTA24: 1(5x25 mm2)
UTA25: 1(5x25 mm2)
UTA26: 1(5x35 mm2)
UTA27: 1(5x35 mm2)

3(5x25 mm2)
2(5x35 mm2)
1(1x16 mm2)
60x200 REJIBAND

60x100 REJIBAND
1(5x10 mm2)

1(5x25 mm2)
2(5x16 mm2)
1(5x10 mm2)
60x100 REJIBAND

1(5x25 mm2)
2(5x16 mm2)
60x100 REJIBAND

1(5x25 mm2)
1(5x16 mm2)
60x100 REJIBAND

1(5x25 mm2)
60x100 REJIBAND

1(5x10 mm2)

3(5x10 mm2)
3(5x16 mm2)
4(5x25 mm2)
2(5x35 mm2)
REJIBAND 60x200

BANDEJA PERFORADA CON TAPA PEMSABAND DE 60x200 (A BAJA)

BANDEJA DISCURRE EN VERTICAL DESDE BAJA, Y ENTRARÁ A LA PLANTA APROVECHANDO LAS REJILLAS DE ENTRADA/SALIDA DE AIRE DE LA UTA

Portones correderos con puertas de evacuación

rampa 11,5%

+13,20

LEYENDA

Cuadro secundario de climatización

Bandejas, dimensiones según el plano:
- Tipo Rejband de acero tipo GC, en plantas, para alimentación a UTAS.
- Tipo Pemsaband en baja y verticales para las plantas entreplanta y alta.

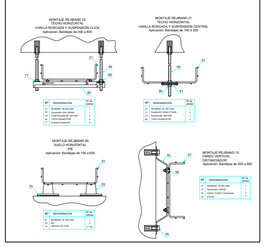
A — Luminaria emergencia superficie techo estanca Daisalux modelo NAOS N5 A + KES NAOS

NOTA:
LA POSICIÓN DE LOS ELEMENTOS MOSTRADA EN PLANOS ES APROXIMADA Y DEBERÁ COORDINARSE EN OBRA, TRAS REPLANTEO, PREVIO AL COMIENZO DE CUALQUIERA DE LOS TRABAJOS. EL REPLANTEO DEBE REALIZARSE DE MANERA COORDINADA CON EL RESTO DE LAS INSTALACIONES Y OBRA CIVIL.

NOTAS

1.- La alimentación de los equipos se realizará mediante el conductor definido en planos y en esquemas unifilares.
2.- Los diámetros de los tubos de protección de los cables desde las bandejas (si fueran necesarios) serán constantes desde la salida de la misma hasta la alimentación al último equipo.
3.- Las secciones de los conductores quedan reflejadas en los planos.
4.- Los tubos para canalización serán libres de halógenos, así como todas las cajas de conexión y derivación.
4.- Los conductores serán: del tipo RZ1-K 0'6/1 KV todos los que discurran por el interior de las bandejas metálicas, tanto las colgadas en techo como las de suelo; del tipo RZ1-K 0'6/1 KV todos los conductores que discurran por falso suelo, tanto por bandeja como por tubo; del tipo H07Z-K desde la bandeja hasta el punto terminal, solo en el caso de la instalación por falso techo y siempre bajo tubo; los cables de alimentación eléctrica a los cuadros secundarios serán del tipo RZ1-K 0'6/1 KV.
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15.- Los recorridos de las canalizaciones eléctricas serán ortogonales, y no se permiten trazados desordenados y oblicuos.
17.- Todos los cables dispondrán código CPR Cca-s1b, d1, a1.

DETALLES BANDEJAS TIPO REJIBAND



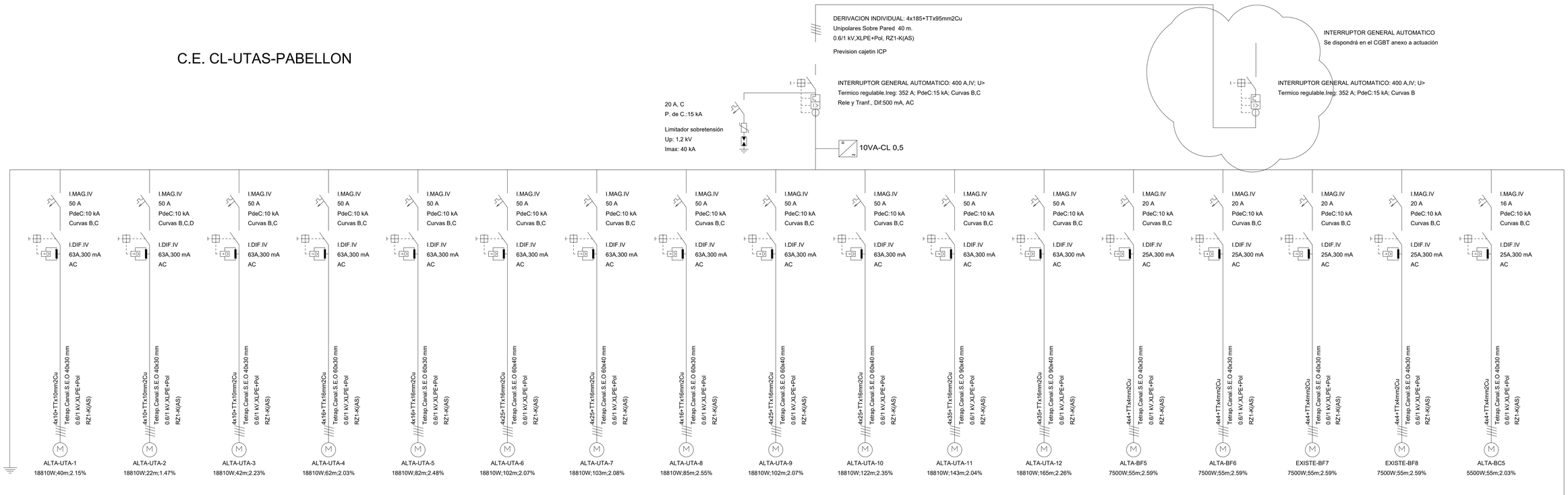
Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL 16, 28011, MADRID
PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 373 C.O.A.Co
FIRMA ELECTRÓNICA:
PLANO: ER_IN_10 (Sustituye a los anteriores)
ELECTRICIDAD - BANDEJAS ELÉCTRICAS PLANTA ALTA
ESCALA: 1:200
FECHA: 11/2024
DIBUJADO: GMM
PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

PLANTA ALTA
INSTALACIÓN DE ELECTRICIDAD
BANDEJAS ELÉCTRICAS
E:1/200

C.E. CL-UTAS-PABELLON



LEYENDA

- INTERRUPTOR MAGNETOTERMICO RELE DIFERENCIAL Y TOROIDAL
- INTERRUPTOR DIFERENCIAL
- INTERRUPTOR MAGNETOTERMICO
- CONTACTOR DE POTENCIA CON CONTACTOS AUXILIARES PARA FUTURAS MANIOBRAS
- INTERRUPTOR MAGNETOTERMICO REGULABLE
- RELE TERMICO
- LIMITADOR DE SOBRETENSIONES
- ANALIZADOR DE REDES (V.A.W.W/h.cos .Hz. etc.)

NOTAS

- TODOS LOS INTERRUPTORES SERÁN DE CORTE Y PROTECCIÓN OMNIPOLAR.

- SE UTILIZARÁN AUTOMÁTICOS MAGNETOTÉRMICOS CON CURVAS DE DISPARO TIPO B, C PARA LA PROTECCIÓN DE LÍNEAS Y APARATOS DE ALUMBRADO Y EQUIPOS RECEPTORES NORMALES, SI BIEN Y CUANDO SE PROTEJAN MOTORES Y APARATOS CON FUERTES PUNTAS DE ARRANQUE SE UTILIZARÁN AUTOMÁTICOS CON CURVA LENTA TIPO D.

- TODOS LOS DIFERENCIALES IRÁN PROTEGIDOS CONTRA DISPAROS INTEMPESTIVOS; CUANDO ÉSTOS PROTEJAN CIRCUITOS QUE ALIMENTEN RECEPTORES CON COMPONENTES ELECTRÓNICOS, SERÁN CLASE "A", ESPECIALES PARA CORRIENTES CONTINUAS PULSANTES, DEBIÉNDOSE TENER EN CUENTA LAS CARACTERÍSTICAS PROPIAS DE LOS EQUIPOS A PROTEGER.

- LOS PODERES DE CORTE INDICADOS EN LOS AUTOMÁTICOS SON LOS MÍNIMOS EXIGIDOS, JUSTIFICÁNDOSE LOS MISMOS, MEDIANTE EL CORRESPONDIENTE ESTUDIO DE CORRIENTES DE CORTOCIRCUITO Y SELECTIVIDAD EN LAS PROTECCIONES AJUSTANDOSE SUS CARACTERÍSTICAS A DICHOS RESULTADOS.

- LOS CUADROS SERÁN REALIZADOS Y CABLEADOS EN TALLER, PARA ASEGURAR SU CALIDAD Y DISTRIBUCIÓN, DEBIENDO COMPROBAR EL INSTALADOR PREVIAMENTE LAS CARACTERÍSTICAS DE LOS DIFERENTES EQUIPOS QUE ALIMENTAN, A FIN DE ADECUAR PROTECCIONES Y SECCIONES QUE GARANTICEN UN PERFECTO FUNCIONAMIENTO DE LA INSTALACIÓN, ADJUNTADO LOS PROTOCOLOS CON LOS RESULTADOS DE LAS PRUEBAS Y ENSAYOS EFECTUADOS.

- EL INSTALADOR COMPROBARÁ QUE LA SITUACIÓN Y ESPACIOS PARA REUBICAR LOS CUADROS, SEAN CORRECTOS COORDINÁNDOLO EN OBRA CON LAS PARTES IMPLICADAS Y EL VISTO BUENO DE LA D.F.

- EL INSTALADOR ELÉCTRICO, CONEXIONARÁ TODOS LOS EQUIPOS, AUNQUE EL SUMINISTRO Y MONTAJE SEA REALIZADO POR OTROS.

- LOS CUADROS IRÁN CERRADOS POR TECHO, FONDO Y LATERALES (SALVO ENTRADAS Y SALIDAS DE CABLES) SIENDO ACCESIBLES POR SU FRENTE ANTERIOR MEDIANTE TAPAS Y PUERTAS TRANSPARENTES, DISPONIENDO DE UN 25% DE ESPACIO EN RESERVA Y DEL CORRESPONDIENTE BOLSILLO PORTA PLANOS ADHESIVO RÍGIDO PARA ALOJAR EL ESQUEMA DE LOS MISMOS.

- TODO EL CABLEADO INTERIOR DE CUADROS SERÁ RESISTENTE AL FUEGO CERO-HALÓGENOS NO PROPAGADOR DE LLAMA, NI INCENDIO, REDUCIDA EMISIÓN DE HUMOS Y GASES TÓXICOS, NULA EMISIÓN DE GASES CORROSIVOS, ADECUANDO LAS SECCIONES DE LOS CONDUCTORES SEGÚN LA CAPACIDAD INDICADA EN R. E. DE B. T. E INSTRUCCIONES TÉCNICAS COMPLEMENTARIAS, ASÍ COMO A LAS PROTECCIONES Y CONDICIONES DE LA INSTALACIÓN.

- TODOS LOS CUADROS DISPONDRÁN DE REJILLAS EN SUS LATERALES PARA SU ADECUADA VENTILACIÓN (SALVO LOS EMPOTRADOS)

- BAJO EL MISMO TUBO SE LLEVARÁN COMO MÁXIMO DOS CIRCUITOS MONOFÁSICOS.

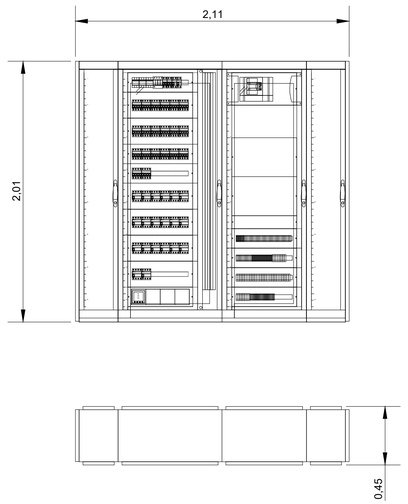
- LOS CIRCUITOS SE IDENTIFICARÁN, TANTO EN LOS CUADROS DE LOS QUE PARTEN, COMO EN LOS REGISTROS, DERIVACIONES Y PUNTOS DE SUMINISTRO, MEDIANTE ANILLOS DE P.V.C. NUMERADORES.

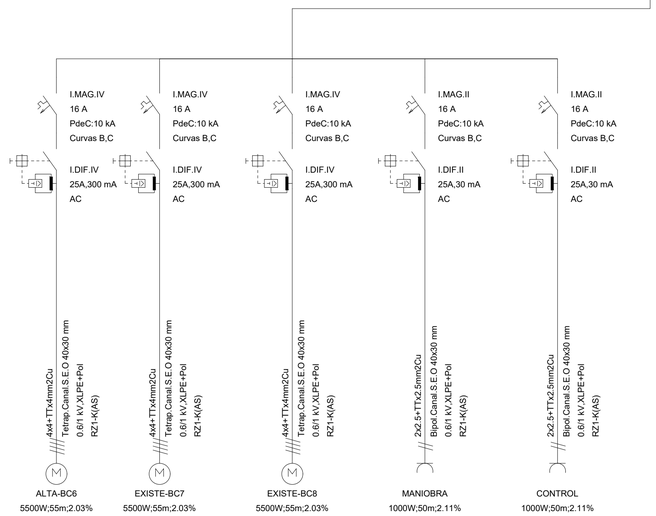
- TODAS LAS TUBERÍAS, CANALIZACIONES Y DEMÁS CONDUCCIONES METÁLICAS IRÁN PUESTAS A TIERRA.

- TODOS LOS CABLES DE MANDO Y CONTROL SERÁN DE 1,5mm2 DE SECCIÓN MÍNIMA Y SE IDENTIFICARÁN DE FORMA INDELEBLE MEDIANTE ANILLOS NUMERADORES.

- TODOS LOS MOTORES Y ACCIONAMIENTOS SE CONECTARÁN A TIERRA DESDE EL CUADRO DE PROTECCIÓN, POR LA MISMA CANALIZACIÓN Y CON SECCIÓN IGUAL A LA DE FASE ACTIVA CORRESPONDIENTE.

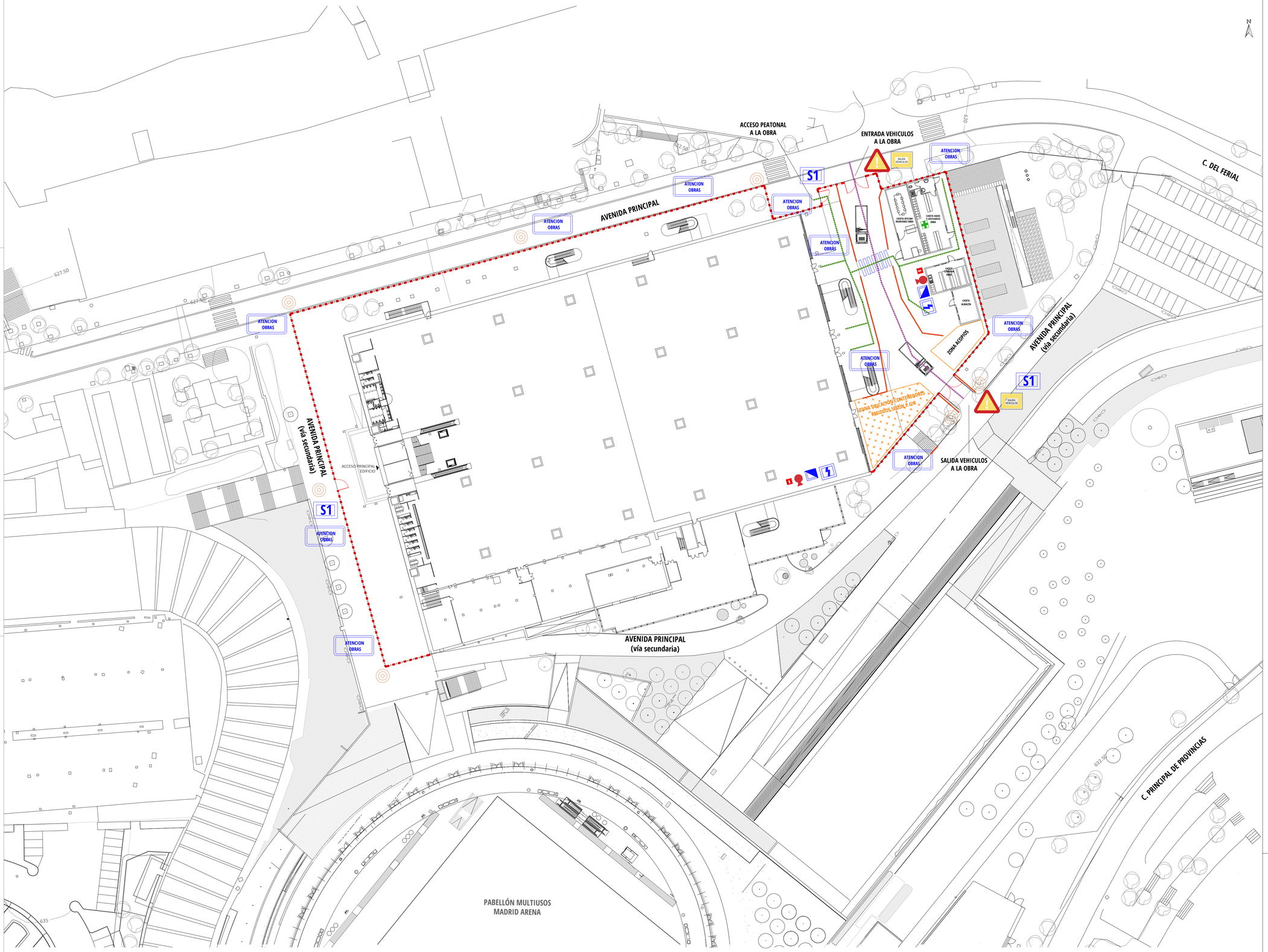
- EL INSTALADOR REALIZARA UN CALCULO DE LA Icc DE LOS CUADROS SECUNDARIOS DE ACUERDO CON LA UBICACION DEFINITIVA, ASI COMO LAS SECCIONES DE LAS LINEAS EN EL EDIFICIO





Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID
PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA
TÍTULO: ER_IN_11 (Sustituye a los anteriores)
ELECTRICIDAD - UNIFILAR
ESCALA: S/E
FECHA: 11/2024
DIBUJADO: GMM
PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



S1 SEÑALIZACIÓN RIESGOS GENERALES

ATENCION OBRAS SEÑALIZACIÓN RIESGOS GENERALES

SALIDA VEHICULOS SEÑALIZACIÓN RIESGO SALIDA DE VEHÍCULOS

VALLADO PERIMETRAL DE OBRA

VALLADO MÓVIL PEATONES / VEHÍCULOS EN MOVIMIENTO

RECORRIDO PEATONAL

RECORRIDO VEHÍCULOS OBRA

CONTENEDOR CONTENEDOR DE ESCOMBROS

CUADRO ELECTRICO AUXILIAR

PELIGRO ELÉCTRICO

EXTINTOR DE CO2

EXTINTOR ABC 6 KG

BOTIQUÍN

LUMINARIA SEÑALIZACIÓN

CARTEL DE OBRA S1

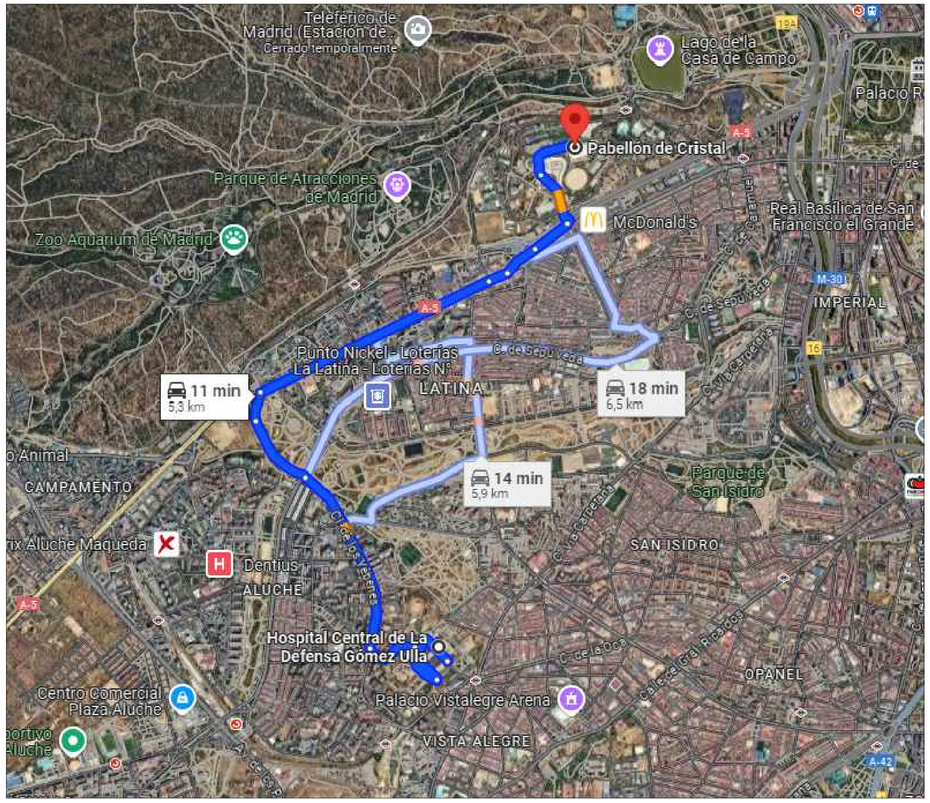


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Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE	PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN	AVENIDA PRINCIPAL, 14, 28011, MADRID
PROYECTO	MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE	BÁSICO Y DE EJECUCIÓN
EQUIPO REDACTOR	CEMOSA
ARQUITECTO	José Mariano Pericet Colegiado nº 375 C.O.A.A.Co
	FIRMA ELECTRÓNICA
PLANO	EA_SS_01
ESCALA	1:500
FECHA	11/2024
	SEGURIDAD Y SALUD IMPLANTACIÓN
DIBUJADO	GMM
PROPIETARIO	DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.



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Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia

"PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA -FINANCIADO POR LA UNIÓN EUROPEA-NEXTGENERATIONEU"

INMUEBLE: PABELLON DE CRISTAL DE LA CASA DE CAMPO
DIRECCIÓN: AVENIDA PRINCIPAL, 16, 28011, MADRID

PROYECTO: MEJORA DE LA EFICIENCIA ENERGÉTICA DEL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO
FASE: BÁSICO Y DE EJECUCIÓN

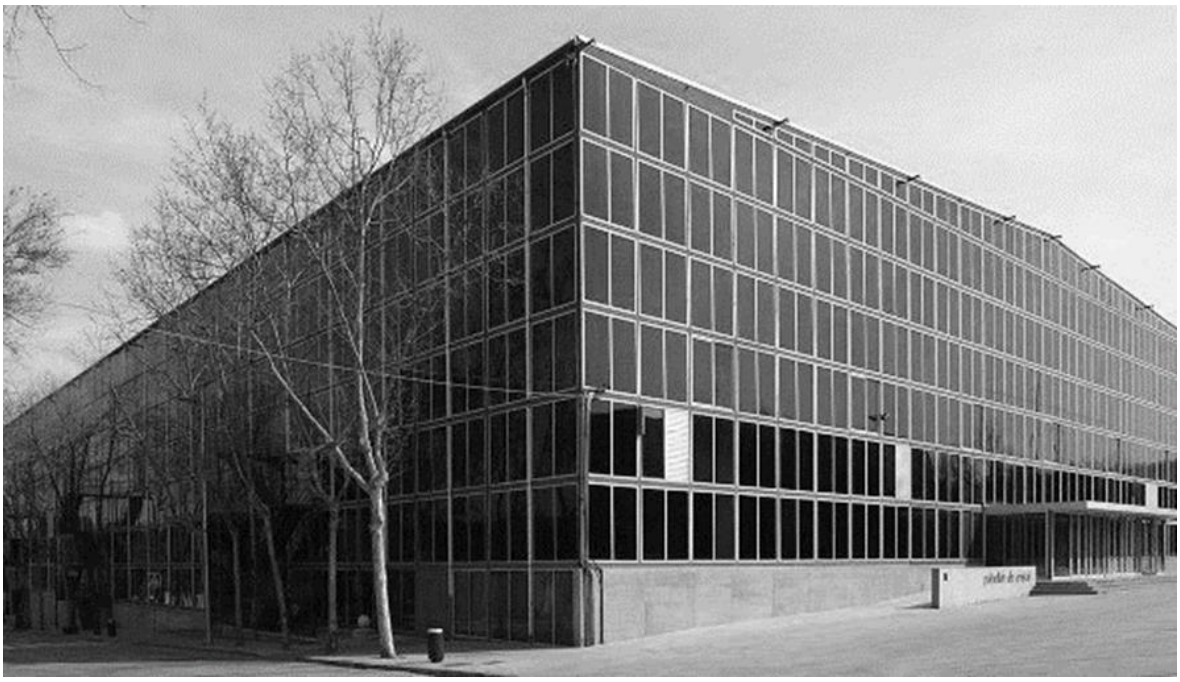
EQUIPO REDACTOR: CEMOSA
ARQUITECTO: José Mariano Pericet, Colegiado nº 375 C.O.A.Co
FIRMA ELECTRÓNICA

TÍTULO: EA_SS_02
Sustituye a los anteriores
SEGURIDAD Y SALUD CENTROS ASISTENCIALES
ESCALA: S/E
FECHA: 11/2024
DIBUJADO: GMM

PROMOTOR: DIRECCIÓN DE INFRAESTRUCTURAS DE MADRID DESTINO, CULTURA, TURISMO Y NEGOCIO, S.A.

PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA

PABELLÓN DE CRISTAL DE LA CASA DE CAMPO



PROMOTOR

Madrid Destino

EQUIPO REDACTOR

CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRAS S.A.

ARQUITECTO: D. JOSÉ MORIANA PERICET

IV. PLIEGO DE CONDICIONES

cemosa Ingeniería y Control

Madrid Destino

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1. PRESCRIPCIONES SOBRE LOS MATERIALES

1.1. CONDICIONES GENERALES

1.1.1. Calidad de los materiales.

Todos los materiales a emplear en la presente obra serán de primera calidad y reunirán las condiciones exigidas vigentes referentes a materiales y prototipos de construcción.

Los productos de construcción que se incorporen con carácter permanente a los edificios, en función de su uso previsto, llevarán el marcado CE, de conformidad con la Directiva 89/106/CEE de productos de construcción, transpuesta por el Real Decreto 1630/1992, de 29 de diciembre, modificado por el Real Decreto 1329/1995, de 28 de julio, y disposiciones de desarrollo, u otras Directivas Europeas que les sean de aplicación.

1.1.2. Pruebas y ensayos de materiales.

Todos los materiales a que este capítulo se refiere podrán ser sometidos a los análisis o pruebas, por cuenta de la contrata, que se crean necesarios para acreditar su calidad. Cualquier otro que haya sido especificado y sea necesario emplear deberá ser aprobado por la Dirección de las obras, bien entendido que será rechazado el que no reúna las condiciones exigidas por la buena práctica de la construcción.

1.1.3. Materiales no consignados en proyecto.

Los materiales no consignados en proyecto que dieran lugar a precios contradictorios reunirán las condiciones de bondad necesarias, a juicio de la Dirección Facultativa no teniendo el contratista derecho a reclamación alguna por estas condiciones exigidas.

1.1.4. Condiciones generales de ejecución.

Todos los trabajos, incluidos en el presente proyecto se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las condiciones establecidas en el artículo 7 del Real Decreto 314/2006, de 17 de marzo por el que se aprueba el Código Técnico de la Edificación, y cumpliendo estrictamente las instrucciones recibidas por la Dirección Facultativa, no pudiendo por tanto servir de pretexto al contratista la baja subasta, para variar esa esmerada ejecución ni la primerísima calidad de las instalaciones proyectadas en cuanto a sus materiales y mano de obra, ni pretender proyectos adicionales.

2. INSTALACIÓN DE BAJA TENSIÓN

2.1. Calidad de los materiales

2.1.1. Generalidades

Todos los materiales empleados en la ejecución de la instalación tendrán, como mínimo, las características especificadas en este Pliego de Condiciones, empleándose siempre materiales homologados según las normas UNE citadas en la instrucción ITC-BT-02 que les sean de aplicación.

2.1.2. Conductores eléctricos

Las líneas de alimentación a cuadros de distribución estarán constituidas por conductores unipolares de cobre aislados de 0,6/1 kV.

Las líneas de alimentación a puntos de luz y tomas de corriente de otros usos estarán constituidas por conductores de cobre unipolares aislados del tipo H07V-R.

Las líneas de alumbrado de urbanización estarán constituidas por conductores de cobre aislados de 0,6/1 kV.

2.1.3. Conductores de neutro

La sección mínima del conductor de neutro para distribuciones monofásicas, trifásicas y de corriente continua, será la que a continuación se especifica:

Según la Instrucción ITC BT 19 en su apartado 2.2.2, en instalaciones interiores, para tener en cuenta las corrientes armónicas debidas a cargas no lineales y posibles desequilibrios, la sección del conductor del neutro será como mínimo igual a la de las fases.

Para el caso de redes aéreas o subterráneas de distribución en baja tensión, las secciones a considerar serán las siguientes:

- Con dos o tres conductores: igual a la de los conductores de fase.

- Con cuatro conductores: mitad de la sección de los conductores de fase, con un mínimo de 10 mm² para cobre y de 16 mm² para aluminio.

2.1.4. Conductores de protección

Los conductores de protección desnudos no estarán en contacto con elementos combustibles. En los pasos a través de paredes o techos estarán protegidos por un tubo de adecuada resistencia, que será, además, no conductor y difícilmente combustible cuando atraviese partes combustibles del edificio.

Los conductores de protección estarán convenientemente protegidos contra el deterioro mecánico y químico, especialmente en los pasos a través de elementos de la construcción.

Las conexiones en estos conductores se realizarán por medio de empalmes soldados sin empleo de ácido, o por piezas de conexión de apriete por rosca. Estas piezas serán de material inoxidable, y los tornillos de apriete estarán provistos de un dispositivo que evite su desapriete.

Se tomarán las precauciones necesarias para evitar el deterioro causado por efectos electroquímicos cuando las conexiones sean entre metales diferentes.

2.1.5. Identificación de los conductores

Los conductores de la instalación se identificarán por los colores de su aislamiento:

- Negro, gris, marrón para los conductores de fase o polares.

- Azul claro para el conductor neutro.

- Amarillo - verde para el conductor de protección.

- Rojo para el conductor de los circuitos de mando y control.

2.1.6. Tubos protectores

Clases de tubos a emplear

Los tubos deberán soportar, como mínimo, sin deformación alguna, las siguientes temperaturas:

- 60 °C para los tubos aislantes constituidos por policloruro de vinilo o polietileno.

- 70 °C para los tubos metálicos con forros aislantes de papel impregnado.

Diámetro de los tubos y número de conductores por cada uno de ellos

Los diámetros exteriores mínimos y las características mínimas para los tubos en función del tipo de instalación y del número y sección de los cables a conducir, se indican en la Instrucción ITC BT 21, en su apartado 1.2. El diámetro interior mínimo de los tubos deberá ser declarado por el fabricante.

2.2. Normas de ejecución de las instalaciones

2.2.1. Colocación de tubos

Se tendrán en cuenta las prescripciones generales siguientes, tal y como indica la ITC BT 21.

Prescripciones generales

El trazado de las canalizaciones se hará siguiendo preferentemente líneas paralelas a las verticales y horizontales que limitan el local dónde se efectúa la instalación.

Los tubos se unirán entre sí mediante accesorios adecuados a su clase que aseguren la continuidad que proporcionan a los conductores.

Los tubos aislantes rígidos curvables en caliente podrán ser ensamblados entre sí en caliente, recubriendo el empalme con una cola especial cuando se desee una unión estanca.

Las curvas practicadas en los tubos serán continuas y no originarán reducciones de sección inadmisibles.

Los radios mínimos de curvatura para cada clase de tubo serán los indicados en la norma UNE EN 5086 -2-2.

Será posible la fácil introducción y retirada de los conductores en los tubos después de colocados y fijados éstos y sus accesorios, disponiendo para ello los registros que se consideren convenientes, y que en tramos rectos no estarán separados entre sí más de 15 m. El número de curvas en ángulo recto situadas entre dos registros consecutivos no será superior a tres. Los conductores se alojarán en los tubos después de colocados éstos.

Los registros podrán estar destinados únicamente a facilitar la introducción y retirada de los conductores en los tubos, o servir al mismo tiempo como cajas de empalme o derivación.

Cuando los tubos estén constituidos por materias susceptibles de oxidación, y cuando hayan recibido durante el curso de su montaje algún trabajo de mecanización, se aplicará a las partes mecanizadas pintura antioxidante.

Igualmente, en el caso de utilizar tubos metálicos sin aislamiento interior, se tendrá en cuenta la posibilidad de que se produzcan condensaciones de agua en el interior de los mismos, para lo cual se elegirá convenientemente el trazado de su instalación, previendo la evacuación de agua en los puntos más bajos de ella y, si fuera necesario, estableciendo una ventilación apropiada en el interior de los tubos mediante el sistema adecuado, como puede ser, por ejemplo, el empleo de una "te" dejando uno de los brazos sin utilizar.

Cuando los tubos metálicos deban ponerse a tierra, su continuidad eléctrica quedará convenientemente asegurada. En el caso de utilizar tubos metálicos flexibles, es necesario que la distancia entre dos puestas a tierra consecutivas de los tubos no exceda de 10 m.

No podrán utilizarse los tubos metálicos como conductores de protección o de neutro.

Tubos en montaje superficial

Cuando los tubos se coloquen en montaje superficial se tendrán en cuenta además las siguientes prescripciones:

Los tubos se fijarán a las paredes o techos por medio de bridas o abrazaderas protegidas contra la corrosión y sólidamente sujetas. La distancia entre éstas será, como máximo, 0.50 metros. Se dispondrán fijaciones de una y otra parte en los cambios de dirección, en los empalmes y en la proximidad inmediata de las entradas en cajas o aparatos.

Los tubos se colocarán adaptándolos a la superficie sobre la que se instalan, curvándolos o usando los accesorios necesarios.

En alineaciones rectas, las desviaciones del eje del tubo con respecto a la línea que une los puntos extremos no será superior al 2%.

Es conveniente disponer los tubos normales, siempre que sea posible, a una altura mínima de 2.5 m sobre el suelo, con objeto de protegerlos de eventuales daños mecánicos.

En los cruces de tubos rígidos con juntas de dilatación de un edificio deberán interrumpirse los tubos, quedando los extremos del mismo separados entre sí 5 cm aproximadamente, y empalmándose posteriormente mediante manguitos deslizantes que tengan una longitud mínima de 20 cm.

Tubos empotrados

Cuando los tubos se coloquen empotrados se tendrán en cuenta, además, las siguientes prescripciones:

La instalación de tubos empotrados será admisible cuando su puesta en obra se efectúe después de terminados los trabajos de construcción y de enfoscado de paredes y techos, pudiendo el enlucido de los mismos aplicarse posteriormente.

Las dimensiones de las rozas serán suficientes para que los tubos queden recubiertos por una capa de 1 cm de espesor, como mínimo, del revestimiento de las paredes o techos. En los ángulos el espesor puede reducirse a 0.5 cm.

En los cambios de dirección, los tubos estarán convenientemente curvados, o bien provistos de codos o "tes" apropiados, pero en este último caso sólo se admitirán los provistos de tapas de registro.

Las tapas de los registros y de las cajas de conexión quedarán accesibles y desmontables una vez finalizada la obra. Los registros y cajas quedarán enrasados con la superficie exterior del revestimiento de la pared o techo cuando no se instalen en el interior de un alojamiento cerrado y practicable. Igualmente, en el caso de utilizar tubos normales empotrados en paredes, es conveniente disponer los recorridos horizontales a 50 cm, como máximo, del suelo o techo, y los verticales a una distancia de los ángulos o esquinas no superior a 20 cm.

Tubos en montaje al aire

Solamente está permitido su uso para la alimentación de máquinas o elementos de movilidad restringida desde canalizaciones prefabricadas y cajas de derivación fijadas al techo. Se tendrán e cuenta las siguientes prescripciones:

La longitud total de la conducción en el aire no será superior a 4 metros y no empezará a una altura inferior a 2 metros.

Se prestará especial atención para que se conserven en todo el sistema, especialmente en las conexiones, las características mínimas para canalizaciones de tubos al aire, establecidas en la tabla 6 de la instrucción ITC BT 21.

2.2.2. Cajas de empalme y derivación

Las conexiones entre conductores se realizarán en el interior de cajas apropiadas de material aislante o, si son metálicas, protegidas contra la corrosión.

Sus dimensiones serán tales que permitan alojar holgadamente todos los conductores que deban contener, y su profundidad equivaldrá, cuanto menos, al diámetro del tubo mayor más un 50 % del mismo, con un mínimo de 40 mm para su profundidad y 80 mm para el diámetro o lado interior.

Cuando se quieran hacer estancas las entradas de los tubos en las cajas de conexión, deberán emplearse prensaestopas adecuados.

En ningún caso se permitirá la unión de conductores por simple retorcimiento o arrollamiento entre sí de los mismos, sino que deberá realizarse siempre utilizando bornes de conexión montados individualmente o constituyendo bloques o regletas de conexión. Puede permitirse, asimismo, la utilización de bridas de conexión. Las uniones deberán realizarse siempre en el interior de cajas de empalme o de derivación.

Si se trata de cables deberá cuidarse al hacer las conexiones que la corriente se reparta por todos los alambres componentes, y si el sistema adoptado es de tornillo de apriete entre una arandela metálica bajo su cabeza y una superficie metálica, los conductores de sección superior a 6 mm2 deberán conectarse por medio de terminales adecuados, comprobando siempre que las conexiones, de cualquier sistema que sean, no queden sometidas a esfuerzos mecánicos.

Para que no pueda ser destruido el aislamiento de los conductores por su roce con los bordes libres de los tubos, los extremos de éstos, cuando sean metálicos y penetren en una caja de conexión o aparato, estarán provistos de boquillas con bordes redondeados o dispositivos equivalentes, o bien convenientemente mecanizados, y si se trata de tubos metálicos con aislamiento interior, este último sobresaldrá unos milímetros de su cubierta metálica.

2.2.3. Aparatos de mando y maniobra

Los aparatos de mando y maniobra (interruptores y conmutadores) serán de tipo cerrado y material aislante, cortarán la corriente máxima del circuito en que están colocados sin dar lugar a la formación de arcos permanentes, y no podrán tomar una posición intermedia.

Las piezas de contacto tendrán unas dimensiones tales que la temperatura no pueda exceder de 65°C en ninguna de ellas.

Deben poder realizarse del orden de 10.000 maniobras de apertura y cierre a la intensidad y tensión nominales, que estarán marcadas en lugar visible.

2.2.4. Aparatos de protección

Protección contra sobreintensidades

Los conductores activos deben estar protegidos por uno o varios dispositivos de corte automático contra las sobrecargas y contra los cortocircuitos.

Aplicación

Excepto los conductores de protección, todos los conductores que forman parte de un circuito, incluido el conductor neutro, estarán protegidos contra las sobreintensidades (sobrecargas y cortocircuitos).

Protección contra sobrecargas

Los dispositivos de protección deben estar previstos para interrumpir toda corriente de sobrecarga en los conductores del circuito antes de que pueda provocar un calentamiento perjudicial al aislamiento, a las conexiones, a las extremidades o al medio ambiente en las canalizaciones.

El límite de intensidad de corriente admisible en un conductor ha de quedar en todo caso garantizado por el dispositivo de protección utilizado.

Como dispositivos de protección contra sobrecargas serán utilizados los fusibles calibrados de características de funcionamiento adecuadas o los interruptores automáticos con curva térmica de corte.

Protección contra cortocircuitos

Deben preverse dispositivos de protección para interrumpir toda corriente de cortocircuito antes de que esta pueda resultar peligrosa debido a los efectos térmicos y mecánicos producidos en los conductores y en las conexiones.

En el origen de todo circuito se establecerá un dispositivo de protección contra cortocircuitos cuya capacidad de corte estará de acuerdo con la intensidad de cortocircuito que pueda presentarse en el punto de su instalación.

Se admiten como dispositivos de protección contra cortocircuitos los fusibles de características de funcionamiento adecuadas y los interruptores automáticos con sistema de corte electromagnético.

Situación y composición

En general, los dispositivos destinados a la protección de los circuitos se instalarán en el origen de éstos, así como en los puntos en que la intensidad admisible disminuya por cambios debidos a sección, condiciones de instalación, sistema de ejecución, o tipo de conductores utilizados.

Normas aplicables

<u>Pequeños interruptores automáticos (PIA)</u>

Los interruptores automáticos para instalaciones domésticas y análogas para la protección contra sobreintensidades se ajustarán a la norma %s. Esta norma se aplica a los interruptores automáticos con corte al aire, de tensión asignada hasta 440 V (entre fases), intensidad asignada hasta 125 A y poder de corte nominal no superior a 25000 A.

Los valores normalizados de las tensiones asignadas son:

- 230 V Para los interruptores automáticos unipolares y bipolares.

- 230/400 V Para los interruptores automáticos unipolares.

- 400 V Para los interruptores automáticos bipolares, tripolares y tetrapolares.

Los valores 240 V, 240/415 V y 415 V respectivamente, son también valores normalizados.

Los valores preferenciales de las intensidades asignadas son: 6, 10, 13, 16, 20, 25, 32, 40, 50, 63, 80, 100 y 125 A.

El poder de corte asignado será: 1500, 3000, 4500, 6000, 10000 y por encima 15000, 20000 y 25000 A.

La característica de disparo instantáneo de los interruptores automáticos vendrá determinada por su curva: B, C o D.

Cada interruptor debe llevar visible, de forma indeleble, las siguientes indicaciones:

- La corriente asignada sin el símbolo A precedido del símbolo de la característica de disparo instantáneo (B,C o D) por ejemplo B16.

- Poder de corte asignado en amperios, dentro de un rectángulo, sin indicación del símbolo de las unidades.

- Clase de limitación de energía, si es aplicable.

Los bornes destinados exclusivamente al neutro, deben estar marcados con la letra "N".

Interruptores automáticos de baja tensión

Los interruptores automáticos de baja tensión se ajustarán a la norma UNE-EN 60-947-2.

Esta norma se aplica a los interruptores automáticos cuyos contactos principales están destinados a ser conectados a circuitos cuya tensión asignada no sobrepasa 1000 V en corriente alterna o 1500 V en corriente continua. Se aplica cualesquiera que sean las intensidades asignadas, los métodos de fabricación y el empleo previsto de los interruptores automáticos.

Cada interruptor automático debe estar marcado de forma indeleble en lugar visible con las siguientes indicaciones:

- Intensidad asignada (In).

- Capacidad para el seccionamiento, si ha lugar.

- Indicaciones de las posiciones de apertura y de cierre respectivamente por O y | si se emplean símbolos.

También llevarán marcado aunque no sea visible en su posición de montaje, el símbolo de la naturaleza de corriente en que hayan de emplearse, y el símbolo que indique las características de desconexión, o en su defecto, irán acompañados de las curvas de desconexión.

Fusibles

Los fusibles de baja tensión se ajustarán a la norma UNE-EN 60-269-1

Esta norma se aplica a los fusibles con cartuchos fusibles limitadores de corriente, de fusión encerrada y que tengan un poder de corte igual o superior a 6 kA. Destinados a asegurar la protección de circuitos, de

corriente alterna y frecuencia industrial, en los que la tensión asignada no sobrepase 1000 V, o los circuitos de corriente continua cuya tensión asignada no sobrepase los 1500 V.

Los valores de intensidad para los fusibles expresados en amperios deben ser: 2, 4, 6, 8, 10, 12, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250.

Deberán llevar marcada la intensidad y tensión nominales de trabajo para las que han sido construidos.

Interruptores con protección incorporada por intensidad diferencial residual

Los interruptores automáticos de baja tensión con dispositivos reaccionantes bajo el efecto de intensidades residuales se ajustarán al anexo B de la norma UNE-EN 60-947-2.

Esta norma se aplica a los interruptores automáticos cuyos contactos principales están destinados a ser conectados a circuitos cuya tensión asignada no sobrepasa 1000 V en corriente alterna o 1500 V en corriente continua. Se aplica cualesquiera que sean las intensidades asignadas.

Los valores preferentes de intensidad diferencial residual de funcionamiento asignada son: 0.006A, 0.01A, 0.03A, 0.1A, 0.3A, 0.5A, 1A, 3A, 10A, 30A.

Características principales de los dispositivos de protección

Los dispositivos de protección cumplirán las condiciones generales siguientes:

- Deberán poder soportar la influencia de los agentes exteriores a que estén sometidos, presentando el grado de protección que les corresponda de acuerdo con sus condiciones de instalación.

- Los fusibles irán colocados sobre material aislante incombustible y estarán construidos de forma que no puedan proyectar metal al fundirse. Permitirán su recambio de la instalación bajo tensión sin peligro alguno.

- Los interruptores automáticos serán los apropiados a los circuitos a proteger, respondiendo en su funcionamiento a las curvas intensidad - tiempo adecuadas. Deberán cortar la corriente máxima del circuito en que estén colocadas, sin dar lugar a la formación de arco permanente, abriendo o cerrando los circuitos, sin posibilidad de tomar una posición intermedia entre las correspondientes a las de apertura y cierre. Cuando se utilicen para la protección contra cortocircuitos, su capacidad de corte estará de acuerdo con la intensidad de cortocircuito que pueda presentarse en el punto de su instalación, salvo que vayan asociados con fusibles adecuados que cumplan este requisito, y que sean de características coordinadas con las del interruptor automático.

- Los interruptores diferenciales deberán resistir las corrientes de cortocircuito que puedan presentarse en el punto de su instalación, y de lo contrario deberán estar protegidos por fusibles de características adecuadas.

Protección contra sobretensiones de origen atmosférico

Según lo indicado en la Instrucción ITC BT 23 en su apartado 3.2:

Cuando una instalación se alimenta por, o incluye, una línea aérea con conductores desnudos o aislados, se considera necesaria una protección contra sobretensiones de origen atmosférico en el origen de la instalación.

El nivel de sobretensiones puede controlarse mediante dispositivos de protección contra las sobretensiones colocados en las líneas aéreas (siempre que estén suficientemente próximos al origen de la instalación) o en la instalación eléctrica del edificio.

Los dispositivos de protección contra sobretensiones de origen atmosférico deben seleccionarse de forma que su nivel de protección sea inferior a la tensión soportada a impulso de la categoría de los equipos y materiales que se prevé que se vayan a instalar.

En redes TT, los descargadores se conectarán entre cada uno de los conductores, incluyendo el neutro o compensador y la tierra de la instalación.

Protección contra contactos directos e indirectos

Los medios de protección contra contactos directos e indirectos en instalación se ejecutarán siguiendo las indicaciones detalladas en la Instrucción ITC BT 24, y en la Norma UNE 20.460 -4-41.

La protección contra contactos directos consiste en tomar las medidas destinadas a proteger las personas contra los peligros que pueden derivarse de un contacto con las partes activas de los materiales eléctricos. Los medios a utilizar son los siguientes:

- Protección por aislamiento de las partes activas.

- Protección por medio de barreras o envolventes.

- Protección por medio de obstáculos.

- Protección por puesta fuera de alcance por alejamiento.

- Protección complementaria por dispositivos de corriente diferencial residual.

Se utilizará el método de protección contra contactos indirectos por corte de la alimentación en caso de fallo, mediante el uso de interruptores diferenciales.

La corriente a tierra producida por un solo defecto franco debe hacer actuar el dispositivo de corte en un tiempo no superior a 5 s.

Una masa cualquiera no puede permanecer en relación a una toma de tierra eléctricamente distinta, a un potencial superior, en valor eficaz, a:

- 24 V en los locales o emplazamientos húmedos o mojados.

- 50 V en los demás casos.

Todas las masas de una misma instalación deben estar unidas a la misma toma de tierra.

Como dispositivos de corte por intensidad de defecto se emplearán los interruptores diferenciales.

Debe cumplirse la siguiente condición:

$$R \leq \frac{V_c}{I_s}$$

Donde:

- R: Resistencia de puesta a tierra (Ohm).

- Vc: Tensión de contacto máxima (24 V en locales húmedos y 50 V en los demás casos).

- Is: Sensibilidad del interruptor diferencial (valor mínimo de la corriente de defecto, en A, a partir del cual el interruptor diferencial debe abrir automáticamente, en un tiempo conveniente, la instalación a proteger).

2.2.5. Instalaciones en cuartos de baño o aseo

La instalación se ejecutará según lo especificado en la Instrucción ITC BT 27.

Para las instalaciones en cuartos de baño o aseo se tendrán en cuenta los siguientes volúmenes y prescripciones:

- VOLUMEN 0: Comprende el interior de la bañera o ducha. En un lugar que contenga una ducha sin plato, el volumen 0 está delimitado por el suelo y por un plano horizontal a 0.05 m por encima el suelo.

- VOLUMEN 1: Está limitado por el plano horizontal superior al volumen 0, es decir, por encima de la bañera, y el plano horizontal situado a 2,25 metros por encima del suelo. El plano vertical que limita al volumen 1 es el plano vertical alrededor de la bañera o ducha.

- VOLUMEN 2: Está limitado por el plano vertical tangente a los bordes exteriores de la bañera y el plano vertical paralelo situado a una distancia de 0,6 m; y entre el suelo y plano horizontal situado a 2,25 m por encima del suelo.

- VOLUMEN 3: Esta limitado por el plano vertical límite exterior del volumen 2 y el plano vertical paralelo situado a una distancia de éste de 2,4 metros. El volumen 3 está comprendido entre el suelo y una altura de 2,25 m.

Para el volumen 0 el grado de protección necesario será el IPX7, y no está permitida la instalación de mecanismos.

En el volumen 1, el grado de protección habitual será IPX4, se utilizará el grado IPX2 por encima del nivel más alto de un difusor fijo, y el IPX5 en los equipos de bañeras de hidromasaje y en baños comunes en los que se puedan producir chorros de agua durante su limpieza. Podrán ser instalados aparatos fijos como calentadores de agua, bombas de ducha y equipo eléctrico para bañeras de hidromasaje que cumplan con su norma aplicable, si su alimentación está protegida adicionalmente con un dispositivo de corriente diferencial de valor no superior a 30 mA.

En el volumen 2, el grado de protección habitual será IPX4, se utilizará el grado IPX2 por encima del nivel más alto de un difusor fijo, y el IPX5 en los baños comunes en los que se puedan producir chorros durante su limpieza. Se permite la instalación de bloques de alimentación de afeitadoras que cumplan con la UNE EN 60.742 o UNE EN 61558-2-5. Se podrán instalar también todos los aparatos permitidos en el volumen 1, luminarias, ventiladores, calefactores, y unidades móviles de hidromasaje que cumplan con su normativa aplicable, y que además estén protegidos con un diferencial de valor no superior a 30 mA.

En el volumen 3 el grado de protección necesario será el IPX5, en los baños comunes cuando se puedan producir chorros de agua durante su limpieza. Se podrán instalar bases y aparatos protegidos por dispositivo de corriente diferencial de valor no superior a 30 mA.

2.2.6. Red equipotencial

Se realizará una conexión equipotencial entre las canalizaciones metálicas existentes (agua fría, caliente, desagüe, calefacción, gas, etc.) y las masas de los aparatos sanitarios metálicos y todos los demás elementos conductores accesibles, tales como marcos metálicos de puertas, radiadores, etc. El conductor que asegure esta protección deberá estar preferentemente soldado a las canalizaciones o a los otros elementos conductores, o si no, fijado solidariamente a los mismos por collares u otro tipo de sujeción apropiado a base de metales no férreos, estableciendo los contactos sobre partes metálicas sin pintura. Los conductores de protección de puesta a tierra, cuando existan, y de conexión equipotencial deben estar conectados entre sí. La sección mínima de este último estará de acuerdo con lo dispuesto en la Instrucción MI-BT 017 para los conductores de protección.

2.2.7. Instalación de puesta a tierra

Estará compuesta de toma de tierra, conductores de tierra, borne principal de tierra y conductores de protección. Se llevarán a cabo según lo especificado en la Instrucción ITC-BT-18.

Naturaleza y secciones mínimas

Los materiales que aseguren la puesta a tierra serán tales que:

El valor de la resistencia de puesta a tierra esté conforme con las normas de protección y de funcionamiento de la instalación, teniendo en cuenta los requisitos generales indicados en la ITC-BT-24 y los requisitos particulares de las Instrucciones Técnicas aplicables a cada instalación.

Las corrientes de defecto a tierra y las corrientes de fuga puedan circular sin peligro, particularmente desde el punto de vista de solicitaciones térmicas, mecánicas y eléctricas.

En todos los casos los conductores de protección que no formen parte de la canalización de alimentación serán de cobre con una sección al menos de: 2,5 mm² si disponen de protección mecánica y de 4 mm² si no disponen de ella.

Las secciones de los conductores de protección, y de los conductores de tierra están definidas en la Instrucción ITC-BT-18.

Tendido de los conductores

Los conductores de tierra enterrados tendidos en el suelo se considera que forman parte del electrodo.

El recorrido de los conductores de la línea principal de tierra, sus derivaciones y los conductores de protección, será lo más corto posible y sin cambios bruscos de dirección. No estarán sometidos a esfuerzos mecánicos y estarán protegidos contra la corrosión y el desgaste mecánico.

Conexiones de los conductores de los circuitos de tierra con las partes metálicas y masas y con los electrodos

Los conductores de los circuitos de tierra tendrán un buen contacto eléctrico tanto con las partes metálicas y masas que se desea poner a tierra como con el electrodo. A estos efectos, las conexiones deberán efectuarse por medio de piezas de empalme adecuadas, asegurando las superficies de contacto de forma que la conexión sea efectiva por medio de tornillos, elementos de compresión, remaches o soldadura de alto punto de fusión. Se prohíbe el empleo de soldaduras de bajo punto de fusión tales como estaño, plata, etc.

Los circuitos de puesta a tierra formarán una línea eléctricamente continua en la que no podrán incluirse en serie ni masas ni elementos metálicos cualesquiera que sean éstos. La conexión de las masas y los elementos metálicos al circuito de puesta a tierra se efectuará siempre por derivaciones desde éste. Los contactos deben disponerse limpios, sin humedad y en forma tal que no sea fácil que la acción del tiempo destruya por efectos electroquímicos las conexiones efectuadas.

Deberá preverse la instalación de un borne principal de tierra, al que irán unidos los conductores de tierra, de protección, de unión equipotencial principal y en caso de que fuesen necesarios, también los de puesta a tierra funcional.

Prohibición de interrumpir los circuitos de tierra

Se prohíbe intercalar en circuitos de tierra seccionadores, fusibles o interruptores. Sólo se permite disponer un dispositivo de corte en los puntos de puesta a tierra, de forma que permita medir la resistencia de la toma de tierra.

2.2.8. Alumbrado

Alumbrados especiales

Los puntos de luz del alumbrado especial deberán repartirse entre, al menos, dos líneas diferentes, con un número máximo de 12 puntos de luz por línea, estando protegidos dichos circuitos por interruptores automáticos de 10 A de intensidad nominal como máximo.

Las canalizaciones que alimenten los alumbrados especiales se dispondrán a 5 cm como mínimo de otras canalizaciones eléctricas cuando se instalen sobre paredes o empotradas en ellas, y cuando se instalen en huecos de la construcción estarán separadas de ésta por tabiques incombustibles no metálicos.

Deberán ser provistos de alumbrados especiales los siguientes locales:

- Con alumbrado de emergencia: Los locales de reunión que puedan albergar a 100 personas o más, los locales de espectáculos y los establecimientos sanitarios, los establecimientos cerrados y cubiertos para más de 5 vehículos, incluidos los pasillos y escaleras que conduzcan al exterior o hasta las zonas generales del edificio.

- Con alumbrado de señalización: Los estacionamientos subterráneos de vehículos, teatros y cines en sala oscura, grandes establecimientos comerciales, casinos, hoteles, establecimientos sanitarios y cualquier otro local donde puedan producirse aglomeraciones de público en horas o lugares en que la iluminación natural de luz solar no sea suficiente para proporcionar en el eje de los pasos principales una iluminación mínima de 1 lux.

- Con alumbrado de reemplazamiento: En quirófanos, salas de cura y unidades de vigilancia intensiva de establecimientos sanitarios.

Alumbrado general

Las redes de alimentación para puntos de luz con lámparas o tubos de descarga deberán estar previstas para transportar una carga en voltamperios al menos igual a 1.8 veces la potencia en vatios de las lámparas o tubos de descarga que alimenta. El conductor neutro tendrá la misma sección que los de fase.

Si se alimentan con una misma instalación lámparas de descarga y de incandescencia, la potencia a considerar en voltamperios será la de las lámparas de incandescencia más 1.8 veces la de las lámparas de descarga.

Deberá corregirse el factor de potencia de cada punto de luz hasta un valor mayor o igual a 0.90, y la caída máxima de tensión entre el origen de la instalación y cualquier otro punto de la instalación de alumbrado, será menor o igual que 3%.

Los receptores consistentes en lámparas de descarga serán accionados por interruptores previstos para cargas inductivas, o en su defecto, tendrán una capacidad de corte no inferior al doble de la intensidad del receptor. Si el interruptor acciona a la vez lámparas de incandescencia, su capacidad de corte será, como mínimo, la correspondiente a la intensidad de éstas más el doble de la intensidad de las lámparas de descarga.

En instalaciones para alumbrado de locales donde se reúna público, el número de líneas deberá ser tal que el corte de corriente en una cualquiera de ellas no afecte a más de la tercera parte del total de lámparas instaladas en dicho local.

2.3. Pruebas reglamentarias

2.3.1. Comprobación de la puesta a tierra

La instalación de toma de tierra será comprobada por los servicios oficiales en el momento de dar de alta la instalación. Se dispondrá de al menos un punto de puesta a tierra accesible para poder realizar la medición de la puesta a tierra.

2.3.2. Resistencia de aislamiento

Las instalaciones eléctricas deberán presentar una resistencia de aislamiento, expresada en ohmios, por lo menos igual a 1000xU, siendo U la tensión máxima de servicio expresada en voltios, con un mínimo de 250.000 ohmios.

El aislamiento de la instalación eléctrica se medirá con relación a tierra y entre conductores, mediante la aplicación de una tensión continua suministrada por un generador que proporcione en vacío una tensión comprendida entre 500 y 1000 V y, como mínimo, 250 V con una carga externa de 100.000 ohmios.

2.4. Condiciones de uso, mantenimiento y seguridad

La propiedad recibirá a la entrega de la instalación, planos definitivos del montaje de la instalación, valores de la resistencia a tierra obtenidos en las mediciones, y referencia del domicilio social de la empresa instaladora.

No se podrá modificar la instalación sin la intervención de un Instalador Autorizado o Técnico Competente, según corresponda.

Cada cinco años se comprobarán los dispositivos de protección contra cortocircuitos, contactos directos e indirectos, así como sus intensidades nominales en relación con la sección de los conductores que protegen.

Las instalaciones del garaje serán revisadas anualmente por instaladores autorizados libremente elegidos por los propietarios o usuarios de la instalación. El instalador extenderá un boletín de reconocimiento de la indicada revisión, que será entregado al propietario de la instalación, así como a la delegación correspondiente del Ministerio de Industria y Energía.

Personal técnicamente competente comprobará la instalación de toma de tierra en la época en que el terreno esté más seco, reparando inmediatamente los defectos que pudieran encontrarse.

2.5. Certificados y documentación

Al finalizar la ejecución, se entregará en la Delegación del Ministerio de Industria correspondiente el Certificado de Fin de Obra firmado por un técnico competente y visado por el Colegio profesional correspondiente, acompañado del boletín o boletines de instalación firmados por un Instalador Autorizado.

2.6. Libro de órdenes

La dirección de la ejecución de los trabajos de instalación será llevada a cabo por un técnico competente, que deberá cumplimentar el Libro de Órdenes y Asistencia, en el que reseñará las incidencias, órdenes y asistencias que se produzcan en el desarrollo de la obra.

3. INSTALACIÓN DE VENTILACIÓN Y CLIMATIZACIÓN

3.1. Condiciones que han de cumplir los materiales

3.1.1. Instalación de ventilación

Pliego de Condiciones

Tiene por finalidad el presente pliego, la determinación y definición de los siguientes conceptos:

Extensión de los trabajos a realizar por el instalador o contratista, y que, por lo tanto, deberán estar plenamente incluidos en su oferta.

Materiales complementarios para el perfecto acabado de la instalación, no relacionados explícitamente en el presupuesto pero que por su lógica aplicación quedan incluidos en el suministro del instalador.

Calidad y forma de instalación de los diferentes equipos y elementos primarios y auxiliares.

Pruebas y ensayos parciales a realizar durante el transcurso de los montajes o finales provisionales y definitivos de las correspondientes recepciones.

Las garantías exigidas tanto en los materiales, como en su montaje o en su funcionamiento conjunto.

Condiciones generales y normas legales

Condiciones generales

Abono de las unidades de obra.

El abono de las distintas unidades de obra se realizará por aplicación de los precios unitarios a las unidades, metros lineales, metros cuadrados, metros cúbicos o lo citado en su caso, realmente ejecutadas en obra, medidas en obra en el caso de unidades, y sobre plano si se trata de medidas de longitud, superficie o volumen.

Significado de los términos: Suministro, Montaje y Prueba.

1. Suministro.

Cada vez que se emplee el término “Suministro”, tanto en este Pliego como en las Mediciones y Presupuesto, se entenderá incluido la definición del material, el dimensionamiento, la disposición, el control de calidad, pruebas en fábrica, costo de embalaje, desembalaje, transporte y almacenamiento en obra, procedimientos, especificaciones, descripciones, planos, cálculos, manuales y programas para todo lo anterior, para la Propiedad y las Administraciones competentes, necesario para construir y fabricar el material, así como los costes derivados de visados, tasas, etc. para legalizar la instalación.

2. Montaje.

Cada vez que se emplee el término “Montaje”, tanto en este Pliego como en las Mediciones y Presupuesto, se entenderá incluido el costo de la medición, replanteo en obra, elevación, manipulación, ejecución y recibo

de rozas, fijación de cuadros, cajas, bases de columnas, etc. y cualquier otra ayuda de albañilería, colocación, fijación, conexionado eléctrico o mecánico, mantenimiento durante la obra, limpieza, medición final, asistencia a la Propiedad en inspecciones, entrega, adopción de medidas de seguridad contra robo, incendio, sabotaje, daños naturales y accidentes a las personas o cosas.

Todos estos conceptos se entienden adecuados al material en cuestión.

3. Prueba.

El término “Prueba”, tanto en este Pliego como en las Mediciones y Presupuesto, incluye la comprobación de la instalación, puesta a punto de aparatos para que realicen sus funciones específicas, tarado de relés y protecciones, energización, adopción de medidas de seguridad contra deterioros del material en cuestión o de otros como consecuencia de la primera y contra accidentes a las personas o a las cosas, comprobación de resultados, análisis de los mismos y entrega.

Conceptos comprendidos.

Es de total competencia del instalador y por tanto, queda incluido en el precio ofertado el suministro de todos los elementos y materiales, mano de obra, medios auxiliares y en general aquellos conceptos necesarios para el perfecto acabado y puesta a punto de las instalaciones tal y como se describen en la memoria, son representadas en planos, quedan relacionadas de forma básica en el presupuesto y cuya calidad y montaje se indican en el pliego de condiciones técnicas.

Queda entendido que los cuatro documentos de proyecto, memoria, presupuesto, planos y pliego de condiciones técnicas, forman todo un conjunto. Si fuese advertida o existiese una posible discrepancia entre los cuatro documentos anteriores, su interpretación será la que determine la Dirección de Obra.

Cualquier exclusión incluida por el instalador en su oferta y que difiera de los conceptos expuestos en los párrafos anteriores, no tendrá ninguna validez, salvo que en el contrato de una forma particular y explícita, se manifieste la correspondiente exclusión.

Es de responsabilidad del instalador el cumplimiento de la normativa oficial vigente al respecto del proyecto. Si en el mismo existiesen conceptos ocultos que se desviasen o no cumpliesen las mismas, es obligación del instalador comunicarlo a la Dirección Técnica y Propiedad en la forma que se describirá más adelante y en ningún caso efectuar un montaje o un suministro, que contravenga la normativa. Son extensivos también a los trabajos del instalador la gestión y confección de toda la documentación técnica necesaria para su tramitación ante los diferentes Organismos Oficiales con el objeto de obtener todos los permisos requeridos de acuerdo a la legislación, no pudiéndose proceder a una recepción provisional si todo lo anterior no estuviese debidamente cumplimentado.

Es por tanto responsabilidad del instalador la presentación en tiempo, modo y forma de la documentación mencionada, así como la consecución de los permisos.

Conceptos comprendidos suplementarios.

Se deberá incluir la realización por parte del instalador los conceptos que responden a actividades de albañilería resumidos en los siguientes puntos:

- Andamiajes o elementos de soportería para zonas altas o fachadas
- necesario para el montaje de las instalaciones.
- Protección de canalizaciones cuyo montaje sea realizado por el suelo. Esta protección se refiere al mortero de cemento y arena u hormigón para proteger las mencionadas canalizaciones del tránsito de la obra.
- Apertura de rozas y posterior recibido de las instalaciones con el mortero correspondiente.
- Apertura de huecos en suelos, paredes, forjados u otros elementos de obra civil o albañilería para la distribución de las diferentes canalizaciones. Asimismo, queda excluido el recibido del correspondiente pasamuros, marco, bastidor, etc., en los huecos abiertos. No es tampoco, competencia del instalador el correspondiente elemento a recibir en la obra civil, bien sea marco, bastidor, etc., ni la determinación de los huecos en la forma y modo que se indicará más adelante.
- Recibido de soportería de instalaciones, tanto que en los mismos se utilice material de construcción. Como el recibido pueda efectuarse por un tipo mecánico como disparos, taladros, etc., será a costa del instalador. La soportería siempre será a costa del instalador.
- En general cualquier tipo de albañilería necesaria para el montaje de las instalaciones.
- Almacenes, aseos, etc., necesarios para los instaladores durante el desarrollo de los montajes.
- Suministro de electricidad necesario para el montaje.

Al igual que en anteriores capítulos, todo lo anterior se entiende incluido salvo que en el contrato de forma concreta o explícita se excluyera cualquiera de los puntos anteriores.

Coordinación.

El instalador coordinará y pondrá los medios necesarios para que esta coordinación tenga la efectividad consecuente tanto con la empresa constructora, como los diferentes oficios o instaladores de otras especialidades que concurran en los montajes del edificio.

En aquellos puntos concurrentes entre dos oficios o instaladores y que por lo tanto pueda ser conflictiva la delimitación de la frontera de los trabajos y responsabilidades correspondientes a cada uno, el instalador se atendrá al dictamen que sobre el particular indique la Dirección de Obra.

Todas las terminaciones de los trabajos deberán ser limpias, estéticas y dentro del acabado arquitectónico del edificio, esmerando principalmente los trazados de las redes y soporterías de forma que respeten las líneas geométricas y planimétricas de suelos, techos, falsos techos, paredes y otros elementos de construcción e instalaciones conjuntas.

Todos los materiales acopiados o montados deberán estar suficientemente protegidos al objeto de que sean evitados los daños que les puedan ocasionar agua, basura, sustancias químicas, mecánicas y en general afectaciones de construcción u otros oficios reservándose la Dirección el derecho a eliminar cualquier material que por inadecuado acopiaje bien en almacén o montaje juzgase defectuoso.

A la terminación de los trabajos el instalador debe proceder a una limpieza y eliminación del material sobrante, recortes, desperdicios, etc., así como de todos los elementos montados o de cualquier otro concepto relacionado con su trabajo, no siendo causa justificativa para la omisión de lo anterior la afectación del trabajo de otros oficios o empresa constructora.

Inspecciones

Tanto la Dirección de Obra como la Propiedad podrá realizar todas las revisiones o inspecciones tanto en el edificio como en los talleres, fábricas, laboratorios, etc., donde el instalador se encuentre realizando los trabajos correspondientes con esta instalación, pudiendo ser las mencionadas inspecciones totales o parciales, según los criterios que la Dirección dictamine al respecto.

Modificaciones.

Sólo serán admitidas modificaciones a lo indicado en el proyecto por alguna de las siguientes causas:

a) Mejoras en la calidad, cantidad o montaje de los diferentes componentes de la instalación, siempre y cuando no quede afectado el presupuesto o en todo caso sea disminuido, no repercutiendo en ningún caso este cambio con compensación de otros materiales.

b) Modificaciones en la arquitectura del edificio y consecuentemente variación de su instalación correspondiente. En este caso la variación de instalaciones será exclusivamente la que defina la Dirección de Obra o en su caso el instalador con la aprobación de aquélla. Al objeto de matizar este apartado, se indica que se entienden modificaciones importantes en la función o conformación de una zona amplia del edificio. Las pequeñas variaciones debidas a los normales movimientos de obra quedan incluidos en el precio del instalador.

Calidades.

Cualquier elemento, máquina, material y en general cualquier concepto en el que pueda ser definible una calidad, será el indicador en el proyecto bien determinado por una marca comercial, o por una especificación concreta. Si no estuviese definida una calidad, la Dirección podrá elegir la que corresponda en el mercado a niveles de primera calidad.

Por lo que todo aquello que no sea lo específicamente indicado en el presupuesto o proyecto, deberá haber sido aprobado por escrito por la Dirección de obra para su instalación pudiendo ser eliminado por tanto, sin ningún perjuicio para la Propiedad si no fuese cumplido este requisito.

Reglamentaciones de obligado cumplimiento.

Con total independencia de las prescripciones indicadas en los documentos del proyecto, es prioritario para el instalador el cumplimiento de cualquier reglamentación de obligado cumplimiento que afecte a su instalación, bien sea de índole nacional, autonómico, municipal de compañías o en general de cualquier ente que pueda afectar a la puesta en marcha legal y necesaria para la consecución de las funciones del edificio, siendo por tanto competencia y responsabilidad del instalador la previa revisión del proyecto antes de que realice ningún pedido ni que ejecute ningún montaje y su denuncia a la Dirección y Propiedad de cualquier concepto no compatible con la reglamentación exigida. Esta comunicación deberá ser realizada por escrito y entregada en mano a la Dirección de Obra.

Documentación gráfica.

El instalador debe preparar todos los planos tanto de taller como de montaje necesarios, mostrando en detalle las características de construcción precisas para el correcto montaje de los equipos y redes por sus montadores para pleno conocimiento de la Dirección y de los diferentes oficios y empresas constructoras que concurren en la edificación. Entre otros puntos, los mencionados planos deben determinar la situación exacta de bancadas, anclajes, huecos, soportes, etc., y todo ello dentro de los plazos de tiempo exigidos para no entorpecer el programa general de construcción y acabado bien sea por zonas o bien sea general. Independiente de lo anterior, el instalador debe marcar en obra los huecos, pasos, trazados y en general todas aquellas señalizaciones necesarias tanto para sus montadores, como de otros oficios o empresas constructoras.

Según se ha indicado en puntos anteriores, es así mismo competencia del instalador, la presentación de los escritos y planos correspondientes para la legalización de su instalación ante los diferentes entes u organismos.

Asimismo, al final de la obra el instalador deberá entregar unos planos de construcción y diferentes esquemas de funcionamiento o conexionado necesarios para que en el futuro conocimiento haya una determinación precisa de cómo es su instalación, tanto en sus elementos vistos como ocultos.

Cualquier documentación gráfica generada por el instalador sólo tendrá validez si está visada por la Dirección de Obra, entendiéndose que esta aprobación es general y no relevará de ningún modo al instalador, de la responsabilidad de errores y de la correspondiente necesidad de comprobación y reparación de planos por su parte.

Garantía.

Tanto los componentes de la instalación como su montaje y funcionabilidad, debe quedar garantizada por un año como mínimo, a partir de la recepción provisional y en ningún caso esta garantía cesará hasta que sea realizada la recepción definitiva.

Interpretación del proyecto.

La interpretación del proyecto corresponde en primer lugar al Ingeniero autor del mismo o en su defecto a la persona que ostente la Dirección de Obra. Se entiende el proyecto en su ámbito total de todos los documentos, memoria, planos, presupuesto y pliego de condiciones técnicas, quedando por tanto el instalador enterado por este pliego de condiciones técnicas, que cualquier interpretación del proyecto para cualquier fin y entre otros para una aplicación de contrato, debe atenerse a las dos figuras (Autor o Director) indicadas anteriormente.

Materiales complementarios comprendidos.

Dentro de los conceptos generales comprendidos indicados en las condiciones generales, a continuación, se indican algunos puntos particulares concretos, exclusivamente como ejemplo o aclaración para el instalador, no significando por ello que los mismos excluyan la extensión o el alcance de otros:

Soporterías, perfiles, estribos, tornillería y en general elementos de sustentación necesarios, debidamente protegidos por pinturas o tratamientos electroquímicos.

Antivibradores coaxiales de tuberías, bases antivibratorias de maquinaria y equipos, neoprenos o elementos elásticos de soporterías, lonas de conductos y en general todos aquellos elementos necesarios para la eliminación de vibraciones.

Bancadas metálicas, dilatadores de resorte, liras, uniones extensibles y en general todos los elementos necesarios de absorción de movimientos térmicos de la instalación por causa propia o por dilatadores de obra civil.

Acoplamientos elásticos en juntas de dilatación o acometidas a maquinaria, equipos o elementos dinámicos.

Protecciones de redes, equipos y accesorios con pinturas antioxidantes o anticorrosivas, tanto en intemperie como en interiores, enfundados plásticos termoadaptable para canalizaciones empotradas y en general todos aquellos elementos de prevención y protección de agresiones externas.

Acabados exteriores de aislamientos para protección del mismo por lluvia o acción solar.

Gases de soldadura, pastas, mastics, siliconas y cualquier elemento necesario para el correcto montaje, acabado y sellado.

Manguitos pasamuros, marcos de madera, bastidores y bancadas metálicas, y en general todos aquellos elementos necesarios de paso o recepción de los correspondientes de la instalación.

Canalizaciones y accesorios de desaire a colectores abiertos y canalizaciones de desagüe debidamente sifonadas, necesarios para el desarrollo funcional de la instalación.

Materiales y unidades de obra

Es competencia del instalador el suministro, montaje y puesta en servicio de los materiales y equipos de acuerdo con las características técnicas, implantación y calidades previstas en documentos de proyecto y en la normativa aplicable.

El conexionado de los diferentes terminales en el regleteado del cuadro eléctrico, lo realizará el instalador electricista, en presencia del instalador de ventilación, siendo responsabilidad de éste la adecuada conexión, el cumplimiento de las funciones de maniobra y enclavamiento.

Pruebas de las instalaciones y recepción de las mismas

Ensayos e inspección en fábrica

La Dirección técnica de obra será autorizada a realizar todas las visitas de inspección que estime necesarias a las fábricas donde se estén realizando trabajos relacionados con esta instalación.

Ensayos parciales en obra

Todas las instalaciones deberán ser probadas ante la Dirección Técnica de Obra, con anterioridad a ser cubiertas por paredes, falsos techos, etc. Estas pruebas se realizarán por zonas o circuitos sin haber sido conectado el equipo principal.

Ensayos de materiales

El instalador garantizará que todos los materiales y equipos han sido probados antes de su instalación final, cualquier material que presente deficiencias de construcción o montaje será reemplazado o reparado.

Pruebas finales de recepción provisional

Generalidades

Una vez finalizado totalmente el montaje de la instalación y habiendo sido regulada y puesta a punto, el instalador procederá a la realización de las diferentes pruebas finales previas a la recepción provisional, según se indica en los capítulos siguientes. Estas pruebas serán las mínimas exigidas.

Las pruebas serán realizadas por el instalador en presencia de las personas que determine la Dirección, pudiendo asistir a las mismas un representante de la Propiedad.

Todas las mediciones se realizarán con aparatos pertenecientes al instalador, previamente contrastados y aprobados por la Dirección.

El resultado de las diferentes pruebas se reunirá en un documento denominado "PROTOCOLO DE PRUEBAS EN RECEPCIÓN PROVISIONAL" en el que deberá indicarse para cada prueba.

- Croquis del sistema ensayado, con identificación en el mismo de los puntos medidos.
- Mediciones realizadas y su comparación con las nominales.
- Incidencias o circunstancias que puedan afectar a la medición o a su desviación.
- Persona, hora y fecha de realización.

Recepciones de obra y tramitaciones

Recepción provisional

Una vez realizado el protocolo de pruebas por el instalador según indicaciones de la Dirección de Obra y acordes a la normativa vigente, aquel deberá presentar la siguiente documentación:

- Copia del certificado de la instalación presentado ante la Delegación del Ministerio de Industria y Energía.
- Protocolo de pruebas (original y copia).

Ante la documentación indicada, la Dirección de Obra emitirá el acta de recepción correspondiente con las firmas de conformidad correspondientes de instalador y propiedad. Es facultad de la Dirección adjuntar con el acta relación de puntos pendientes, cuya menor incidencia permitan la recepción de la obra, quedando claro el compromiso por parte del instalador de su corrección en el menor plazo.

Desde el momento en que la Dirección acepte la recepción provisional se contabilizarán los periodos de garantía establecidos, tanto de los elementos como de su montaje. Durante este periodo es obligación del instalador, la reparación, o modificación de cualquier defecto o anomalía, (salvo los originados por uso o mantenimiento) advertido y programado para que no afecte al uso y explotación del edificio.

Recepción definitiva

Transcurrido el plazo contractual de garantía y subsanados todos los defectos advertidos en el mismo, el instalador notificará a la propiedad el cumplimiento del periodo. Caso de que la propiedad no objetará ningún punto pendiente, la Dirección emitirá el acta de recepción definitiva, quedando claro que la misma no estará realizada y por lo tanto, la instalación seguirá en garantía hasta la emisión del mencionado documento.

Tramitaciones oficiales

El contratista de la instalación de climatización y ventilación es responsable de la tramitación de cuantos permisos oficiales sean necesarios para la puesta en funcionamiento de la instalación.

De esta manera tramitará los permisos de la Delegación de Industria, y los permisos de acometidas necesarios ante los organismos o empresas correspondientes.

Sin estos permisos, no se procederá a realizar la Recepción de la Instalación, ni siquiera de forma provisional.

3.2. Condiciones que han de cumplir los materiales. condiciones para la ejecución de las unidades de obra

3.2.1. Aislamientos

Definición: Materiales para aislamiento térmico-acústico de edificios.

Tipos, Designación e Identificación.

Poliestireno:

Planchas rígidas moldeadas fabricadas por expansión de perlas expandibles de poliestireno.

UNE 92115:1997. Materiales aislantes térmicos utilizados en la edificación. Productos de poliestireno extruido (XPS). Especificaciones.

Planchas rígidas moldeadas fabricadas por un proceso continuo de extrusión del poliestireno.

UNE 92115:1997. Materiales aislantes térmicos utilizados en la edificación. Productos de poliestireno extruido (XPS). Especificaciones.

Espuma de poliuretano:

Planchas rígidas de espuma de poliuretano de estructura homogénea moldeadas con espesor constante.

UNE-53351: 1978 EX Plásticos. Planchas de espuma rígidas de poliuretano, utilizadas como aislantes térmicos en habitáculos y en instalaciones isotérmicas y frigoríficas. Características y métodos de ensayo.

Fibra de vidrio:

Mantas o fieltros (fibra de vidrio aglomerada con o sin revestimiento y presentada en rollos).

UNE-92102:1998 Materiales aislantes. Lana de vidrio. Definición, clasificación y características.

Paneles rígidos y semirígidos (fibra de vidrio aglomerada con o sin revestimiento y presentada en paralelepípedos rectangulares).

UNE-92102:1998 Materiales aislantes. Lana de vidrio. Definición, clasificación y características.

Coquillas (fibra de vidrio aglomerada presentada en forma de cilindros anulares).

UNE-92102:1998 Materiales aislantes. Lana de vidrio. Definición, clasificación y características.\CON\ Los materiales que vengan avalados por Sellos o Marcas de Calidad, deberán tener la garantía por parte del fabricante, del cumplimiento de los requisitos y características mínimas exigidas, por lo que podrá realizarse su recepción sin necesidad de efectuar las siguientes comprobaciones o ensayos.

- Comprobación de espesores y tipo del aislamiento térmico, fabricante, etc.
- Correcta colocación del aislante, según especificaciones de proyecto. Continuidad.
- Evitación de puentes térmicos.
- Se realizarán ensayos de:
    - Continuidad térmica de los diferentes espesores en que se comercializan si la resistencia correspondiente a tales espesores.
    - Densidad aparente.
    - Permeabilidad al vapor de agua teniendo en cuenta la lámina o barrera de vapor si la tuviera.

  - Absorción de agua por volumen.
  - Deformación frente a cargas (módulo de elasticidad.).
  - Resistencia a flexión y compresión.

- Aislamiento acústico.\NOR\ Los materiales para aislamiento térmico, además de las condiciones de este Pliego, cumplirán las del CTE-DB-HS
- Los materiales para aislamiento acústico, además de las condiciones de este Pliego, cumplirán las de la vigente Norma Básica sobre Condiciones Acústicas en los Edificios, NBE-CA-82 (BOE de 27 de octubre de 1.982).
- Norma UNE 92115:1997; Planchas de materiales celulares de poliestireno utilizados como aislantes térmicos.
- Norma UNE 53351:1978; Planchas de espumas rígidas de poliuretano utilizadas como aislantes térmicos.
- Norma UNE 92102:1998; Materiales térmicos aislantes de fibra de vidrio.
- Para los trabajos en los bordes de los tejados, se instalará una plataforma desde la última planta, formada por una estructura metálica tubular, que irá anclada a los huecos exteriores o al forjado superior o inferior de la última planta a manera de voladizo, en la cual apoyaremos una plataforma de trabajo que tendrá una anchura desde la vertical del alero, de al menos 60 cm. estando provista de una barandilla resistente a manera de guardacuerpos, coincidiendo ésta con la línea de prolongación del faldón, para así poder servir como protección a posibles caídas a lo largo de la cubierta, teniendo en su parte inferior un rodapié de 15 cm.
- Uso obligatorio de elementos de protección personal.
- Señalización de la zona de trabajo.
- Los acopios de materiales se realizarán teniendo en cuenta su inmediata utilización, tomando la precaución de colocarlos sobre elementos planos a manera de durmientes para así repartir la carga sobre los tableros del tejado, situándolos lo más cerca de las vigas del último forjado.
- Los trabajos en la cubierta se suspenderán siempre que se presenten vientos fuertes (superiores a 50 km/h) que comprometan la estabilidad de los operarios y puedan desplazar los materiales, así como cuando se produzcan heladas, nevadas y lluvias que hagan deslizantes las superficies del tejado.
- <u>Protecciones personales.</u>
  - Casco homologado.
  - Cinturón de seguridad homologado, tipo sujeción, empleándose solamente en el caso de que los medios de protección colectivos no sean posibles, estando anclados a elementos resistentes.
  - Calzado homologado provisto de suelas antideslizantes.

- Mono de trabajo con perneras y mangas perfectamente ajustadas.
- Dispositivos anticaídas.

- Protecciones colectivas.
  - Todos los huecos, tanto verticales como horizontales, estarán protegidos por una barandilla de 0,90 m. de altura y 20 cm. de rodapié.
  - Se delimitará la zona de trabajo señalizándola, evitando el paso del personal por la vertical de los trabajos.
  - En la parte superior del andamio se colocará una barandilla alta que actuará como elemento de protección frente a caídas.
  - Se colocarán plataformas metálicas horizontales para el acopio de material.
  - Para los trabajos en los bordes del tejado, se aprovechará el andamio exterior, cubriendo toda la superficie con tablones.
- Protecciones personales.
  - Casco homologado.
  - Cinturón de seguridad homologado, tipo sujeción, empleándose solamente en el caso de que los medios de protección colectivos no sean posibles, estando anclados a elementos resistentes.
  - Calzado homologado provisto de suelas antideslizantes.
  - Mono de trabajo con perneras y mangas perfectamente ajustadas.
  - Dispositivos anticaídas.
- Protecciones colectivas.
  - Todos los huecos, tanto verticales como horizontales, estarán protegidos por una barandilla de 0,90 m. de altura y 20 cm. de rodapié.
  - Se delimitará la zona de trabajo señalizándola, evitando el paso del personal por la vertical de los trabajos.
  - En la parte superior del andamio se colocará una barandilla alta que actuará como elemento de protección frente a caídas.
  - Se colocarán plataformas metálicas horizontales para el acopio de material.
  - Para los trabajos en los bordes del tejado, se aprovechará el andamio exterior, cubriendo toda la superficie con tablones. La superficie deberá de encontrarse limpia y seca. Los salientes más importantes deberán eliminarse y los huecos rellenarlos con arena fina y seca, o bien aplicar una capa de mortero pobre. Todos los tabiques deberán ser construidos antes de la aplicación del pavimento; o al menos levantados hasta una altura de dos hileras.
- Deberá quedar garantizada y asegurada la continuidad del aislamiento y la ausencia de puentes térmicos y/o acústicos.

- Se seguirán las instrucciones del fabricante en lo que respecta a la colocación del material.
- Para aislamiento en suelos que requieran resistencias mecánicas normales se utilizarán planchas rígidas de poliestireno extrusionado Tipo III o superior o planchas de espumas rígidas de poliuretano de Tipo III o IV.
- Para aislamiento en suelos que requieran resistencias mecánicas altas se utilizarán únicamente planchas de espumas rígidas de poliuretano de Tipo IV.\MED\ Se medirá y valorará por metro cuadrado incluso parte proporcional de cortes, uniones, rastreles y colocación.
- Se medirá y valorará por metro lineal de coquilla, incluso parte proporcional de cortes, uniones y colocación.

3.2.2. Aislamiento acústico

Medida la superficie ejecutada, deduciendo huecos superiores a 1 m2.

Las características básicas exigibles a los materiales empleados para aislamiento acústico son:

Densidad aparente.

Absorción acústica.

Otras propiedades. En función del empleo y condiciones en que vaya a colocarse el material, se especificarán:

- Conductividad térmica.
- Comportamiento frente al fuego.
- Resistencia a la compresión.
- Resistencia a la flexión.
- Resistencia al choque blando.
- Envejecimiento ante la humedad, el calor y las radiaciones.
- Módulo de elasticidad.
- Coeficiente de dilatación lineal.
- Comportamiento frente a parásitos.
- Comportamiento frente a agentes químicos.

3.2.3. Aislamiento térmico

Medida la superficie ejecutada, deduciendo huecos superiores a 1 m2.

- Las características básicas exigibles a los materiales empleados para aislamiento térmico son:
  - Conductividad térmica.
  - Densidad aparente.
  - Permeabilidad al vapor de agua.

- Absorción de agua por volumen.

- En función del empleo y condiciones en que vaya a colocarse el material aislante, se especificarán:
  - Resistencia a la compresión.
  - Resistencia a la flexión.
  - Envejecimiento ante la humedad, el calor y las radiaciones.
  - Módulo de elasticidad.
  - Coeficiente de dilatación lineal.
  - Comportamiento frente a parásitos.
  - Comportamiento frente a agentes químicos.
  - Comportamiento frente al fuego.

3.3. Prescripciones en cuanto a la ejecución por unidad de obra

3.3.1. Distribución aire ventilación / climatización

Características técnicas y condiciones de suministro y recepción de materiales

Los equipos y materiales que se incorporen con carácter permanente a los edificios, en función de su uso previsto, llevarán el marcado CE, siempre que se haya establecido su entrada en vigor, de conformidad con la normativa vigente. Se aceptarán las marcas, sellos, certificaciones de conformidad u otros distintivos de calidad voluntarios, legalmente concedidos en cualquier Estado miembro de la Unión Europea, en un Estado integrante de la Asociación Europea de Libre Comercio que sea parte contratante del Acuerdo sobre el Espacio Económico Europeo, o en Turquía, siempre que se reconozca por la Administración pública competente que se garantizan un nivel de seguridad de las personas, los bienes o el medio ambiente, equivalente a las normas aplicables en España.
Se aceptarán, para su instalación y uso en los edificios sujetos a este reglamento, los materiales procedentes de otros Estados miembros de la Unión Europea o de un Estado integrante de la Asociación Europea de Libre Comercio que sean parte contratante del Espacio Económico Europeo, o de Turquía y que la certificación de conformidad de los equipos y Materiales se haga de acuerdo con los reglamentos aplicables y con la legislación vigente, así como mediante los procedimientos establecidos en la normativa correspondiente.
Características de los materiales conforme al CTE DB HS 3, apartado 3.2:
-Conductos de admisión:
Los conductos tendrán sección uniforme y carecerán de obstáculos en todo su recorrido. Presentarán un acabado que dificulte su ensuciamiento y serán practicables para su registro y limpieza cada 10 m como máximo en todo su recorrido.
-Conductos de extracción para ventilación mecánica, conforme al CTE DB HS 3, apartado 3.2.4:
Cada conducto de extracción, salvo los de la ventilación específica de las cocinas, deberá disponer en la boca de expulsión de un aspirador mecánico, pudiendo varios conductos de extracción compartir un mismo aspirador mecánico. Los conductos deberán tener un acabado que dificulte su ensuciamiento y serán

practicables para su registro y limpieza en la coronación y en el arranque de los tramos verticales. Cuando se prevea que en las paredes de los conductos pueda alcanzarse la temperatura de rocío éstos deberán aislarse térmicamente de tal forma que se evite la producción de condensación Los conductos que atraviesen elementos separadores de sectores de incendio deberán cumplir las condiciones de resistencia a fuego del apartado 3 del DB SI 1.

Los conductos deberán ser estancos al aire para su presión de dimensionado.

Características técnicas y proceso de ejecución de unidades de obra

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Ejecución

Aberturas: Conforme al CTE DB HS 3, apartado 6.1.1

Cuando las aberturas se dispongan directamente en el muro deberá colocarse un pasamuros cuya sección interior tenga las dimensiones mínimas de ventilación previstas y se sellarán los extremos en su encuentro con el muro. Los elementos de protección de las aberturas deberán colocarse de tal modo que no se permita la entrada de agua desde el exterior.

Cuando los elementos de protección de las aberturas de extracción dispongan de lamas, éstas deberán colocarse inclinadas en la dirección de la circulación del aire.

Conductos de extracción: Conforme al CTE DB HS 3, apartado 6.1.2:

Deberá preverse el paso de los conductos a través de los forjados y otros elementos de partición horizontal de forma que se ejecuten aquellos elementos precisos para ello tales como brochales y zunchos. Los huecos de paso de los forjados deberán proporcionar una holgura perimétrica de 20 mm que se rellenará con aislante térmico.

El tramo de conducto correspondiente a cada planta deberá apoyarse sobre el forjado inferior de la misma.

Cuando se trate de conductos de extracción para ventilación híbrida, las piezas deberán colocarse cuidando el aplomado, admitiéndose una desviación de la vertical de hasta 15º con transiciones suaves.

Cuando las piezas sean de hormigón en masa o de arcilla cocida, se recibirán con mortero de cemento tipo M-5 (1:6), evitando la caída de restos de mortero al interior del conducto y enrasando la junta por ambos lados. Cuando sean de otro material, se harán las uniones previstas en el sistema, cuidando la estanquidad de sus juntas.

Las aberturas de extracción conectadas a conductos de extracción se taparán para impedir la entrada de escombros u otros objetos hasta que se coloquen los elementos de protección correspondientes.

Cuando el conducto para la ventilación específica adicional de las cocinas sea colectivo, cada extractor deberá conectarse al mismo mediante un ramal que desembocará en el conducto de extracción inmediatamente por debajo del ramal siguiente.

Sistemas de ventilación mecánicos: Conforme al CTE DB HS 3, apartado 6.1.3

El aspirador híbrido o el aspirador mecánico, en su caso, deberá colocarse aplomado y sujeto al conducto de extracción o a su revestimiento.

El sistema de ventilación mecánica deberá colocarse sobre el soporte de manera estable y utilizando elementos antivibratorios.

Tanto los aspiradores mecánicos y los aspiradores híbridos deberán disponerse en un lugar accesible para realizar su limpieza. Los empalmes y conexiones serán estancos y estarán protegidos para impedir la entrada o salida de aire en esos.
En los extractores de las cocinas se colocará un filtro de grasas y aceites dotado de un dispositivo que indique cuando deberá reemplazarse o limpiarse dicho filtro.
Se llevará a cabo una solución que impida la inversión del desplazamiento del aire en todos los puntos, bien disponiendo un sistema automático que actúe de forma que todos los aspiradores híbridos y mecánicos de cada vivienda funcionen a un tiempo o adoptar cualquier otra solución que lo consiga.

Condiciones previas a su realización de unidades de obra

Soporte
Los forjados forman el elemento soporte de la instalación de ventilación, sobre estos arrancará el elemento columna hasta el final del conducto, se habrán dejado previstos los huecos de paso con una holgura para poder colocar alrededor del conducto un aislamiento térmico de espesor mínimo de 2 cm para lograr que el paso a través del mismo no sea una unión rígida. Cada tramo entre forjados se apoyará en el forjado inferior.

Condiciones de terminación de unidades de obra

Las juntas entre las diferentes piezas estarán llenas, en caso contrario se rellenarán.
Las juntas no presentan rebabas,
Una vez completado el montaje de las redes de conductos y de la unidad de tratamiento de aire, pero antes de conectar las unidades terminales y montar los elementos de acabado, se pondrán en marcha los con ventilaciones hasta que el aire de salida de las aberturas no contenga polvo a simple vista.

Control de ejecución, ensayos y pruebas de unidades de obra

Control de ejecución
-Conducciones verticales:
Disposición: tipos y secciones según especificaciones. Correcta colocación y unión entre piezas.
Aplomado: se comprobará la verticalidad.
Sustentación: correcta sustentación de cada nivel de forjado. Sistema de apoyo.
Aislamiento térmico: espesor especificado. Continuidad del aislamiento.
Aspirador estático: altura sobre cubierta. Distancia a otros elementos. Fijación. Arriostramiento, en su caso.
-Conexiones individuales:
Derivaciones: correcta conexión con pieza especial de derivación. Correcta colocación de la rejilla.
-Bocas de expulsión: disposición de malla antipájaros.
-Aberturas y bocas de ventilación:
Ancho del retranqueo (en caso de estar colocadas en éste).
Aberturas de ventilación en contacto con el exterior: disposición para impedir la entrada de agua.
Bocas de expulsión. Situación respecto de cualquier elemento de entrada de aire de ventilación, del linde de la parcela y de cualquier punto donde pueda haber personas de forma habitual que se encuentren a menos de 10 m de distancia de la boca.

-Ventilación híbrida: altura de la boca de expulsión en la cubierta del edificio.
-Medios de ventilación híbrida y mecánica:
Conductos de admisión. Longitud.
Disposición de las aberturas de admisión y de extracción en las zonas comunes.
-Medios de ventilación natural:
Aberturas mixtas en la zona común de trasteros: disposición.
Número de aberturas de paso en la partición entre trastero y zona común.
Aberturas de admisión y extracción de trasteros: comunicación con el exterior y separación vertical entre ellas.
Aberturas mixtas en almacenes: disposición.
Aireadores: distancia del suelo.
Aberturas de extracción: conexión al conducto de extracción. Distancia a techo. Distancia a rincón o esquina.
Ensayos y pruebas
Recogidas en el RITE:
Pruebas de recepción de redes de conductos de aire (IT 2.2.5).

Criterios de medición y valoración de unidades de obra

El criterio de medición y valoración será el que se especifique en el texto de cada partida, en el caso de que no venga recogido se seguirán los siguientes criterios:
-Conductos formados por piezas:
ud, incluida la parte proporcional de piezas especiales, rejillas y capa de aislamiento a nivel de forjado, medida la longitud desde el arranque del conducto hasta la parte inferior del aspirador estático.
-Resto de conductos:
m2, completamente instalado, medido por el exterior.
-El aislamiento térmico:
m2, indicando las características que presente.
-El resto de componentes de la instalación:
ud totalmente colocada y comprobada incluyendo todos los accesorios y conexiones precisos para su correcto funcionamiento.

Medidas para asegurar la compatibilidad entre productos, elementos y sistemas constructivos de unidades de obra

Conforme a la reglamentación específica sobre instalaciones térmicas la evacuación de productos de combustión de las instalaciones térmicas se producirá por la cubierta del edificio, con independencia del aparato o del tipo de combustible.
Para prevenir el fenómeno electroquímico de la corrosión galvánica entre metales con diferente potencial, se adoptarán las siguientes medidas:
Se evitará colocar dos metales de distinto potencial en contacto, de no ser posible impedir el contacto entre dos metales, se elegirán metales próximos en la serie galvánica.

Aislar eléctricamente los metales con diferente potencial.
Impedir el acceso de agua y oxígeno a la zona de unión de los dos metales.

3.3.2. Ventiladores y extractores

Características técnicas y condiciones de suministro y recepción de materiales

Los equipos y materiales que se incorporen con carácter permanente a los edificios, en función de su uso previsto, llevarán el marcado CE, siempre que se haya establecido su entrada en vigor, de conformidad con la normativa vigente. Se aceptarán las marcas, sellos, certificaciones de conformidad u otros distintivos de calidad voluntarios, legalmente concedidos en cualquier Estado miembro de la Unión Europea, en un Estado integrante de la Asociación Europea de Libre Comercio que sea parte contratante del Acuerdo sobre el Espacio Económico Europeo, o en Turquía, siempre que se reconozca por la Administración pública competente que se garantizan un nivel de seguridad de las personas, los bienes o el medio ambiente, equivalente a las normas aplicables en España.
Se aceptarán, para su instalación y uso en los edificios sujetos a este reglamento, los materiales procedentes de otros Estados miembros de la Unión Europea o de un Estado integrante de la Asociación Europea de Libre Comercio que sean parte contratante del Espacio Económico Europeo, o de Turquía y que la certificación de conformidad de los equipos y Materiales se haga de acuerdo con los reglamentos aplicables y con la legislación vigente, así como mediante los procedimientos establecidos en la normativa correspondiente.
Características de los materiales conforme al CTE DB HS 3, apartado 3.2:
-Conductos de admisión:
Los conductos tendrán sección uniforme y carecerán de obstáculos en todo su recorrido. Presentarán un acabado que dificulte su ensuciamiento y serán practicables para su registro y limpieza cada 10 m como máximo en todo su recorrido.
-Conductos de extracción para ventilación mecánica, conforme al CTE DB HS 3, apartado 3.2.4:
Cada conducto de extracción, salvo los de la ventilación específica de las cocinas, deberá disponer en la boca de expulsión de un aspirador mecánico, pudiendo varios conductos de extracción compartir un mismo aspirador mecánico. Los conductos deberán tener un acabado que dificulte su ensuciamiento y serán practicables para su registro y limpieza en la coronación y en el arranque de los tramos verticales. Cuando se prevea que en las paredes de los conductos pueda alcanzarse la temperatura de rocío éstos deberán aislarse térmicamente de tal forma que se evite la producción de condensación Los conductos que atraviesen elementos separadores de sectores de incendio deberán cumplir las condiciones de resistencia a fuego del apartado 3 del DB SI 1.
Los conductos deberán ser estancos al aire para su presión de dimensionado.

Características técnicas y proceso de ejecución de unidades de obra

Ejecución
Aberturas: Conforme al CTE DB HS 3, apartado 6.1.1
Cuando las aberturas se dispongan directamente en el muro deberá colocarse un pasamuros cuya sección interior tenga las dimensiones mínimas de ventilación previstas y se sellarán los extremos en su encuentro

con el muro. Los elementos de protección de las aberturas deberán colocarse de tal modo que no se permita la entrada de agua desde el exterior.
Cuando los elementos de protección de las aberturas de extracción dispongan de lamas, éstas deberán colocarse inclinadas en la dirección de la circulación del aire.
Conductos de extracción: Conforme al CTE DB HS 3, apartado 6.1.2:
Deberá preverse el paso de los conductos a través de los forjados y otros elementos de partición horizontal de forma que se ejecuten aquellos elementos precisos para ello tales como brochales y zunchos. Los huecos de paso de los forjados deberán proporcionar una holgura perimétrica de 20 mm que se rellenará con aislante térmico.
El tramo de conducto correspondiente a cada planta deberá apoyarse sobre el forjado inferior de la misma.
Cuando se trate de conductos de extracción para ventilación híbrida, las piezas deberán colocarse cuidando el aplomado, admitiéndose una desviación de la vertical de hasta 15º con transiciones suaves.
Cuando las piezas sean de hormigón en masa o de arcilla cocida, se recibirán con mortero de cemento tipo M-5 (1:6), evitando la caída de restos de mortero al interior del conducto y enrasando la junta por ambos lados. Cuando sean de otro material, se harán las uniones previstas en el sistema, cuidando la estanquidad de sus juntas.
Las aberturas de extracción conectadas a conductos de extracción se taparán para impedir la entrada de escombros u otros objetos hasta que se coloquen los elementos de protección correspondientes.
Cuando el conducto para la ventilación específica adicional de las cocinas sea colectivo, cada extractor deberá conectarse al mismo mediante un ramal que desembocará en el conducto de extracción inmediatamente por debajo del ramal siguiente.
Sistemas de ventilación mecánicos: Conforme al CTE DB HS 3, apartado 6.1.3
El aspirador híbrido o el aspirador mecánico, en su caso, deberá colocarse aplomado y sujeto al conducto de extracción o a su revestimiento.
El sistema de ventilación mecánica deberá colocarse sobre el soporte de manera estable y utilizando elementos antivibratorios.
Tanto los aspiradores mecánicos y los aspiradores híbridos deberán disponerse en un lugar accesible para realizar su limpieza. Los empalmes y conexiones serán estancos y estarán protegidos para impedir la entrada o salida de aire en esos.
En los extractores de las cocinas se colocará un filtro de grasas y aceites dotado de un dispositivo que indique cuando deberá reemplazarse o limpiarse dicho filtro.
Se llevará a cabo una solución que impida la inversión del desplazamiento del aire en todos los puntos, bien disponiendo un sistema automático que actúe de forma que todos los aspiradores híbridos y mecánicos de cada vivienda funcionen a un tiempo o adoptar cualquier otra solución que lo consiga.

Condiciones previas a su realización de unidades de obra

Soporte
Los forjados forman el elemento soporte de la instalación de ventilación, sobre estos arrancará el elemento columna hasta el final del conducto, se habrán dejado previstos los huecos de paso con una holgura para

poder colocar alrededor del conducto un aislamiento térmico de espesor mínimo de 2 cm para lograr que el paso a través del mismo no sea una unión rígida. Cada tramo entre forjados se apoyará en el forjado inferior.

Condiciones de terminación de unidades de obra

Las juntas entre las diferentes piezas estarán llenas, en caso contrario se rellenarán.
Las juntas no presentan rebabas,
Una vez completado el montaje de las redes de conductos y de la unidad de tratamiento de aire, pero antes de conectar las unidades terminales y montar los elementos de acabado, se pondrán en marcha los con ventilaciones hasta que el aire de salida de las aberturas no contenga polvo a simple vista.

Control de ejecución, ensayos y pruebas de unidades de obra

Control de ejecución
-Conducciones verticales:
Disposición: tipos y secciones según especificaciones. Correcta colocación y unión entre piezas.
Aplomado: se comprobará la verticalidad.
Sustentación: correcta sustentación de cada nivel de forjado. Sistema de apoyo.
Aislamiento térmico: espesor especificado. Continuidad del aislamiento.
Aspirador estático: altura sobre cubierta. Distancia a otros elementos. Fijación. Arriostramiento, en su caso.
-Conexiones individuales:
Derivaciones: correcta conexión con pieza especial de derivación. Correcta colocación de la rejilla.
-Bocas de expulsión: disposición de malla antipájaros.
-Aberturas y bocas de ventilación:
Ancho del retranqueo (en caso de estar colocadas en éste).
Aberturas de ventilación en contacto con el exterior: disposición para impedir la entrada de agua.
Bocas de expulsión. Situación respecto de cualquier elemento de entrada de aire de ventilación, del linde de la parcela y de cualquier punto donde pueda haber personas de forma habitual que se encuentren a menos de 10 m de distancia de la boca.
-Ventilación híbrida: altura de la boca de expulsión en la cubierta del edificio.
-Medios de ventilación híbrida y mecánica:
Conductos de admisión. Longitud.
Disposición de las aberturas de admisión y de extracción en las zonas comunes.
-Medios de ventilación natural:
Aberturas mixtas en la zona común de trasteros: disposición.
Número de aberturas de paso en la partición entre trastero y zona común.
Aberturas de admisión y extracción de trasteros: comunicación con el exterior y separación vertical entre ellas.
Aberturas mixtas en almacenes: disposición.
Aireadores: distancia del suelo.
Aberturas de extracción: conexión al conducto de extracción. Distancia a techo. Distancia a rincón o esquina.

Ensayos y pruebas
Recogidas en el RITE:
Pruebas de recepción de redes de conductos de aire (IT 2.2.5).

Criterios de medición y valoración de unidades de obra

El criterio de medición y valoración será el que se especifique en el texto de cada partida, en el caso de que no venga recogido se seguirán los siguientes criterios:
-Conductos formados por piezas:
ud, incluida la parte proporcional de piezas especiales, rejillas y capa de aislamiento a nivel de forjado, medida la longitud desde el arranque del conducto hasta la parte inferior del aspirador estático.
-Resto de conductos:
m2, completamente instalado, medido por el exterior.
-El aislamiento térmico:
m2, indicando las características que presente.
-El resto de componentes de la instalación:
ud totalmente colocada y comprobada incluyendo todos los accesorios y conexiones precisos para su correcto funcionamiento.

Medidas para asegurar la compatibilidad entre productos, elementos y sistemas constructivos de unidades de obra

Conforme a la reglamentación específica sobre instalaciones térmicas la evacuación de productos de combustión de las instalaciones térmicas se producirá por la cubierta del edificio, con independencia del aparato o del tipo de combustible.
Para prevenir el fenómeno electroquímico de la corrosión galvánica entre metales con diferente potencial, se adoptarán las siguientes medidas:
Se evitará colocar dos metales de distinto potencial en contacto, de no ser posible impedir el contacto entre dos metales, se elegirán metales próximos en la serie galvánica.
Aislar eléctricamente los metales con diferente potencial.
Impedir el acceso de agua y oxígeno a la zona de unión de los dos metales.

4. INSTALACIÓN DE FONTANERÍA

4.1. Construcción

4.1.1. Ejecución

La instalación de suministro de agua se ejecutará con sujeción al proyecto, a la legislación aplicable, a las normas de la buena construcción y a las instrucciones del director de obra y del director de la ejecución de la obra.

Durante la ejecución e instalación de los materiales, accesorios y productos de construcción en la instalación interior, se utilizarán técnicas apropiadas para no empeorar el agua suministrada y en ningún caso incumplir los valores paramétricos establecidos en el Anexo I del Real Decreto 140/2003

Ejecución de las redes de tuberías

Condiciones generales

La ejecución de las redes de tuberías se realizará de manera que se consigan los objetivos previstos en el proyecto sin dañar o deteriorar al resto del edificio, conservando las características del agua de suministro respecto de su potabilidad, evitando ruidos molestos, procurando las condiciones necesarias para la mayor duración posible de la instalación así como las mejores condiciones para su mantenimiento y conservación.

Las tuberías ocultas o empotradas discurrirán preferentemente por patinillos o cámaras de fábrica realizados al efecto o prefabricados, techos o suelos técnicos, muros cortina o tabiques técnicos. Si esto no fuera posible, por rozas realizadas en paramentos de espesor adecuado, no estando permitido su empotramiento en tabiques de ladrillo hueco sencillo. Cuando discurran por conductos, éstos estarán debidamente ventilados y contarán con un adecuado sistema de vaciado.

El trazado de las tuberías vistas se efectuará en forma limpia y ordenada. Si estuvieran expuestas a cualquier tipo de deterioro por golpes o choques fortuitos, deben protegerse adecuadamente.

La ejecución de redes enterradas atenderá preferentemente a la protección frente a fenómenos de corrosión, esfuerzos mecánicos y daños por la formación de hielo en su interior. Las conducciones no deben ser instaladas en contacto con el terreno, disponiendo siempre de un adecuado revestimiento de protección. Si fuese preciso, además del revestimiento de protección, se procederá a realizar una protección catódica, con ánodos de sacrificio y, si fuera el caso, con corriente impresa.

Uniones y juntas

Las uniones de los tubos serán estancas.

Las uniones de tubos resistirán adecuadamente la tracción, o bien la red la absorberá con el adecuado establecimiento de puntos fijos, y en tuberías enterradas mediante estribos y apoyos dispuestos en curvas y derivaciones.

En las uniones de tubos de acero galvanizado o zincado las roscas de los tubos serán del tipo cónico, de acuerdo a la norma UNE 10242:1995. Los tubos sólo pueden soldarse si la protección interior se puede restablecer o si puede aplicarse una nueva. Son admisibles las soldaduras fuertes, siempre que se sigan las instrucciones del fabricante. Los tubos no se podrán curvar salvo cuando se verifiquen los criterios de la norma UNE EN 10240:1998. En las uniones tubo-accesorio se observarán las indicaciones del fabricante.

Las uniones de tubos de cobre se podrán realizar por medio de soldadura o por medio de manguitos mecánicos. La soldadura, por capilaridad, blanda o fuerte, se podrá realizar mediante manguitos para soldar por capilaridad o por enchufe soldado. Los manguitos mecánicos podrán ser de compresión, de ajuste cónico y de pestañas.

Las uniones de tubos de plástico se realizarán siguiendo las instrucciones del fabricante.

Protecciones

Protección contra la corrosión

Las tuberías metálicas se protegerán contra la agresión de todo tipo de morteros, del contacto con el agua en su superficie exterior y de la agresión del terreno mediante la interposición de un elemento separador de material adecuado e instalado de forma continua en todo el perímetro de los tubos y en toda su longitud, no dejando juntas de unión de dicho elemento que interrumpan la protección e instalándolo igualmente en todas las piezas especiales de la red, tales como codos, curvas.

Los revestimientos adecuados, cuando los tubos discurren enterrados o empotrados, según el material de los mismos, serán:

a. Para tubos de acero con revestimiento de polietileno, bituminoso, de resina epoxídica o con alquitrán de poliuretano.
b. Para tubos de cobre con revestimiento de plástico.
c. Para tubos de fundición con revestimiento de película continua de polietileno, de resina epoxídica, con betún, con láminas de poliuretano o con zincado con recubrimiento de cobertura

Los tubos de acero galvanizado empotrados para transporte de agua fría se recubrirán con una lechada de cemento, y los que se utilicen para transporte de agua caliente deben recubrirse preferentemente con una coquilla o envoltura aislante de un material que no absorba humedad y que permita las dilataciones y contracciones provocadas por las variaciones de temperatura.

Toda conducción exterior y al aire libre, se protegerá igualmente. En este caso, los tubos de acero podrán ser protegidos, además, con recubrimientos de cinc. Para los tubos de acero que discurran por cubiertas de hormigón se dispondrá de manera adicional a la envuelta del tubo de una lámina de retención de 1 m de ancho entre éstos y el hormigón. Cuando los tubos discurran por canales de suelo, ha de garantizarse que estos son impermeables o bien que disponen de adecuada ventilación y drenaje. En las

redes metálicas enterradas, se instalará una junta dieléctrica después de la entrada al edificio y antes de la salida.

Para la corrosión por el uso de materiales distintos se aplicará lo especificado en el apartado "Incompatibilidades entre materiales".

Protección contra las condensaciones

Tanto en tuberías empotradas u ocultas como en tuberías vistas, se considerará la posible formación de condensaciones en su superficie exterior y se dispondrá un elemento separador de protección, no necesariamente aislante pero si con capacidad de actuación como barrera antivapor, que evite los daños que dichas condensaciones pudieran causar al resto de la edificación.

Dicho elemento se instalará de la misma forma que se ha descrito para el elemento de protección contra los agentes externos, pudiendo en cualquier caso utilizarse el mismo para ambas protecciones.

Se considerarán válidos los materiales que cumplen lo dispuesto en la norma UNE 100 171:1989.

Protecciones térmicas

Los materiales utilizados como aislante térmico que cumplan la norma UNE 100 171:1989 se considerarán adecuados para soportar altas temperaturas.

Cuando la temperatura exterior del espacio por donde discurre la red pueda alcanzar valores capaces de helar el agua de su interior, se aislará térmicamente dicha red con aislamiento adecuado al material de constitución y al diámetro de cada tramo afectado, considerándose adecuado el que indica la norma UNE EN ISO 12 241:1999.

Protección contra esfuerzos mecánicos

Cuando una tubería haya de atravesar cualquier paramento del edificio u otro tipo de elemento constructivo que pudiera transmitirle esfuerzos perjudiciales de tipo mecánico, lo hará dentro de una funda, también de sección circular, de mayor diámetro y suficientemente resistente. Cuando en instalaciones vistas, el paso se produzca en sentido vertical, el pasatubos sobresaldrá al menos 3 centímetros por el lado en que pudieran producirse golpes ocasionales, con el fin de proteger al tubo. Igualmente, si se produce un cambio de sentido, éste sobresaldrá como mínimo una longitud igual al diámetro de la tubería más 1 centímetro.

Cuando la red de tuberías atraviese, en superficie o de forma empotrada, una junta de dilatación constructiva del edificio, se instalará un elemento o dispositivo dilatador, de forma que los posibles movimientos estructurales no le transmitan esfuerzos de tipo mecánico.

La suma de golpe de ariete y de presión de reposo no debe sobrepasar la sobrepresión de servicio admisible. La magnitud del golpe de ariete positivo en el funcionamiento de las válvulas y aparatos medido inmediatamente antes de estos, no debe sobrepasar 2 bar; el golpe de ariete negativo no debe descender por debajo del 50 % de la presión de servicio.

Protección contra ruidos

Como normas generales a adoptar, sin perjuicio de lo que pueda establecer el DB HR al respecto, se adoptarán las siguientes:

a. los huecos o patinillos, tanto horizontales como verticales, por donde discurran las conducciones estarán situados en zonas comunes;
b. a la salida de las bombas se instalarán conectores flexibles para atenuar la transmisión del ruido y las vibraciones a lo largo de la red de distribución. Dichos conectores serán adecuados al tipo de tubo y al lugar de su instalación;

Los soportes y colgantes para tramos de la red interior con tubos metálicos que transporten el agua a velocidades de 1,5 a 2,0 m/s serán antivibratorios. Igualmente, se utilizarán anclajes y guías flexibles que vayan a estar rígidamente unidos a la estructura del edificio.

Accesorios

Grapas y abrazaderas

La colocación de grapas y abrazaderas para la fijación de los tubos a los paramentos se hará de forma tal que los tubos queden perfectamente alineados con dichos paramentos, guarden las distancias exigidas y no transmitan ruidos y/o vibraciones al edificio.

El tipo de grapa o abrazadera será siempre de fácil montaje y desmontaje, así como aislante eléctrico.

Si la velocidad del tramo correspondiente es igual o superior a 2 m/s, se interpondrá un elemento de tipo elástico semirrígido entre la abrazadera y el tubo.

Soportes

Se dispondrán soportes de manera que el peso de los tubos cargue sobre estos y nunca sobre los propios tubos o sus uniones.

No podrán anclarse en ningún elemento de tipo estructural, salvo que en determinadas ocasiones no sea posible otra solución, para lo cual se adoptarán las medidas preventivas necesarias. La longitud de empotramiento será tal que garantice una perfecta fijación de la red sin posibles desprendimientos.

De igual forma que para las grapas y abrazaderas se interpondrá un elemento elástico en los mismos casos, incluso cuando se trate de soportes que agrupan varios tubos.

La máxima separación que habrá entre soportes dependerá del tipo de tubería, de su diámetro y de su posición en la instalación.

Ejecución de los sistemas de medición del consumo. Contadores

Alojamiento del contador general

La cámara o arqueta de alojamiento estará construida de tal forma que una fuga de agua en la instalación no afecte al resto del edificio. A tal fin, estará impermeabilizada y contará con un desagüe en su piso o fondo que garantice la evacuación del caudal de agua máximo previsto en la acometida. El desagüe lo conformará un sumidero de tipo sifónico provisto de rejilla de acero inoxidable recibida en la superficie de dicho fondo o piso. El vertido se hará a la red de saneamiento general del edificio, si ésta es capaz para absorber dicho caudal, y si no lo fuese, se hará directamente a la red pública de alcantarillado.

Las superficies interiores de la cámara o arqueta, cuando ésta se realice "in situ", se terminarán adecuadamente mediante un enfoscado, bruñido y fratasado, sin esquinas en el fondo, que a su vez tendrá la pendiente adecuada hacia el sumidero. Si la misma fuera prefabricada cumplirá los mismos requisitos de forma general.

En cualquier caso, contará con la pre-instalación adecuada para una conexión de envío de señales para la lectura a distancia del contador.

Estarán cerradas con puertas capaces de resistir adecuadamente tanto la acción de la intemperie como posibles esfuerzos mecánicos derivados de su utilización y situación. En las mismas, se practicarán aberturas fijas, taladros o rejillas, que posibiliten la necesaria ventilación de la cámara. Irán provistas de cerradura y llave, para impedir la manipulación por personas no autorizadas, tanto del contador como de sus llaves.

Contadores individuales aislados

Se alojarán en cámara, arqueta o armario según las distintas posibilidades de instalación y cumpliendo los requisitos establecidos en el apartado anterior en cuanto a sus condiciones de ejecución. En cualquier caso este alojamiento dispondrá de desagüe capaz para el caudal máximo contenido en este tramo de la instalación, conectado, o bien a la red general de evacuación del edificio, o bien con una red independiente que recoja todos ellos y la conecte con dicha red general.

Ejecución de los sistemas de control de la presión

Montaje del grupo de sobreelevación

Depósito auxiliar de alimentación

En estos depósitos el agua de consumo humano podrá ser almacenada bajo las siguientes premisas:

a. El depósito habrá de estar fácilmente accesible y ser fácil de limpiar. Contará en cualquier caso con tapa y esta ha de estar asegurada contra deslizamiento y disponer en la zona más alta de suficiente ventilación y aireación;

b. Habrá que asegurar todas las uniones con la atmósfera contra la entrada de animales e inmisiones nocivas con dispositivos eficaces tales como tamices de trama densa para ventilación y aireación, sifón para el rebosado.

En cuanto a su construcción, será capaz de resistir las cargas previstas debidas al agua contenida más las debidas a la sobrepresión de la red si es el caso.

Estarán, en todos los casos, provistos de un rebosadero, tomando todas las medidas necesarias encaminadas a evitar posibles retornos de agua.

Se dispondrá, en la tubería de alimentación al depósito de uno o varios dispositivos de cierre para evitar que el nivel de llenado del mismo supere el máximo previsto. Dichos dispositivos serán válvulas pilotadas. En el caso de existir exceso de presión habrá de interponerse, antes de dichas válvulas, una que limite dicha presión con el fin de no producir el deterioro de las anteriores.

La centralita de maniobra y control del equipo dispondrá de un hidronivel de protección para impedir el funcionamiento de las bombas con bajo nivel de agua.

Se dispondrá de los mecanismos necesarios que permitan la fácil evacuación del agua contenida en el depósito, para facilitar su mantenimiento y limpieza. Así mismo, se construirán y conectarán de manera que el agua se renueve por su propio modo de funcionamiento evitando siempre la existencia de agua estancada.

Bombas

Se montarán sobre bancada de hormigón u otro tipo de material que garantice la suficiente masa e inercia al conjunto e impida la transmisión de ruidos y vibraciones al edificio.

A la salida de cada bomba se instalará un manguito elástico, con el fin de impedir la transmisión de vibraciones a la red de tuberías.

Igualmente, se dispondrán llaves de cierre, antes y después de cada bomba, de manera que se puedan desmontar sin interrupción del abastecimiento de agua.

Se realizará siempre una adecuada nivelación.

Las bombas de impulsión se instalarán preferiblemente sumergidas.

Depósito de presión

Estará dotado de un presostato con manómetro, tarado a las presiones máxima y mínima de servicio, haciendo las veces de interruptor, comandando la centralita de maniobra y control de las bombas, de tal manera que estas sólo funcionen en el momento en que disminuya la presión en el interior del depósito hasta los límites establecidos, provocando el corte de corriente, y por tanto la parada de los equipos de bombeo, cuando se alcance la presión máxima del aire contenido en el depósito. Los valores correspondientes de reglaje han de figurar de forma visible en el depósito.

En equipos con varias bombas de funcionamiento en cascada, se instalarán tantos presostatos como bombas se desee hacer entrar en funcionamiento. Dichos presostatos, se tararán mediante un valor de presión diferencial para que las bombas entren en funcionamiento consecutivo para ahorrar energía.

Cumplirán la reglamentación vigente sobre aparatos a presión y su construcción atenderá en cualquier caso, al uso previsto. Dispondrán, en lugar visible, de una placa en la que figure la contraseña de certificación, las presiones máximas de trabajo y prueba, la fecha de timbrado, el espesor de la chapa y el volumen.

El timbre de presión máxima de trabajo del depósito superará, al menos, en 1 bar, a la presión máxima prevista a la instalación.

Dispondrá de una válvula de seguridad, situada en su parte superior, con una presión de apertura por encima de la presión nominal de trabajo e inferior o igual a la presión de timbrado del depósito.

Con objeto de evitar paradas y puestas en marcha demasiado frecuentes del equipo de bombeo, con el consiguiente gasto de energía, se dará un margen suficientemente amplio entre la presión máxima y la presión mínima en el interior del depósito, tal como figura en los puntos correspondientes a su cálculo.

Si se instalaran varios depósitos, estos pueden disponerse tanto en línea como en derivación.

Las conducciones de conexión se instalarán de manera que el aire comprimido no pueda llegar ni a la entrada al depósito ni a su salida a la red de distribución.

Funcionamiento alternativo del grupo de presión convencional

Se preverá una derivación alternativa (by-pass) que una el tubo de alimentación con el tubo de salida del grupo hacia la red interior de suministro, de manera que no se produzca una interrupción total del abastecimiento por la parada de éste y que se aproveche la presión de la red de distribución en aquellos momentos en que ésta sea suficiente para abastecer nuestra instalación.

Esta derivación llevará incluidas una válvula de tres vías motorizada y una válvula antirretorno posterior a ésta. La válvula de tres vías estará accionada automáticamente por un manómetro y su correspondiente presostato, en función de la presión de la red de suministro, dando paso al agua cuando ésta tome valor suficiente de abastecimiento y cerrando el paso al grupo de presión, de manera que éste sólo funcione cuando sea imprescindible.

El accionamiento de la válvula también podrá ser manual para discriminar el sentido de circulación del agua en base a otras causas tales cómo avería, interrupción del suministro eléctrico, etc.

Cuando en un edificio se produzca la circunstancia de tener que recurrir a un doble distribuidor principal para dar servicio a plantas con presión de red y servicio a plantas mediante grupo de presión podrá optarse por no duplicar dicho distribuidor y hacer funcionar la válvula de tres vías con presiones máxima y/o mínima para cada situación.

Dadas las características de funcionamiento de los grupos de presión con accionamiento regulable, no será imprescindible, aunque sí aconsejable, la instalación de ningún tipo de circuito alternativo.

Ejecución y montaje del reductor de presión

Cuando existan baterías mezcladoras, se instalará una reducción de presión centralizada.

Se instalarán libres de presiones y preferentemente con la caperuza de muelle dispuesta en vertical.

Asimismo, se dispondrá de un racor de conexión para la instalación de un aparato de medición de presión o un puente de presión diferencial. Para impedir reacciones sobre el reductor de presión debe disponerse en su lado de salida como tramo de retardo con la misma medida nominal, un tramo de tubo de una longitud mínima de cinco veces el diámetro interior.

Si en el lado de salida se encuentran partes de la instalación que por un cierre incompleto del reductor serán sobrecargadas con una presión no admisible, hay que instalar una válvula de seguridad. La presión de salida del reductor en estos casos ha de ajustarse como mínimo un 20 % por debajo de la presión de reacción de la válvula de seguridad.

Si por razones de servicio se requiere un by-pass, éste se proveerá de un reductor de presión. Los reductores de presión se elegirán de acuerdo con sus correspondientes condiciones de servicio y se instalarán de manera que exista circulación por ambos.

Montaje de los filtros

El filtro ha de instalarse antes del primer llenado de la instalación, y se situará inmediatamente delante del contador según el sentido de circulación del agua. Deben instalarse únicamente filtros adecuados.

En la ampliación de instalaciones existentes o en el cambio de tramos grandes de instalación, es conveniente la instalación de un filtro adicional en el punto de transición, para evitar la transferencia de materias sólidas de los tramos de conducción existentes.

Para no tener que interrumpir el abastecimiento de agua durante los trabajos de mantenimiento, se recomienda la instalación de filtros retroenjuagables o de instalaciones paralelas.

Hay que conectar una tubería con salida libre para la evacuación del agua del autolimpiado.

Instalación de aparatos dosificadores

Sólo deben instalarse aparatos de dosificación conformes con la reglamentación vigente.

Cuando se deba tratar todo el agua potable dentro de una instalación, se instalará el aparato de dosificación detrás de la instalación de contador y, en caso de existir, detrás del filtro y del reductor de presión.

Si sólo ha de tratarse el agua potable para la producción de ACS, entonces se instala delante del grupo de válvulas en la alimentación de agua fría al generador de ACS.

Montaje de los equipos de descalcificación

La tubería para la evacuación del agua de enjuagado y regeneración debe conectarse con salida libre.

Cuando se deba tratar todo el agua potable dentro de una instalación, se instalará el aparato de descalcificación detrás de la instalación de contador, del filtro incorporado y delante de un aparato de dosificación eventualmente existente.

Cuando sólo deba tratarse el agua potable para la producción de ACS, entonces se instalará, delante del grupo de valvulería, en la alimentación de agua fría al generador de ACS.

Cuando sea pertinente, se mezclará el agua descalcificada con agua dura para obtener la adecuada dureza de la misma.

Cuando se monte un sistema de tratamiento electrolítico del agua mediante ánodos de aluminio, se instalará en el último acumulador de ACS de la serie, como especifica la norma UNE 100 050:2000.

4.1.2. Puesta en servicio

Pruebas y ensayos de las instalaciones

Pruebas de las instalaciones interiores

La empresa instaladora estará obligada a efectuar una prueba de resistencia mecánica y estanquidad de todas las tuberías, elementos y accesorios que integran la instalación, estando todos sus componentes vistos y accesibles para su control.

Para iniciar la prueba se llenará de agua toda la instalación, manteniendo abiertos los grifos terminales hasta que se tenga la seguridad de que la purga ha sido completa y no queda nada de aire. Entonces se cerrarán los grifos que han servido de purga y el de la fuente de alimentación. A continuación se empleará la bomba, que ya estará conectada y se mantendrá su funcionamiento hasta alcanzar la presión de prueba. Una vez acondicionada, se procederá en función del tipo del material como sigue:

a. Para las tuberías metálicas se considerarán válidas las pruebas realizadas según se describe en la norma UNE 100 151:1988;
b. para las tuberías termoplásticas y multicapas se considerarán válidas las pruebas realizadas conforme al Método A de la Norma UNE ENV 12 108:2002.

Una vez realizada la prueba anterior, a la instalación se le conectarán la grifería y los aparatos de consumo, sometiéndose nuevamente a la prueba anterior.

El manómetro que se utilice en esta prueba debe apreciar como mínimo intervalos de presión de 0,1 bar.

Las presiones aludidas anteriormente se refieren a nivel de la calzada.

Pruebas particulares de las instalaciones de ACS

En las instalaciones de preparación de ACS se realizarán las siguientes pruebas de funcionamiento:

a. Medición de caudal y temperatura en los puntos de agua;
b. Obtención de los caudales exigidos a la temperatura fijada una vez abiertos el número de grifos estimados en la simultaneidad;
c. Comprobación del tiempo que tarda el agua en salir a la temperatura de funcionamiento una vez realizado el equilibrado hidráulico de las distintas ramas de la red de retorno y abiertos uno a uno el grifo más alejado de cada uno de los ramales, sin haber abierto ningún grifo en las últimas 24 horas;
d. Medición de temperaturas de la red;
e. Con el acumulador a régimen, comprobación con termómetro de contacto de las temperaturas del mismo, en su salida y en los grifos. La temperatura del retorno no debe ser inferior en 3 ºC a la de salida del acumulador.

4.2. Productos de construcción

4.2.1. Condiciones generales de los materiales

De forma general, todos los materiales que se vayan a utilizar en las instalaciones de agua de consumo humano cumplirán los siguientes requisitos:

a. Todos los productos empleados deben cumplir lo especificado en la legislación vigente para aguas de consumo humano;
b. No deben modificar las características organolépticas ni la salubridad del agua suministrada;
c. Serán resistentes a la corrosión interior;
d. Serán capaces de funcionar eficazmente en las condiciones previstas de servicio;
e. No presentarán incompatibilidad electroquímica entre sí;
f. Deben ser resistentes, sin presentar daños ni deterioro, a temperaturas de hasta 40ºC, sin que tampoco les afecte la temperatura exterior de su entorno inmediato;
g. Serán compatibles con el agua a transportar y contener y no deben favorecer la migración de sustancias de los materiales en cantidades que sean un riesgo para la salubridad y limpieza del agua de consumo humano;
h. Su envejecimiento, fatiga, durabilidad y todo tipo de factores mecánicos, físicos o químicos, no disminuirán la vida útil prevista de la instalación.

Para que se cumplan las condiciones anteriores, se podrán utilizar revestimientos, sistemas de protección o los ya citados sistemas de tratamiento de agua.

4.2.2. Condiciones particulares de las conducciones

En función de las condiciones expuestas en el apartado anterior, se consideran adecuados para las instalaciones de agua de consumo humano los siguientes tubos:

a. Tubos de acero galvanizado, según Norma UNE 10 255:2004;
b. Tubos de cobre, según Norma UNE EN 1 057:2007;
c. Tubos de acero inoxidable, según Norma UNE 19 049-1:1997;
d. Tubos de fundición dúctil, según Norma UNE EN 545:2007;
e. Tubos de policloruro de vinilo no plastificado (PVC), según Norma UNE EN 1452:2000;
f. Tubos de policloruro de vinilo clorado (PVC-C), según Norma UNE EN ISO 15877:2004;
g. Tubos de polietileno (PE), según Normas UNE EN 12201:2003;
h. Tubos de polietileno reticulado (PE-X), según Norma UNE EN ISO 15875:2004;
i. Tubos de polibutileno (PB), según Norma UNE EN ISO 15876:2004;
j. Tubos de polipropileno (PP) según Norma UNE EN ISO 15874:2004;
k. Tubos multicapa de polímero / aluminio / polietileno resistente a temperatura (PE-RT), según Norma UNE 53 960 EX:2002;
l. Tubos multicapa de polímero / aluminio / polietileno reticulado (PE-X), según Norma UNE 53 961 EX:2002.

No podrán emplearse para las tuberías ni para los accesorios, materiales que puedan producir concentraciones de sustancias nocivas que excedan los valores permitidos por el Real Decreto 140/2003, de 7 de febrero.

El ACS se considera igualmente agua de consumo humano y cumplirá por tanto con todos los requisitos al respecto.

Dada la alteración que producen en las condiciones de potabilidad del agua, quedan prohibidos expresamente los tubos de aluminio y aquellos cuya composición contenga plomo.

Todos los materiales utilizados en los tubos, accesorios y componentes de la red, incluyendo también las juntas elásticas y productos usados para la estanqueidad, así como los materiales de aporte y fundentes para soldaduras, cumplirán igualmente las condiciones expuestas.

Aislantes térmicos

El aislamiento térmico de las tuberías utilizado para reducir pérdidas de calor, evitar condensaciones y congelación del agua en el interior de las conducciones, se realizará con coquillas resistentes a la temperatura de aplicación.

Válvulas y llaves

El material de válvulas y llaves no será incompatible con las tuberías en que se intercalen.

El cuerpo de la llave ó válvula será de una sola pieza de fundición o fundida en bronce, latón, acero, acero inoxidable, aleaciones especiales o plástico.

Solamente pueden emplearse válvulas de cierre por giro de 90º como válvulas de tubería si sirven como órgano de cierre para trabajos de mantenimiento.

Serán resistentes a una presión de servicio de 10 bar.

4.2.3. Incompatibilidades

Incompatibilidad de los materiales y el agua

Se evitará siempre la incompatibilidad de las tuberías de acero galvanizado y cobre controlando la agresividad del agua. Para los tubos de acero galvanizado se considerarán agresivas las aguas no incrustantes con contenidos de ión cloruro superiores a 250 mg/l. Para su valoración se empleará el índice de Langelier.

Para los tubos de cobre se consideraran agresivas las aguas dulces y ácidas (pH inferior a 6,5) y con contenidos altos de CO2. Para su valoración se empleará el índice de Lucey.

Para los tubos de acero galvanizado las condiciones límites del agua a transportar, a partir de las cuales será necesario un tratamiento serán las de la tabla siguiente:

Características	Agua fría	Agua caliente
Resistividad (Ohm x cm)	1.500 - 4.500	2.200 - 4.500
Título alcalimétrico completo (TAC) meq/l	1,6 mínimo	1,6 mínimo
Oxígeno disuelto, mg/l	4 mínimo	-
CO2 libre, mg/l	30 máximo	15 máximo
CO2 agresivo, mg/l	5 máximo	-
Calcio (Ca2+), mg/l	32 mínimo	32 mínimo
Sulfatos (SO4 2-), mg/l	150 máximo	96 máximo
Cloruros (Cl-), mg/l	100 máximo	71 máximo
Sulfatos + Cloruros, meq/l	-	3 máximo

Para los tubos de cobre las condiciones límites del agua a transportar, a partir de las cuales será necesario un tratamiento serán las de la tabla siguiente:

Características	Agua fría y agua caliente
pH	7,0 mínimo
CO2 libre, mg/l	no concentraciones altas
Indice de Langelier (IS)	debe ser positivo

Dureza total (TH), ºF	5 mínimo (no aguas dulces)

Para las tuberías de acero inoxidable las calidades se seleccionarán en función del contenido de cloruros disueltos en el agua. Cuando éstos no sobrepasen los 200 mg/l se puede emplear el AISI- 304. Para concentraciones superiores es necesario utilizar el AISI-316.

Incompatibilidad entre materiales

Medidas de protección frente a la incompatibilidad entre materiales

Se evitará el acoplamiento de tuberías y elementos de metales con diferentes valores de potencial electroquímico excepto cuando según el sentido de circulación del agua se instale primero el de menor valor.

En particular, las tuberías de cobre no se colocarán antes de las conducciones de acero galvanizado, según el sentido de circulación del agua, para evitar la aparición de fenómenos de corrosión por la formación de pares galvánicos y arrastre de iones Cu+ hacía las conducciones de acero galvanizado, que aceleren el proceso de perforación.

Igualmente, no se instalarán aparatos de producción de ACS en cobre colocados antes de canalizaciones en acero.

Excepcionalmente, por requisitos insalvables de la instalación, se admitirá el uso de manguitos antielectrolíticos, de material plástico, en la unión del cobre y el acero galvanizado.

Se autoriza sin embargo, el acoplamiento de cobre después de acero galvanizado, montando una válvula de retención entre ambas tuberías.

Se podrán acoplar al acero galvanizado elementos de acero inoxidable.

En las vainas pasamuros, se interpondrá un material plástico para evitar contactos inconvenientes entre distintos materiales.

Mantenimiento y conservación

4.2.4. Interrupción del servicio

En las instalaciones de agua de consumo humano que no se pongan en servicio después de 4 semanas desde su terminación, o aquellas que permanezcan fuera de servicio más de 6 meses, se cerrará su conexión y se procederá a su vaciado.

Las acometidas que no sean utilizadas inmediatamente tras su terminación o que estén paradas temporalmente, deben cerrarse en la conducción de abastecimiento. Las acometidas que no se utilicen durante 1 año deben ser taponadas.

4.2.5. Nueva puesta en servicio

En instalaciones de descalcificación habrá que iniciar una regeneración por arranque manual.

Las instalaciones de agua de consumo humano que hayan sido puestas fuera de servicio y vaciadas provisionalmente deben ser lavadas a fondo para la nueva puesta en servicio. Para ello se podrá seguir el procedimiento siguiente:

a. Para el llenado de la instalación se abrirán al principio solo un poco las llaves de cierre, empezando por la llave de cierre principal. A continuación, para evitar golpes de ariete y daños, se purgarán de aire durante un tiempo las conducciones por apertura lenta de cada una de las llaves de toma, empezando por la más alejada o la situada más alta, hasta que no salga más aire. A continuación se abrirán totalmente las llaves de cierre y lavarán las conducciones;
b. Una vez llenadas y lavadas las conducciones y con todas las llaves de toma cerradas, se comprobará la estanqueidad de la instalación por control visual de todas las conducciones accesibles, conexiones y dispositivos de consumo.

Mantenimiento de las instalaciones

Las operaciones de mantenimiento relativas a las instalaciones de fontanería recogerán detalladamente las prescripciones contenidas para estas instalaciones en el Real Decreto 865/2003 sobre criterios higiénico-sanitarios para la prevención y control de la legionelosis, y particularmente todo lo referido en su Anexo 3.

Los equipos que necesiten operaciones periódicas de mantenimiento, tales como elementos de medida, control, protección y maniobra, así como válvulas, compuertas, unidades terminales, que deban quedar ocultos, se situarán en espacios que permitan la accesibilidad.

Se aconseja situar las tuberías en lugares que permitan la accesibilidad a lo largo de su recorrido para facilitar la inspección de las mismas y de sus accesorios.

En caso de contabilización del consumo mediante batería de contadores, las montantes hasta cada derivación particular se considerará que forman parte de la instalación general, a efectos de conservación y mantenimiento puesto que discurren por zonas comunes del edificio.

5. INSTALACIÓN DE SANEAMIENTO

5.1. CONSTRUCCIÓN

La instalación de evacuación de aguas residuales se ejecutará con sujeción al proyecto, a la legislación aplicable, a las normas de la buena construcción y a las instrucciones del director de obra y del director de ejecución de la obra.

5.1.1. Ejecución de los puntos de captación

Válvulas de desagüe

1 Su ensamblaje e interconexión se efectuará mediante juntas mecánicas con tuerca y junta tórica. Todas irán dotadas de su correspondiente tapón y cadeneta, salvo que sean automáticas o con dispositivo incorporado a la grifería, y juntas de estanqueidad para su acoplamiento al aparato sanitario.

2 Las rejillas de todas las válvulas serán de latón cromado o de acero inoxidable, excepto en fregaderos en los que serán necesariamente de acero inoxidable. La unión entre rejilla y válvula se realizará mediante tornillo de acero inoxidable roscado sobre tuerca de latón inserta en el cuerpo de la válvula.

3 En el montaje de válvulas no se permitirá la manipulación de las mismas, quedando prohibida la unión con enmasillado. Cuando el tubo sea de polipropileno, no se utilizará líquido soldador.

Sifones individuales y botes sifónicos

1 Tanto los sifones individuales como los botes sifónicos serán accesibles en todos los casos y siempre desde el propio local en que se hallen instalados. Los cierres hidráulicos no quedarán tapados u ocultos por tabiques, forjados, etc., que dificulten o imposibiliten su acceso y mantenimiento. Los botes sifónicos empotrados en forjados sólo se podrán utilizar en condiciones ineludibles y justificadas de diseño.

2 Los sifones individuales llevarán en el fondo un dispositivo de registro con tapón roscado y se instalarán lo más cerca posible de la válvula de descarga del aparato sanitario o en el mismo aparato sanitario, para minimizar la longitud de tubería sucia en contacto con el ambiente.

3 La distancia máxima, en sentido vertical, entre la válvula de desagüe y la corona del sifón debe ser igual o inferior a 60 cm, para evitar la pérdida del sello hidráulico.

4 Cuando se instalen sifones individuales, se dispondrán en orden de menor a mayor altura de los respectivos cierres hidráulicos a partir de la embocadura a la bajante o al manguetón del inodoro, si es el caso, donde desembocarán los restantes aparatos aprovechando el máximo desnivel posible en el desagüe de cada uno de ellos. Así, el más próximo a la bajante será la bañera, después el bidé y finalmente el o los lavabos.

5 No se permitirá la instalación de sifones antisucción, ni cualquier otro que por su diseño pueda permitir el vaciado del sello hidráulico por sifonamiento.

6 No se podrán conectar desagües procedentes de ningún otro tipo de aparato sanitario a botes sifónicos que recojan desagües de urinarios.

7 Los botes sifónicos quedarán enrasados con el pavimento y serán registrables mediante tapa de cierre hermético, estanca al aire y al agua.

8 La conexión de los ramales de desagüe al bote sifónico se realizará a una altura mínima de 20 mm y el tubo de salida como mínimo a 50 mm, formando así un cierre hidráulico. La conexión del tubo de salida a la bajante no se realizará a un nivel inferior al de la boca del bote para evitar la pérdida del sello hidráulico.

9 El diámetro de los botes sifónicos será como mínimo de 110 mm.

10 Los botes sifónicos llevarán incorporada una válvula de retención contra inundaciones con boya flotador y desmontable para acceder al interior. Así mismo, contarán con un tapón de registro de acceso directo al tubo de evacuación para eventuales atascos y obstrucciones.

11 No se permitirá la conexión al sifón de otro aparato del desagüe de electrodomésticos, aparatos de bombeo o fregaderos con triturador.

Calderetas o cazoletas y sumideros

1 La superficie de la boca de la caldereta será como mínimo un 50 % mayor que la sección de bajante a la que sirve. Tendrá una profundidad mínima de 15 cm y un solape también mínimo de 5 cm bajo el solado. Irán provistas de rejillas, planas en el caso de cubiertas transitables y esféricas en las no transitables.

2 Tanto en las bajantes mixtas como en las bajantes de pluviales, la caldereta se instalará en paralelo con la bajante, a fin de poder garantizar el funcionamiento de la columna de ventilación.

3 Los sumideros de recogida de aguas pluviales, tanto en cubiertas, como en terrazas y garajes serán de tipo sifónico, capaces de soportar, de forma constante, cargas de 100 kg/cm2. El sellado estanco entre al impermeabilizante y el sumidero se realizará mediante apriete mecánico tipo “brida” de la tapa del sumidero sobre el cuerpo del mismo. Así mismo, el impermeabilizante se protegerá con una brida de material plástico.

4 El sumidero, en su montaje, permitirá absorber diferencias de espesores de suelo, de hasta 90 mm.

5 El sumidero sifónico se dispondrá a una distancia de la bajante inferior o igual a 5 m, y se garantizará que en ningún punto de la cubierta se supera una altura de 15 cm de hormigón de pendiente. Su diámetro será superior a 1,5 veces el diámetro de la bajante a la que desagua.

Canalones

1 Los canalones, en general y salvo las siguientes especificaciones, se dispondrán con una pendiente mínima de 0,5%, con una ligera pendiente hacia el exterior

2 Para la construcción de canalones de zinc, se soldarán las piezas en todo su perímetro, las abrazaderas a las que se sujetará la chapa, se ajustarán a la forma de la misma y serán de pletina de acero galvanizado.

Se colocarán estos elementos de sujeción a una distancia máxima de 50 cm e irá remetido al menos 15 mm de la línea de tejas del alero.

3 En canalones de plástico, se puede establecer una pendiente mínima de 0,16%. En estos canalones se unirán los diferentes perfiles con manguito de unión con junta de goma. La separación máxima entre ganchos de sujeción no excederá de 1 m, dejando espacio para las bajantes y uniones, aunque en zonas de nieve dicha distancia se reducirá a 0,70 m. Todos sus accesorios deben llevar una zona de dilatación de al menos 10 mm.

4 La conexión de canalones al colector general de la red vertical aneja, en su caso, se hará a través de sumidero sifónico.

5.1.2. Ejecución de las redes de pequeña evacuación

1 Las redes serán estancas y no presentarán exudaciones ni estarán expuestas a obstrucciones.

2 Se evitarán los cambios bruscos de dirección y se utilizarán piezas especiales adecuadas. Se evitará el enfrentamiento de dos ramales sobre una misma tubería colectiva.

3 Se sujetarán mediante bridas o ganchos dispuestos cada 700 mm para tubos de diámetro no superior a 50 mm y cada 500 mm para diámetros superiores. Cuando la sujeción se realice a paramentos verticales, estos tendrán un espesor mínimo de 9 cm. Las abrazaderas de cuelgue de los forjados llevarán forro interior elástico y serán regulables para darles la pendiente adecuada.

4 En el caso de tuberías empotradas se aislarán para evitar corrosiones, aplastamientos o fugas. Igualmente, no quedarán sujetas a la obra con elementos rígidos tales como yesos o morteros.

5 En el caso de utilizar tuberías de gres, por la agresividad de las aguas, la sujeción no será rígida, evitando los morteros y utilizando en su lugar un cordón embreado y el resto relleno de asfalto.

6 Los pasos a través de forjados, o de cualquier elemento estructural, se harán con contratubo de material adecuado, con una holgura mínima de 10 mm, que se retacará con masilla asfáltica o material elástico.

7 Cuando el manguetón del inodoro sea de plástico, se acoplará al desagüe del aparato por medio de un sistema de junta de caucho de sellado hermético.

5.1.3. Ejecución de bajantes y ventilaciones

Ejecución de las bajantes

1 Las bajantes se ejecutarán de manera que queden aplomadas y fijadas a la obra, cuyo espesor no debe menor de 12 cm, con elementos de agarre mínimos entre forjados. La fijación se realizará con una abrazadera de fijación en la zona de la embocadura, para que cada tramo de tubo sea autoportante, y una abrazadera de guiado en las zonas intermedias. La distancia entre abrazaderas debe ser de 15 veces el diámetro, y podrá tomarse la tabla siguiente como referencia, para tubos de 3 m:

Diámetro del tubo en mm	*40*	*50*	*63*	*75*	*110*	*125*	*160*
Distancia en m	0.4	0.8	1.0	1.1	1.5	1.5	1.5

2 Las uniones de los tubos y piezas especiales de las bajantes de PVC se sellarán con colas sintéticas impermeables de gran adherencia dejando una holgura en la copa de 5 mm, aunque también se podrá realizar la unión mediante junta elástica.

3 En las bajantes de polipropileno, la unión entre tubería y accesorios, se realizará por soldadura en uno de sus extremos y junta deslizante (anillo adaptador) por el otro; montándose la tubería a media carrera de la copa, a fin de poder absorber las dilataciones o contracciones que se produzcan.

4 Para los tubos y piezas de gres se realizarán juntas a enchufe y cordón. Se rodeará el cordón con cuerda embreada u otro tipo de empaquetadura similar. Se incluirá este extremo en la copa o enchufe, fijando la posición debida y apretando dicha empaquetadura de forma que ocupe la cuarta parte de la altura total de la copa. El espacio restante se rellenará con mortero de cemento y arena de río en la proporción 1:1. Se retacará este mortero contra la pieza del cordón, en forma de bisel.

5 Para las bajantes de fundición, las juntas se realizarán a enchufe y cordón, rellenado el espacio libre entre copa y cordón con una empaquetadura que se retacará hasta que deje una profundidad libre de 25 mm. Así mismo, se podrán realizar juntas por bridas, tanto en tuberías normales como en piezas especiales.

6 Las bajantes, en cualquier caso, se mantendrán separadas de los paramentos, para, por un lado poder efectuar futuras reparaciones o acabados, y por otro lado no afectar a los mismos por las posibles condensaciones en la cara exterior de las mismas.

7 A las bajantes que discurriendo vistas, sea cual sea su material de constitución, se les presuponga un cierto riesgo de impacto, se les dotará de la adecuada protección que lo evite en lo posible.

8 En edificios de más de 10 plantas, se interrumpirá la verticalidad de la bajante, con el fin de disminuir el posible impacto de caída. La desviación debe preverse con piezas especiales o escudos de protección de la bajante y el ángulo de la desviación con la vertical debe ser superior a 60º, a fin de evitar posibles atascos. El reforzamiento se realizará con elementos de poliéster aplicados “in situ”.

Ejecución de las redes de ventilación

1 Las ventilaciones primarias irán provistas del correspondiente accesorio estándar que garantice la estanqueidad permanente del remate entre impermeabilizante y tubería.

2 En las bajantes mixtas o residuales, que vayan dotadas de columna de ventilación paralela, ésta se montará lo más próxima posible a la bajante; para la interconexión entre ambas se utilizarán accesorios estándar del mismo material de la bajante, que garanticen la absorción de las distintas dilataciones que se produzcan en las dos conducciones, bajante y ventilación. Dicha interconexión se realizará en cualquier caso, en el sentido inverso al del flujo de las aguas, a fin de impedir que éstas penetren en la columna de ventilación.

3 Los pasos a través de forjados se harán en idénticas condiciones que para las bajantes, según el material de que se trate. Igualmente, dicha columna de ventilación debe quedar fijada a muro de espesor no menor de 9 cm, mediante abrazaderas, no menos de 2 por tubo y con distancias máximas de 150 cm.

4 La ventilación terciaria se conectará a una distancia del cierre hidráulico entre 2 y 20 veces el diámetro de la tubería. Se realizará en sentido ascendente o en todo caso horizontal por una de las paredes del local húmedo.

5 Las válvulas de aireación se montarán entre el último y el penúltimo aparato, y por encima, de 1 a 2 m, del nivel del flujo de los aparatos. Se colocarán en un lugar ventilado y accesible. La unión podrá ser por presión con junta de caucho o sellada con silicona.

5.1.4. Ejecución de albañales y colectores

Ejecución de la red horizontal colgada

1 El entronque con la bajante se mantendrá libre de conexiones de desagüe a una distancia igual o mayor que 1 m a ambos lados.

2 Se situará un tapón de registro en cada entronque y en tramos rectos cada 15 m, que se instalarán en la mitad superior de la tubería.

3 En los cambios de dirección se situarán codos de 45º, con registro roscado.

4 La separación entre abrazaderas será función de la flecha máxima admisible por el tipo de tubo, siendo:

a) en tubos de PVC y para todos los diámetros, 0,3 cm;

b) en tubos de fundición, y para todos los diámetros, 0,3 cm.

5 Aunque se debe comprobar la flecha máxima citada, se incluirán abrazaderas cada 1,50 m, para todo tipo de tubos, y la red quedará separada de la cara inferior del forjado un mínimo de 5 cm. Estas abrazaderas, con las que se sujetarán al forjado, serán de hierro galvanizado y dispondrán de forro interior elástico, siendo regulables para darles la pendiente deseada. Se dispondrán sin apriete en las gargantas de cada accesorio, estableciéndose de ésta forma los puntos fijos; los restantes soportes serán deslizantes y soportarán únicamente la red.

6 Cuando la generatriz superior del tubo quede a más de 25 cm del forjado que la sustenta, todos los puntos fijos de anclaje de la instalación se realizarán mediante silletas o trapecios de fijación, por medio de tirantes anclados al forjado en ambos sentidos (aguas arriba y aguas abajo) del eje de la conducción, a fin de evitar el desplazamiento de dichos puntos por pandeo del soporte.

7 En todos los casos se instalarán los absorbedores de dilatación necesarios. En tuberías encoladas se utilizarán manguitos de dilatación o uniones mixtas (encoladas con juntas de goma) cada 10 m.

8 La tubería principal se prolongará 30 cm desde la primera toma para resolver posibles obturaciones.

9 Los pasos a través de elementos de fábrica se harán con contratubo de algún material adecuado, con las holguras correspondientes, según se ha indicado para las bajantes.

Ejecución de la red horizontal enterrada

1 La unión de la bajante a la arqueta se realizará mediante un manguito deslizante arenado previamente y recibido a la arqueta. Este arenado permitirá ser recibido con mortero de cemento en la arqueta, garantizando de esta forma una unión estanca.

2 Si la distancia de la bajante a la arqueta de pie de bajante es larga se colocará el tramo de tubo entre ambas sobre un soporte adecuado que no limite el movimiento de este, para impedir que funcione como ménsula.

3 Para la unión de los distintos tramos de tubos dentro de las zanjas, se considerará la compatibilidad de materiales y sus tipos de unión:

a) para tuberías de hormigón, las uniones serán mediante corchetes de hormigón en masa;;

b) para tuberías de PVC, no se admitirán las uniones fabricadas mediante soldadura o pegamento de diversos elementos, las uniones entre tubos serán de enchufe o cordón con junta de goma, o pegado mediante adhesivos.

4 Cuando exista la posibilidad de invasión de la red por raíces de las plantaciones inmediatas a ésta, se tomarán las medidas adecuadas para impedirlo tales como disponer mallas de geotextil.

Ejecución de las zanjas

1 Las zanjas se ejecutarán en función de las características del terreno y de los materiales de las canalizaciones a enterrar. Se considerarán tuberías más deformables que el terreno las de materiales plásticos, y menos deformables que el terreno las de fundición, hormigón y gres.

2 Sin perjuicio del estudio particular del terreno que pueda ser necesario, se tomarán de forma general, las siguientes medidas.

Zanjas para tuberías de materiales plásticos

1 Las zanjas se ejecutarán en función de las características del terreno y de los materiales de las canalizaciones a enterrar. Se considerarán tuberías más deformables que el terreno las de materiales plásticos, y menos deformables que el terreno las de fundición, hormigón y gres.

2 Su profundidad vendrá definida en el proyecto, siendo función de las pendientes adoptadas. Si la tubería discurre bajo calzada, se adoptará una profundidad mínima de 80 cm, desde la clave hasta la rasante del terreno.

3 Los tubos se apoyarán en toda su longitud sobre un lecho de material granular (arena/grava) o tierra exenta de piedras de un grueso mínimo de 10 + diámetro exterior/ 10 cm. Se compactarán los laterales y se dejarán al descubierto las uniones hasta haberse realizado las pruebas de estanqueidad. El relleno se

realizará por capas de 10 cm, compactando, hasta 30 cm del nivel superior en que se realizará un último vertido y la compactación final.

4 La base de la zanja, cuando se trate de terrenos poco consistentes, será un lecho de hormigón en toda su longitud. El espesor de este lecho de hormigón será de 15 cm y sobre él irá el lecho descrito en el párrafo anterior.

Zanjas para tuberías de fundición, hormigón y gres

1 Además de las prescripciones dadas para las tuberías de materiales plásticos se cumplirán las siguientes.

2 El lecho de apoyo se interrumpirá reservando unos nichos en la zona donde irán situadas las juntas de unión.

3 Una vez situada la tubería, se rellenarán los flancos para evitar que queden huecos y se compactarán los laterales hasta el nivel del plano horizontal que pasa por el eje del tubo. Se utilizará relleno que no contenga piedras o terrones de más de 3 cm de diámetro y tal que el material pulverulento, diámetro inferior a 0,1 mm, no supere el 12 %. Se proseguirá el relleno de los laterales hasta 15 cm por encima del nivel de la clave del tubo y se compactará nuevamente. La compactación de las capas sucesivas se realizará por capas no superiores a 30 cm y se utilizará material exento de piedras de diámetro superior a 1 cm.

Protección de las tuberías de fundición enterradas

1 En general se seguirán las instrucciones dadas para las demás tuberías en cuanto a su enterramiento, con las prescripciones correspondientes a las protecciones a tomar relativas a las características de los terrenos particularmente agresivos.

2 Se definirán como terrenos particularmente agresivos los que presenten algunas de las características siguientes:

a) baja resistividad: valor inferior a 1.000 O x cm;

b) reacción ácida: pH < 6;

c) contenido en cloruros superior a 300 mg por kg de tierra;

d) contenido en sulfatos superior a 500 mg por kg de tierra;

e) indicios de sulfuros;

f) débil valor del potencial redox: valor inferior a +100 mV.

3 En este caso, se podrá evitar su acción mediante la aportación de tierras químicamente neutras o de reacción básica (por adición de cal), empleando tubos con revestimientos especiales y empleando protecciones exteriores mediante fundas de film de polietileno.

4 En éste último caso, se utilizará tubo de PE de 0,2 mm de espesor y de diámetro superior al tubo de fundición. Como complemento, se utilizará alambre de acero con recubrimiento plastificador y tiras adhesivas de film de PE de unos 50 mm de ancho.

5 La protección de la tubería se realizará durante su montaje, mediante un primer tubo de PE que servirá de funda al tubo de fundición e irá colocado a lo largo de éste dejando al descubierto sus extremos y un segundo tubo de 70 cm de longitud, aproximadamente, que hará de funda de la unión.

Ejecución de los elementos de conexión de las redes enterradas

Arquetas

1 Si son fabricadas "in situ" podrán ser construidas con fábrica de ladrillo macizo de medio pie de espesor, enfoscada y bruñida interiormente, se apoyarán sobre una solera de hormigón H-100 de 10 cm de espesor y se cubrirán con una tapa de hormigón prefabricado de 5 cm de espesor. El espesor de las realizadas con hormigón será de 10 cm. La tapa será hermética con junta de goma para evitar el paso de olores y gases.

2 Las arquetas sumidero se cubrirán con rejilla metálica apoyada sobre angulares. Cuando estas arquetas sumideros tengan dimensiones considerables, como en el caso de rampas de garajes, la rejilla plana será desmontable. El desagüe se realizará por uno de sus laterales, con un diámetro mínimo de 110 mm, vertiendo a una arqueta sifónica o a un separador de grasas y fangos.

3 En las arquetas sifónicas, el conducto de salida de las aguas irá provisto de un codo de 90º, siendo el espesor de la lámina de agua de 45 cm.

4 Los encuentros de las paredes laterales se deben realizar a media caña, para evitar el depósito de materias sólidas en las esquinas. Igualmente, se conducirán las aguas entre la entrada y la salida mediante medias cañas realizadas sobre cama de hormigón formando pendiente.

Pozos

1 Si son fabricados "in situ", se construirán con fábrica de ladrillo macizo de 1 pie de espesor que irá enfoscada y bruñida interiormente. Se apoyará sobre solera de hormigón H-100 de 20 cm de espesor y se cubrirá con una tapa hermética de hierro fundido. Los prefabricados tendrán unas prestaciones similares.

Separadores

1 Si son fabricados "in situ", se construirán con fábrica de ladrillo macizo de 1 pie de espesor que irá enfoscada y bruñida interiormente. Se apoyará sobre solera de hormigón H-100 de 20 cm de espesor y se cubrirá con una tapa hermética de hierro fundido, practicable.

2 En el caso que el separador se construya en hormigón, el espesor de las paredes será como mínimo de 10 cm y la solera de 15 cm.

3 Cuando se exija por las condiciones de evacuación se utilizará un separador con dos etapas de tratamiento: en la primera se realizará un pozo separador de fango, en donde se depositarán las materias gruesas, en la segunda se hará un pozo separador de grasas, cayendo al fondo del mismo las materias ligeras.

4 En todo caso, deben estar dotados de una eficaz ventilación, que se realizará con tubo de 100 mm, hasta la cubierta del edificio.

5 El material de revestimiento será inatacable pudiendo realizarse mediante materiales cerámicos o vidriados.

6 El conducto de alimentación al separador llevará un sifón tal que su generatriz inferior esté a 5 cm sobre el nivel del agua en el separador siendo de 10 cm la distancia del primer tabique interior al conducto de llegada. Estos serán inamovibles sobresaliendo 20 cm del nivel de aceites y teniendo, como mínimo, otros 20 cm de altura mínima sumergida. Su separación entre sí será, como mínimo, la anchura total del separador de grasas. Los conductos de evacuación serán de gres vidriado con una pendiente mínima del 3 % para facilitar una rápida evacuación a la red general.

5.1.5. Ejecución de los sistemas de elevación y bombeo

Depósito de recepción

1 El depósito acumulador de aguas residuales debe ser de construcción estanca para evitar la salida de malos olores y estará dotado de una tubería de ventilación con un diámetro igual a la mitad del de acometida y como mínimo de 80 mm.

2 Tendrá, preferiblemente, en planta una superficie de sección circular, para evitar la acumulación de depósitos sólidos.

3 Debe quedar un mínimo de 10 cm entre el nivel máximo del agua en el depósito y la generatriz inferior de la tubería de acometida, o de la parte más baja de las generatrices inferiores de las tuberías de acometida, para evitar su inundación y permitir la circulación del aire.

4 Se dejarán al menos 20 cm entre el nivel mínimo del agua en el depósito y el fondo para que la boca de aspiración de la bomba esté siempre sumergida, aunque esta cota podrá variar según requisitos específicos del fabricante.

5 La altura total será de al menos 1 m, a la que habrá que añadir la diferencia de cota entre el nivel del suelo y la generatriz inferior de la tubería, para obtener la profundidad total del depósito.

6 Cuando se utilicen bombas de tipo sumergible, se alojarán en una fosa para reducir la cantidad de agua que queda por debajo de la boca de aspiración. La misma forma podrá tener el fondo del tanque cuando existan dos cámaras, una para recibir las aguas (fosa húmeda) y otra para alojar las bombas (fosa seca).

7 El fondo del tanque debe tener una pendiente mínima del 25 %.

8 El caudal de entrada de aire al tanque debe ser igual al de la bomba.

Dispositivos de elevación y control

1 Las bombas tendrán un diseño que garantice una protección adecuada contra las materias sólidas en suspensión en el agua.

2 Para controlar la marcha y parada de la bomba se utilizarán interruptores de nivel, instalados en los niveles alto y bajo respectivamente. Se instalará además un nivel de alarma por encima del nivel superior y otro de seguridad por debajo del nivel mínimo.

3 Si las bombas son dos o más, se multiplicará proporcionalmente el número de interruptores. Se añadirá, además un dispositivo para alternar el funcionamiento de las bombas con el fin de mantenerlas en igual estado de uso, con un funcionamiento de las bombas secuencial.

4 Cuando exista riesgo de flotación de los equipos, éstos se fijarán a su alojamiento para evitar dicho riesgo. En caso de existencia de fosa seca, ésta dispondrá de espacio suficiente para que haya, al menos, 600 mm alrededor y por encima de las partes o componentes que puedan necesitar mantenimiento. Igualmente, se le dotará de sumidero de al menos 100 mm de diámetro, ventilación adecuada e iluminación mínima de 200 lux.

5 Todas las conexiones de las tuberías del sistema de bombeo y elevación estarán dotadas de los elementos necesarios para la no transmisión de ruidos y vibraciones. El depósito de recepción que contenga residuos fecales no estará integrado en la estructura del edificio.

6 En la entrada del equipo se dispondrá una llave de corte, así como a la salida y después de la válvula de retención. No se realizará conexión alguna en la tubería de descarga del sistema. No se conectará la tubería de descarga a bajante de cualquier tipo. La conexión con el colector de desagüe se hará siempre por gravedad. En la tubería de descarga no se colocarán válvulas de aireación.

5.1.6. Pruebas

Pruebas de estanqueidad parcial

1 Se realizarán pruebas de estanqueidad parcial descargando cada aparato aislado o simultáneamente, verificando los tiempos de desagüe, los fenómenos de sifonado que se produzcan en el propio aparato o en los demás conectados a la red, ruidos en desagües y tuberías y comprobación de cierres hidráulicos.

2 No se admitirá que quede en el sifón de un aparato una altura de cierre hidráulico inferior a 25 mm.

3 Las pruebas de vaciado se realizarán abriendo los grifos de los aparatos, con los caudales mínimos considerados para cada uno de ellos y con la válvula de desagüe asimismo abierta; no se acumulará agua en el aparato en el tiempo mínimo de 1 minuto.

4 En la red horizontal se probará cada tramo de tubería, para garantizar su estanqueidad introduciendo agua a presión (entre 0,3 y 0,6 bar) durante diez minutos.

5 Las arquetas y pozos de registro se someterán a idénticas pruebas llenándolos previamente de agua y observando si se advierte o no un descenso de nivel.

6 Se controlarán al 100 % las uniones, entronques y/o derivaciones.

Pruebas de estanqueidad total

1 Las pruebas deben hacerse sobre el sistema total, bien de una sola vez o por partes podrán según las prescripciones siguientes.

Prueba con agua

1 La prueba con agua se efectuará sobre las redes de evacuación de aguas residuales y pluviales. Para ello, se taponarán todos los terminales de las tuberías de evacuación, excepto los de cubierta, y se llenará la red con agua hasta rebosar.

2 La presión a la que debe estar sometida cualquier parte de la red no debe ser inferior a 0,3 bar, ni superar el máximo de 1 bar.

3 Si el sistema tuviese una altura equivalente más alta de 1 bar, se efectuarán las pruebas por fases, subdividiendo la red en partes en sentido vertical.

4 Si se prueba la red por partes, se hará con presiones entre 0,3 y 0,6 bar, suficientes para detectar fugas.

5 Si la red de ventilación está realizada en el momento de la prueba, se le someterá al mismo régimen que al resto de la red de evacuación.

6 La prueba se dará por terminada solamente cuando ninguna de las uniones acusen pérdida de agua.

Prueba con aire

1 La prueba con aire se realizará de forma similar a la prueba con agua, salvo que la presión a la que se someterá la red será entre 0,5 y 1 bar como máximo.

2 Esta prueba se considerará satisfactoria cuando la presión se mantenga constante durante tres minutos.

Prueba con humo

1 La prueba con humo se efectuará sobre la red de aguas residuales y su correspondiente red de ventilación.

2 Debe utilizarse un producto que produzca un humo espeso y que, además, tenga un fuerte olor.

3 La introducción del producto se hará por medio de máquinas o bombas y se efectuará en la parte baja del sistema, desde distintos puntos si es necesario, para inundar completamente el sistema, después de haber llenado con agua todos los cierres hidráulicos.

4 Cuando el humo comience a aparecer por los terminales de cubierta del sistema, se taponarán éstos a fin de mantener una presión de gases de 250 Pa.

5 El sistema debe resistir durante su funcionamiento fluctuaciones de ± 250 Pa, para las cuales ha sido diseñado, sin pérdida de estanqueidad en los cierres hidráulicos.

6 La prueba se considerará satisfactoria cuando no se detecte presencia de humo y olores en el interior del edificio.

5.1.7. Productos de construcción

Características generales de los materiales

1 De forma general, las características de los materiales definidos para estas instalaciones serán:

a) Resistencia a la fuerte agresividad de las aguas a evacuar.

b) Impermeabilidad total a líquidos y gases.

c) Suficiente resistencia a las cargas externas.

d) Flexibilidad para poder absorber sus movimientos.

e) Lisura interior.

f) Resistencia a la abrasión.

f) Resistencia a la corrosión.

2 Absorción de ruidos, producidos y transmitidos.

Materiales de las canalizaciones

1 Conforme a lo ya establecido, se consideran adecuadas para las instalaciones de evacuación de residuos las canalizaciones que tengan las características específicas establecidas en las siguientes normas:

a) Tuberías de fundición según normas UNE EN 545:2002, UNE EN 598:1996, UNE EN 877:2000.

b) Tuberías de PVC según normas UNE EN 1329-1:1999, UNE EN 1401-1:1998, UNE EN 1453-1:2000, UNE EN 1456-1:2002, UNE EN 1566-1:1999.

c) Tuberías de polipropileno (PP) según norma UNE EN 1852-1:1998.

d) Tuberías de gres según norma UNE EN 295-1:1999.

e) Tuberías de hormigón según norma UNE 127010:1995 EX.

Materiales de los puntos de captación

Sifones

1 Serán lisos y de un material resistente a las aguas evacuadas, con un espesor mínimo de 3 mm.

Calderetas

1 Podrán ser de cualquier material que reúna las condiciones de estanquidad, resistencia y perfecto acoplamiento a los materiales de cubierta, terraza o patio.

Condiciones de los materiales de los accesorios

1 Cumplirán las siguientes condiciones:

a) Cualquier elemento metálico o no que sea necesario para la perfecta ejecución de estas instalaciones reunirá en cuanto a su material, las mismas condiciones exigidas para la canalización en que se inserte.

b) Las piezas de fundición destinadas a tapas, sumideros, válvulas, etc., cumplirán las condiciones exigidas para las tuberías de fundición.

c) Las bridas, presillas y demás elementos destinados a la fijación de bajantes serán de hierro metalizado o galvanizado.

d) Cuando se trate de bajantes de material plástico se intercalará, entre la abrazadera y la bajante, un manguito de plástico.

e) Igualmente cumplirán estas prescripciones todos los herrajes que se utilicen en la ejecución, tales como peldaños de pozos, tuercas y bridas de presión en las tapas de registro, etc.

Mantenimiento y conservación

1 Para un correcto funcionamiento de la instalación de saneamiento, se debe comprobar periódicamente la estanqueidad general de la red con sus posibles fugas, la existencia de olores y el mantenimiento del resto de elementos.

2 Se revisarán y desatascarán los sifones y válvulas, cada vez que se produzca una disminución apreciable del caudal de evacuación, o haya obstrucciones.

3 Cada 6 meses se limpiarán los sumideros de locales húmedos y cubiertas transitables, y los botes sifónicos. Los sumideros y calderetas de cubiertas no transitables se limpiarán, al menos, una vez al año.

4 Una vez al año se revisarán los colectores suspendidos, se limpiarán las arquetas sumidero y el resto de posibles elementos de la instalación tales como pozos de registro, bombas de elevación.

5 Cada 10 años se procederá a la limpieza de arquetas de pie de bajante, de paso y sifónicas o antes si se apreciaran olores.

6 Cada 6 meses se limpiará el separador de grasas y fangos si este existiera.

7 Se mantendrá el agua permanentemente en los sumideros, botes sifónicos y sifones individuales para evitar malos olores, así como se limpiarán los de terrazas y cubiertas.

Por la empresa consultora, CEMOSA INGENIERÍA Y CONTROL

El Arquitecto:

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Fecha: noviembre de 2024

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Plan de Recuperación, Transformación y Resiliencia

PROYECTO BÁSICO Y DE EJECUCIÓN PARA LA MEJORA DE LA EFICIENCIA ENERGÉTICA

PABELLÓN DE CRISTAL DE LA CASA DE CAMPO



PROMOTOR

Madrid Destino

EQUIPO REDACTOR

CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRAS S.A.

ARQUITECTO: D. JOSÉ MORIANA PERICET

V. MEDICIONES Y PRESUPUESTO

cemosa Ingeniería y Control

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Madrid Destino

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1. PRECIOS AUXILIARES

CUADRO DE PRECIOS AUXILIARES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	CANTIDAD	UD	RESUMEN	PRECIO	SUBTOTAL	IMPORTE
A02A080		**m3**	**MORTERO CEMENTO M-5 C/HORMIGONERA**			
			Mortero de cemento CEM II/B-P 32,5 N y arena de río de tipo M-5 para uso corriente (G), con resistencia a compresión a 28 días de 5,0 N/mm2, confeccionado con hormigonera de 200 l, s/RC-16 y UNE-EN 998-2:2018.			
O01OA070	1,492	h	Peón ordinario	16,88	25,18	
M03HH020	0,351	h	Hormigonera 200 l gasolina	3,50	1,23	
P01CC020	0,270	t	Cemento CEM II/B-P 32,5 N sacos	125,63	33,92	
P01AA020	1,090	m3	Arena de río 0/6 mm	23,63	25,76	
P01DW050	0,255	m3	Agua	1,40	0,36	
%MA0200	2,00			86,500	1,73	
%CI0400	4,00		Costes indirectos	88,200	3,53	
			COSTE UNITARIO TOTAL			**91,71**
			Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de NOVENTA Y UN con SETENTA Y UN CÉNTIMOS			
E07LD130		**m2**	**TABICÓN LADRILLO HUECO DOBLE 24x11,5x7 cm MORTERO M-5**			
			Tabicón de ladrillo cerámico hueco doble 24x11,5x7 cm, recibido con mortero de cemento CEM II/B-M 32,5 N y arena de río, tipo M-5, preparado en central y suministrado a pie de obra, para revestir, i/replanteo, nivelación y aplomado, rejuntado, limpieza y medios auxiliares. Según UNE-EN 998-2:2018, RC-16, NTE-PTL y CTE DB-SE-F, medido a cinta corrida. Materiales con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011.			
O01OA030	0,350	h	Oficial primera	19,86	6,95	
O01OA070	0,350	h	Peón ordinario	16,88	5,91	
P01LH130	0,036	mu	Ladrillo hueco doble 24x11,5x7 cm	81,83	2,95	
P01MC040	0,017	m3	Mortero cemento gris CEM-II/B-M 32,5 M-5	55,35	0,94	
			COSTE UNITARIO TOTAL			**16,75**
			Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de DIECISÉIS con SETENTA Y CINCO CÉNTIMOS			
E10AAF035N01		**m2**	**AISLAMIENTO RUIDO IMPACTO FORMADO POR LÁMINA DE NEOPRENO DE 4 mm DE ESPESOR**			
			Aislamiento acústico al ruido de impacto de forjados mediante lámina antiimpacto de 4 mm compuesto por lámina de nopreno, con alta resistencia a la compresión, desgarro y punzonamiento. Con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011, maestreado, medido en superficie realmente ejecutada, conforme a la norma UNE-EN 13813:2014			
O01OA030	0,100	h	Oficial primera	19,86	1,99	
O01OA050	0,100	h	Ayudante	20,32	2,03	
P07AL100N01	1,100	m2	Lámina amortiguadora anti-impacto neopreno 4 mm	2,84	3,12	
			COSTE UNITARIO TOTAL			**7,14**
			Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de SIETE con CATORCE CÉNTIMOS			
E10ATV058		**m2**	**AISLAMIENTO TÉRMICO MW 100 mm**			
			Aislamiento térmico con paneles de lana mineral no hidrófila y sin recubrimiento de 100 mm de espesor, según UNE-EN 13162:2013+A1:2015, con una conductividad térmica de 0,035 W/(mK) y euroclase de reacción al fuego A1 según UNE-EN 13501-1:2007+A1:2010. Ejecutado conforme CTE DB-HE. Lana mineral (MW) con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011.			
O01OA030	0,080	h	Oficial primera	19,86	1,59	
O01OA050	0,040	h	Ayudante	20,32	0,81	
P07TL716	1,050	m2	Panel MW 100 C=0,035 W/mK	8,71	9,15	

CUADRO DE PRECIOS AUXILIARES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	CANTIDAD	UD	RESUMEN	PRECIO	SUBTOTAL	IMPORTE
			COSTE UNITARIO TOTAL			**11,55**

Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de ONCE con CINCUENTA Y CINCO CÉNTIMOS

E11D040 **m2** **RECRECIDO 4 cm MORTERO CT-C2,5**

Recrecido del soporte de pavimentos con mortero CT-C2,5 F-2 de cemento CEM II/B-P 32,5 N y arena de río (M-2,5) de 4 cm de espesor, con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011, maestreado, medido en superficie realmente ejecutada, conforme a la norma UNE-EN 13813:2014.

O01OA030	0,170	h	Oficial primera	19,86	3,38	
O01OA050	0,170	h	Ayudante	20,32	3,45	
P01MEN020	0,027	t	Mortero recrecido CT-C2,5-F2	252,70	6,82	
			COSTE UNITARIO TOTAL			**13,65**

Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de TRECE con SESENTA Y CINCO CÉNTIMOS

E11D070 **m2** **RECRECIDO 5 cm MORTERO CT-C5**

Recrecido del soporte de pavimentos con mortero CT-C5 F-2 de cemento CEM II/B-P 32,5 N y arena de río (M-5) de 5 cm de espesor, con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011, maestreado, medido en superficie realmente ejecutada, conforme a la norma UNE-EN 13813:2014.

O01OA030	0,170	h	Oficial primera	19,86	3,38	
O01OA050	0,170	h	Ayudante	20,32	3,45	
P01MEN010	0,036	t	Mortero recrecido (CT-C5-F2)	268,64	9,67	
			COSTE UNITARIO TOTAL			**16,50**

Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de DIECISÉIS con CINCUENTA CÉNTIMOS

S01C090 **u** **MESA MELAMINA PARA 10 PERSONAS**

Mesa de melamina para comedor de obra con capacidad para 10 personas (amortizable en 3 usos).

O01OA070	0,093	h	Peón ordinario	16,88	1,57	
P31BM100	0,333	u	Mesa melamina para 10 personas	187,59	62,47	
			COSTE UNITARIO TOTAL			**64,04**

Asciende el precio unitario del concepto auxiliar a la mencionada cantidad de SESENTA Y CUATRO con CUATRO CÉNTIMOS

2. PRECIOS BÁSICOS

CONCEPTOS (PRESUPUESTO)

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD.	PRECIO/UD.	IMPORTE
102	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G4mm²	440,000	m	6,70	2.948,00
	Grupo 102				**2.948,00**
103-100	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G35mm²	308,000	m	57,90	17.833,20
103-101	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G185mm²	160,000	m	52,88	8.460,80
103-102	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G95mm²	40,000	m	28,57	1.142,80
103-2	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G25mm²	429,000	m	37,20	15.958,80
103d516	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G16mm²	275,000	m	36,20	9.955,00
	Grupo 103				**53.350,60**
210-TA200X100	Toma de aire 210-TA 2000x1000	24,000	Ud	289,74	6.953,76
	Grupo 210				**6.953,76**
33168250	Material aux. sujeción: Abrazadera isofónica Niron, de carga pesada	22,222	u	52,25	1.161,11
	Grupo 331				**1.161,11**
AB115048AZ	Material aux. sujeción: Abrazadera isofónica NIRON	472,896	u	2,96	1.399,77
AB115060AZ	Material aux. sujeción: Abrazadera isofónica NIRON	119,882	u	3,48	417,19
AB115075AZ	Material aux. sujeción: Abrazadera isofónica NIRON	140,675	u	4,31	606,31
AB115090AZ	Material aux. sujeción: Abrazadera isofónica NIRON	362,663	u	5,09	1.845,95
AB115110AZ	Material aux. sujeción: Abrazadera isofónica NIRON	4,974	u	6,47	32,18
AB115125AZ	Material aux. sujeción: Abrazadera isofónica NIRON	28,111	u	8,22	231,07
AB115160AZ	Material aux. sujeción: Abrazadera isofónica NIRON	56,483	u	10,18	574,99
AB115200AZ	Material aux. sujeción: Abrazadera isofónica NIRON	52,306	u	16,95	886,59
	Grupo AB1				**5.994,05**
ALC	BOMBA WILO PLANTA ALTA CALOR	2,000	u	7.092,00	14.184,00
	Grupo ALC				**14.184,00**
ALF	BOMBA WILO PLANTA ALTA FRIO	2,000	u	7.866,00	15.732,00
	Grupo ALF				**15.732,00**
DF49TR-12	Difusor DF-49-A-TR-12	420,000	Ud	352,90	148.218,00
	Grupo DF4				**148.218,00**
GE01CMS01	Gestión de residuos generados en obra	1,000	Ud	11.926,47	11.926,47
	Grupo GE0				**11.926,47**
GRÚA	Grúa telescópica autopropulsada 20 t	24,000	h	57,82	1.387,68
	Grupo GRÚ				**1.387,68**
M02GMH010	Camión-grúa articulada telescópica 25 t	46,551	h	70,69	3.290,68
M02PAE040	Plataforma articulada eléctrica 15 m	93,102	h	22,69	2.112,48
	Grupo M02				**5.403,16**
M03HH020	Hormigonera 200 l gasolina	0,007	h	3,50	0,02
M03HH065	Hormigonera 200 l eléctrica	0,540	h	2,87	1,55
	Grupo M03				**1,57**
M05RN020	Retrocargadora neumáticos 75 CV	0,200	h	28,76	5,75
	Grupo M05				**5,75**
MT42CON030A	Panel rígido de alta densidad de lana de vidrio 0,75m2K/W y 0,032W/(mK)	5.157,478	m	14,73	75.969,66
	Grupo MT4				**75.969,66**
NG110	Accesorio Codo Socket, PP-RCT, D= 110 mm	0,843	u	40,15	33,85
NG125	Accesorio Codo Socket, PP-RCT, D= 125 mm	5,111	u	63,08	322,40
	Grupo NG1				**356,25**
NG50	Accesorio Codo Socket, PP-RCT, D= 50 mm	36,945	u	4,96	183,25
	Grupo NG5				**183,25**

CONCEPTOS (PRESUPUESTO)

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD.	PRECIO/UD.	IMPORTE
NG63	Accesorio Codo Socket, PP-RCT, D= 63 mm	11,639	u	8,19	95,32
	Grupo NG6				**95,32**
NG75	Accesorio Codo Socket, PP-RCT, D= 75 mm	16,550	u	15,26	252,55
	Grupo NG7				**252,55**
NG90	Accesorio Codo Socket, PP-RCT, D= 90 mm	51,809	u	25,72	1.332,53
NG9011160MM	Accesorio Codo "a tope", PP-RCT, D= 160 mm	17,116	u	96,20	1.646,56
NG9011200MM	Accesorio Codo "a tope",PP-RCT, D=200 mm	16,873	u	246,48	4.158,86
NG9011250MM	Accesorio Codo "a tope",PP-RCT, D=250 mm	5,698	u	293,59	1.672,88
	Grupo NG9				**8.810,83**
NMAN110	Accesorio Manguito Socket, PP-RCT, D= 110 mm	2,108	u	21,41	45,12
NMAN125	Accesorio Manguito Socket, PP-RCT, D= 125 mm	12,778	u	31,42	401,47
NMAN50	Accesorio Manguito Socket, PP-RCT, D= 50 mm	92,363	u	3,04	280,78
NMAN63	Accesorio Manguito Socket, PP-RCT, D= 63 mm	29,098	u	4,94	143,74
NMAN75	Accesorio Manguito Socket, PP-RCT, D= 75 mm	41,375	u	7,64	316,11
NMAN90	Accesorio Manguito Socket, PP-RCT, D= 90 mm	129,523	u	13,95	1.806,84
	Grupo NMA				**2.994,06**
NT110	Accesorio Te Socket, PP-RCT, D= 110 mm	0,843	u	50,18	42,30
NT11160MM	Accesorio Te "a tope", PP-RCT, D= 160 mm	17,116	u	107,23	1.835,35
NT11200MM	Accesorio Te "a tope", PP-RCT, D= 200 mm	16,873	u	301,32	5.084,17
NT11250MMB	Accesorio Te "a tope", PP-RCT, D= 250 mm	5,698	u	502,43	2.862,85
NT125	Accesorio Te Socket, PP-RCT, D= 125 mm	5,111	u	70,53	360,48
	Grupo NT1				**10.185,15**
NT50	Accesorio Te Socket, PP-RCT, D= 50 mm	36,945	u	6,81	251,60
	Grupo NT5				**251,60**
NT63	Accesorio Te Socket, PP-RCT, D= 63 mm	11,639	u	11,02	128,26
	Grupo NT6				**128,26**
NT75	Accesorio Te Socket, PP-RCT, D= 75 mm	16,550	u	17,22	284,99
	Grupo NT7				**284,99**
NT90	Accesorio Te Socket, PP-RCT, D= 90 mm	51,809	u	29,40	1.523,18
	Grupo NT9				**1.523,18**
O01OA030	Oficial primera	55,789	h	19,86	1.107,98
O01OA050	Ayudante	16,737	h	20,32	340,09
O01OA060	Peón especializado	233,050	h	17,00	3.961,85
O01OA070	Peón ordinario	524,918	h	16,88	8.860,62
O01OB010	Oficial 1ª encofrador	5,000	h	22,55	112,75
O01OB020	Ayudante encofrador	5,000	h	20,96	104,80
O01OB170	Oficial 1ª fontanero calefactor	1.991,132	h	22,55	44.900,02
O01OB180	Oficial 2ª fontanero calefactor	321,910	h	21,59	6.950,03
O01OB190	Ayudante fontanero	846,567	h	20,96	17.744,04
O01OB195	Ayudante fontanero	175,800	h	18,01	3.166,16
O01OB200	Oficial 1ª electricista	204,759	h	19,25	3.941,61
O01OB210	Oficial 2ª electricista	44,659	h	21,59	964,19
O01OB220	Ayudante electricista	154,700	h	18,01	2.786,15
O01OB222	Oficial 1ª instalador telecomunicación	4,800	h	22,00	105,60
O01OB223	Oficial 2ª instalador telecomunicación	4,800	h	20,96	100,61
	Grupo O01				**95.146,50**
P01AA020	Arena de río 0/6 mm	0,022	m3	23,63	0,52
P01AA030	Arena de río 0/6 mm	0,458	t	25,47	11,66
P01AG060	Gravilla 20/40 mm	0,915	t	23,20	21,23
P01CC020	Cemento CEM II/B-P 32,5 N sacos	0,005	t	125,63	0,68
P01CC038	Cemento CEM II/B-M (S-V) 42,5 N sacos	0,148	t	129,20	19,10
P01DW050	Agua	0,108	m3	1,40	0,15
P01HMV250	Hormigón HM-20/P/40/X0 central	0,060	m3	88,81	5,33
P01LH130	Ladrillo hueco doble 24x11,5x7 cm	0,462	mu	81,83	37,77
P01LT040	Ladrillo perforado tosco 24x11,5x7 cm	0,045	mu	151,87	6,83

CONCEPTOS (PRESUPUESTO)

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD.	PRECIO/UD.	IMPORTE
P01MC040	Mortero cemento gris CEM-II/B-M 32,5 M-5	0,218	m3	55,35	12,06
P01MEN010	Mortero recrecido (CT-C5-F2)	0,462	t	268,64	123,98
P01MEN020	Mortero recrecido CT-C2,5-F2	0,346	t	252,70	87,47
	Grupo P01				**326,78**
P02EAH040	Arqueta HM c/zuncho sup-fondo ciego 70x70x50 cm	5,000	u	69,44	347,20
P02EAT020	Tapa cuadrada HA e=6 cm 50x50 cm	1,000	u	20,03	20,03
P02EAT110N01	Tapa/marco cuadrada HM 70x70 cm estanca	1,000	u	91,23	91,23
	Grupo P02				**458,46**
P04RR070	Mortero revoco CSIV-W2	0,950	kg	1,67	1,59
	Grupo P04				**1,59**
P07AL100N01	Lámina amortiguadora anti-impacto neopreno 4 mm	14,102	m2	2,84	40,05
P07CC118N01	Coquilla espuma elastomérica Ø 50 mm SH/ARMAFLEX SH-45X050	369,450	m	29,63	10.946,80
P07CC122N01	Coquilla espuma elastomérica Ø 63 mm SH/ARMAFLEX SH-45X063	116,390	m	33,24	3.868,80
P07CC124N01	Coquilla espuma elastomérica Ø 75 mm SH/ARMAFLEX SH-45X075	165,500	m	36,52	6.044,06
P07CC126N01	Coquilla espuma elastomérica Ø 90 mm SH/ARMAFLEX SH-45X090	518,090	m	39,68	20.557,81
P07CC134N01	Coquilla espuma elastomérica Ø 110 mm SH/ARMAFLEX SH-45X110	8,430	m	47,51	400,51
P07CC138	Coquilla espuma elastomérica Ø 125 mm SH/ARMAFLEX SH-45X125	162,750	m	51,23	8.337,68
P07CC140	Coquilla espuma elastomérica Ø 160 mm SH/ARMAFLEX SH-45X160	171,160	m	70,11	12.000,03
P07CC140ALM01	Coquilla espuma elastomérica Ø 200 mm SH/ARMAFLEX SH-45X160	168,730	m	99,03	16.709,33
P07CC140ALM02	Coquilla espuma elastomérica Ø 250 mm SH/ARMAFLEX SH-45X160	56,980	m	118,66	6.761,25
P07TL716	Panel MW 100 C=0,035 W/mK	13,461	m2	8,71	117,25
P07W600	Adhesivo ARMAFLEX 520 1 litro	521,244	u	26,34	13.729,57
	Grupo P07				**99.513,14**
P15AH395	Abrazadera acero c/tornillo autorroscante SAF-25	600,000	u	0,57	342,00
P15AH430	Pequeño material para instalación	448,800	u	1,40	628,32
P15EB010d	Conductor cobre desnudo 16 mm2	45,000	m	1,45	65,25
P15EC020	Puente de prueba	1,000	u	22,13	22,13
P15JAA010N02	DOCUMENTACIÓN, PRUEBAS Y LEGALIZACIÓN	2,000	u	250,00	500,00
P15NAB050	Cable rígido trenzado Cu 0,6/1kV RZ Fca - 2x16 mm2	210,000	m	5,69	1.194,90
	Grupo P15				**2.752,60**
P16EDK040N05	Bloque autón. emergencia Daisalux Naos N5 A + KETB NAOS - 200 l	3,000	u	71,36	214,08
	Grupo P16				**214,08**
P17LEA030	Abrazadera isofónica PP junta EPDM D=75 mm	46,150	u	9,48	437,50
P17LEA040	Abrazadera isofónica PP junta EPDM D=90 mm	2,888	u	11,34	32,74
P17LEC010	Codo 87º PP insonorizado junta EPDM D=40 mm	49,500	u	2,30	113,85
P17LEC020	Codo 87º PP insonorizado junta EPDM D=50 mm	50,100	u	2,61	130,76
P17LEC030	Codo 87º PP insonorizado junta EPDM D=75 mm	21,300	u	4,53	96,49
P17LEC040	Codo 87º PP insonorizado junta EPDM D=90 mm	1,155	u	6,64	7,67
P17LED010	Derivación M-H 45º PP insonorizada junta EPDM D=40 mm	82,500	u	4,06	334,95
P17LED020	Derivación M-H 45º PP insonorizada junta EPDM D=50 mm	41,750	u	4,78	199,57
P17LED030	Derivación M-H 45º PP insonorizada junta EPDM D=75 mm	35,500	u	7,93	281,52
P17LED040	Derivación M-H 45º PP insonorizada junta EPDM D=90 mm	1,925	u	12,12	23,33
P17LI010	Tubo PP insonorizado tricapa junta EPDM D=40 mm	165,000	m	6,24	1.029,60
P17LI020	Tubo PP insonorizado tricapa junta EPDM D=50 mm	83,500	m	7,55	630,43
P17LI030	Tubo PP insonorizado tricapa junta EPDM D=75 mm	71,000	m	10,35	734,85
P17LI040	Tubo PP insonorizado tricapa junta EPDM D=90 mm	3,850	m	13,47	51,86
P17SS080	Sifón curvo PVC salida horizontal 40 mm 1 1/2"	12,000	u	5,58	66,96
P17VC010	Tubo PVC serie B junta pegada 40 mm	3,600	m	2,05	7,38
P17VGA010	Abrazadera isofónica tubo PVC 90 mm	27,750	u	5,49	152,35
P17VGC030	Codo M-H PVC insonorizado 87º 90 mm	18,500	u	9,19	170,02
P17VI030	Tubo PVC insonorizado 90 mm	37,000	m	16,40	606,80
P17VPC040	Codo M-H 87º PVC serie B junta pegada 75 mm	0,500	u	2,41	1,21
P17VPI050	Injerto M-H 45º PVC serie B junta pegada 90 mm	11,100	u	9,44	104,78
P17VPM010	Manguito H-H PVC serie B junta pegada 40 mm	24,000	u	0,96	23,04
	Grupo P17				**5.237,66**
P2	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 3G2,5mm²	45,000	m	3,20	144,00
	Grupo P2				**144,00**
P203	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G10mm²	104,000	m	22,70	2.360,80

CONCEPTOS (PRESUPUESTO)

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD.	PRECIO/UD.	IMPORTE
P20SE030ALM01	Válvula equilibrado DN250	1,000	u	4.230,92	4.230,92
P20SE030ALM02	Válvula equilibrado DN80	12,000	u	627,62	7.531,44
P20SE030ALM03	Válvula equilibrado DN150	1,000	u	1.781,80	1.781,80
P20SE030ALM04	Válvula equilibrado DN50	12,000	u	181,28	2.175,36
P20TEC130	Vaso expansión calefacción 800 l (1") 6 bar	1,000	u	2.132,86	2.132,86
P20TEC140	Vaso expansión calefacción 1.000 l (1") 6 bar	1,000	u	2.512,94	2.512,94
P20TL1000	Tubo de acero negro estirado sin soldadura, DN 1000 mm de diámetro y 18 mm de espesor, según UNE 19052	4,600	m	835,52	3.843,39
P20TL250	Tubo de acero negro estirado sin soldadura, DN 250 mm de diámetro y 6,3 mm de espesor, según UNE 19052	3,000	m	73,77	221,31
P20TL550	Tubo de acero negro estirado sin soldadura, DN 550 mm de diámetro y 11 mm de espesor, según UNE 19052	3,000	m	406,47	1.219,41
P20TL600	Tubo de acero negro estirado sin soldadura, DN 600 mm de diámetro y 12 mm de espesor, según UNE 19052	3,000	m	496,79	1.490,37
P20TVE030	Válvula de esfera 1"	2,000	u	17,80	35,60
P20TVM040N01ALM01	Válvula mariposa c/reductor DN 80mm eje libre fl5 inoxidable	36,000	u	51,95	1.870,20
P20TVM040N01ALM02	Válvula mariposa c/reductor DN 50mm eje libre fl5 inoxidable	36,000	u	39,93	1.437,48
	Grupo P20				**32.843,88**
P21DCF030	Panel lana mineral Climaver Neto 25 mm 3,0x1,19 m	715,749	m2	18,45	13.205,56
P21DCF030ALM01	Chapa galvanizada e 1mm de espesor	715,749	m2	13,05	9.340,52
P21DCF050	Cinta de aluminio Climaver	933,585	m	0,39	364,10
P21DCF315	Soporte metálico acero galvanizado sujeción a forjado	311,195	u	4,26	1.325,69
P21DCG020ALM01	Tubo helicoidal acero galvaniz. 1 mm D=600 mm	1.264,194	m	40,42	51.098,72
P21DCG020ALM02	Tubo helicoidal acero galvaniz. 1 mm D=750 mm	365,396	m	50,91	18.602,33
P21DCG020ALM03	Tubo helicoidal acero galvaniz. 1 mm D=1250 mm	407,516	m	109,35	44.561,92
	Grupo P21				**138.498,84**
P22IF020N01	Cable monomodo vertical 8 fibras Cca,s1-d0-a1	200,000	m	4,52	904,00
	Grupo P22				**904,00**
P23I140	Mortero seco para sellados	35,150	kg	2,34	82,25
	Grupo P23				**82,25**
P31BA010	Acometida provisional fontanería a caseta	1,000	u	95,81	95,81
P31BA030	Acometida provisional saneamiento a caseta en superficie	1,000	u	138,09	138,09
P31BC120CEM	Alquiler mes caseta almacén	6,000	u	71,09	426,54
P31BC180CEM	Alquiler mes caseta oficina	6,000	u	191,32	1.147,92
P31BC190CEM	Alquiler mes caseta vestuarios aseos	6,000	u	162,98	977,88
P31BC190CEM2	Alquiler mes caseta comedor	6,000	u	162,98	977,88
P31BC340	Transporte 150 km entrega y recogida de módulo	2,040	u	525,44	1.071,90
P31BM100	Mesa melamina para 10 personas	1,998	u	187,59	374,80
P31CB070	Tablón madera pino 20x7 cm	1,000	m3	287,65	287,65
P31CB100	Valla contención peatones 2,5x1 m	10,000	u	32,75	327,50
P31CB190	Valla enrejado móvil pliegues 3,5x2 m	33,000	m	20,74	684,42
P31CB200	Pie de hormigón con 4 agujeros	54,945	u	3,71	203,85
P31CB210	Puerta chapa galvanizada 4x2 m	0,400	u	870,16	348,06
P31CB220	Puerta chapa galvanizada 1x2 m	0,400	u	239,10	95,64
P31CB300	Puntas planas acero 20x100 mm	1,000	kg	1,14	1,14
P31CE020	Cable cobre desnudo D=35 mm	3,000	m	1,77	5,31
P31CE040	Pica cobre para toma tierra 14,3 mm	1,000	m	13,63	13,63
P31CE050	Grapa para pica	1,000	u	2,88	2,88
P31CE240	Cuadro de obra 80 A Modelo 8	0,250	u	2.230,09	557,52
P31CI020	Extintor polvo ABC 6 kg 21A/113B	2,000	u	46,49	92,98
P31CI050	Extintor CO2 5 kg acero 89B	2,000	u	118,51	237,02
P31CR030	Red seguridad poliamida 10x10 cm	5,000	m2	2,98	14,90
P31CR150	Gancho montaje red D=10 mm	32,000	u	0,21	6,72
P31CR210	Cuerda de unión redes de seguridad	25,600	m	0,49	12,54
P31IA030	Casco seguridad con rueda	6,000	u	8,38	50,28
P31IA060	Casco seguridad dieléctrica con pantalla	0,800	u	19,44	15,55
P31IA080	Pantalla seguridad cabeza soldador	0,200	u	13,48	2,70
P31IA100	Pantalla protección contra partículas	1,200	u	9,17	11,00
P31IA120	Gafas protectoras	1,998	u	8,80	17,58
P31IA140	Gafas antipolvo	1,998	u	8,60	17,18
P31IA150	Semi-mascarilla 1 filtro	1,998	u	17,92	35,80
P31IA180	Filtro antipolvo	144,000	u	1,77	254,88
P31IA190	Cascos protectores auditivos	1,998	u	11,97	23,92
P31IA220	Barbuquejo con mentonera para casco	6,000	u	4,87	29,22

CONCEPTOS (PRESUPUESTO)

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CÓDIGO	RESUMEN	CANTIDAD	UD.	PRECIO/UD.	IMPORTE
P31IA230	Cubregafas de seguridad	1,998	u	1,67	3,34
P31IC020	Protector lumbar con tirantes	1,500	u	42,48	63,72
P31IC030	Cinturón portaherramientas	1,500	u	16,83	25,25
P31IC090	Traje impermeable 2 piezas PVC	3,000	u	9,47	28,41
P31IC120	Abrigo para frío	1,998	u	34,15	68,23
P31IC140	Mandil cuero para soldador	0,333	u	9,66	3,22
P31IC180	Chaleco de obras reflectante	6,000	u	3,01	18,06
P31IC230	Chubasquero alta visibilidad	0,999	u	10,64	10,63
P31IM020	Par guantes lona reforzados	5,000	u	3,19	15,95
P31IM040	Par guantes goma látex anticorte	5,000	u	2,08	10,40
P31IM100	Par guantes para soldador	0,500	u	2,93	1,47
P31IM110	Par guantes aislamiento 5000 V	2,997	u	29,20	87,51
P31IP070	Par botas de seguridad	6,000	u	27,56	165,36
P31IP080	Par botas aislantes 5000 V	2,997	u	70,61	211,62
P31IP090	Par polainas para soldador	0,333	u	5,11	1,70
P31IP150	Par rodilleras	1,998	u	14,54	29,05
P31IS030	Arnés amarre dorsal + torácicos	1,000	u	44,44	44,44
P31IS300	Cuerda con reductor 2 m 2 mosquetones 17 mm-60 mm	1,250	u	78,90	98,63
P31IS710	Punto de anclaje fijo	30,000	u	18,65	559,50
P31IS800	Anclaje cinta con taco metálico L=250 cm 1 trabajador	30,000	u	9,75	292,50
P31SB010	Cinta balizamiento bicolor 8 cm	578,560	m	0,06	34,71
P31SB080	Baliza luminosa intermitente	3,250	u	22,39	72,77
P31SC020	Cartel PVC señalización extintor/boca incendios	4,000	u	9,24	36,96
P31SC030	Panel completo PVC 700x1000 mm	3,000	u	14,74	44,22
P31SV080	Poste galvanizado 80x40x2 mm 2,00 m	2,500	u	23,90	59,75
P31SV100	Panel dirección reflectante 164x45 cm	2,000	u	162,50	325,00
P31SV110	Soporte panel dirección metálico	2,000	u	17,29	34,58
P31SV120	Placa informativa PVC 50x30 cm	20,000	u	7,42	148,40
	Grupo P31				**11.056,07**
PCE3	C.E.-CL-UTAS-PABELLON	1,000	u	54.323,40	54.323,40
	Grupo PCE				**54.323,40**
PDOCUM	DOCUMENTACIÓN, PRUEBAS Y LEGALIZACIÓN	2,000	u	250,00	500,00
	Grupo PDO				**500,00**
PESTRUC	Perfilerías metálicas de soportación unidad	12,000	u	1.225,21	14.702,52
	Grupo PES				**14.702,52**
PINTEGRA	Integración UTAS	12,000	u	597,00	7.164,00
	Grupo PIN				**7.164,00**
PPEM60232100	Rejiband 60x100 GC C7	195,000	m	16,86	3.287,70
PPEM60232150	Rejiband 60x150 GC C7	93,000	m	22,28	2.072,04
PPEM60232200	Rejiband 60x200 GC C7	68,000	m	55,33	3.762,44
	Grupo PPE				**9.122,18**
PR1H07	GENERAL CABLE EXZHELLENT XXI H07Z1-K 1x1,5mm²	18,000	m	0,91	16,38
	Grupo PR1				**16,38**
PSOPORTA	Apoyos silenbloc de muelle de hasta 350 Kg	48,000	u	125,32	6.015,36
PSOPORTA1	Apoyos silenbloc de neopreno de hasta 200 Kg	16,000	u	52,10	833,60
	Grupo PSO				**6.848,96**
PUESTAMAR	Puesta en marcha	12,000	u	651,63	7.819,56
	Grupo PUE				**7.819,56**
PUPEMT7583220	Pemsaband 60x200 GC C7	31,000	m	184,28	5.712,68
	Grupo PUP				**5.712,68**
RCCK 400	Regulador caudal constante RCCK-400	24,000	Ud	198,95	4.774,80
	Grupo RCC				**4.774,80**
RR22560X30	Rejilla retorno 22-5-MM 1000X2000	12,000	Ud	184,71	2.216,52

CONCEPTOS (PRESUPUESTO)

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD.	PRECIO/UD.	IMPORTE
	Grupo RR2				**2.216,52**
UTA1 PA P	UTA1 PA	12,000	u	55.850,30	670.203,60
	Grupo UTA				**670.203,60**
UTNIRCL11011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 110 x 10,0 mm	8,430	m	36,90	311,07
UTNIRCL12511	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 125 x 11,4 mm	51,110	m	43,50	2.223,29
UTNIRCL16011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 160 x 14,6 mm	171,160	m	80,60	13.795,50
UTNIRCL20011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 200 x 18,2 mm	168,730	m	139,40	23.520,96
UTNIRCL25011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 250 x 22,7 mm	56,980	m	201,20	11.464,38
UTNIRCL5011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 50 x 4,6 mm	369,450	m	8,50	3.140,33
UTNIRCL6311	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 63 x 5,8 mm	116,390	m	13,10	1.524,71
UTNIRCL7511	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 75 x 6,8 mm	165,500	m	17,10	2.830,05
UTNIRCL9011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 90 x 8,2 mm	518,090	m	24,28	12.579,23
	Grupo UTN				**71.389,52**
ceO01OB240	Oficial 1ª electricista	3,100	h	19,25	59,68
	Grupo ceO				**59,68**
ceP15GB420	P.P sistema de fijación y acabados tubo flexible	42,000	m	0,18	7,56
ceP15GD830	Tubo libre halógenos rígido 50 mm	62,000	m	2,39	148,18
ceP15GD930	P.P sistema de fijación y acabados tubo rígido 50 mm	62,000	m	0,60	37,20
ceP15GE060	Reforzado M20	42,000	m	0,38	15,96
	Grupo ceP				**208,90**
mo002	Oficial 1ª calefactor.	100,171	h	16,18	1.620,76
mo004	Oficial 1º fontanero	71,886	h	16,18	1.163,12
mo005	Ayudante fontanero	71,886	h	14,68	1.055,29
mo053	Ayudante calefactor.	100,171	h	14,68	1.470,51
	Grupo mo0				**5.309,68**
mt17coe010j	Plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, 50mm espesor	23,789	m2	131,07	3.118,02
	Grupo mt1				**3.118,02**
mt42www040	Manómetro con baño de glicerina y diámetro de esfera de 100 mm, con toma vertical, para montaje roscado de 1/2", 0 a 5 bar	4,000	u	43,29	173,16
mt42www050	Termómetro bimetálico, diámetro de esfera de 100 mm, con toma vertical, con vaina de 1/2", escala de temperatura de 0 a 120°C.	14,000	u	54,70	765,80
	Grupo mt4				**938,96**
	TOTAL				**1.619.910,46**

3. PRECIOS DESCOMPUESTOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01	**DEMOLICIONES Y DESMONTAJES**					
01.01	**DEMOLICIÓN TABIQUE LADRILLO HUECO DOBLE e=7 cm A MANO**		**m2**			
E01DFB030	Demolición de tabicones de ladrillo hueco doble de 7 cm de espesor, por medios manuales, incluso limpieza y retirada de escombros a pie de carga, sin transporte al vertedero y con parte proporcional de medios auxiliares. Según RD 105/2008 y NTE-ADD. Medición de superficie realmente ejecutada.					
O01OA070	Peón ordinario	0,570	h	16,88	9,62	
	Suma la partida					9,62
	Costes indirectos			3%		0,29
	TOTAL PARTIDA					**9,91**
	Asciende el precio total de la partida a la mencionada cantidad de NUEVE con NOVENTA Y UN CÉNTIMOS					
01.02	**LEVANTADO CERRAJERÍA EN TABIQUES A MANO**		**m2**			
E01DKA020	Levantado de carpintería metálica, en cualquier tipo de tabiques, incluidos cercos, hojas y accesorios, por medios manuales, incluso limpieza, retirada de escombros a pie de carga, sin transporte a vertedero o planta de reciclaje y con parte proporcional de medios auxiliares. Según RD 105/2008 y NTE-ADD. Medición de superficie realmente ejecutada.					
O01OA050	Ayudante	0,270	h	20,32	5,49	
O01OA070	Peón ordinario	0,270	h	16,88	4,56	
	Suma la partida					10,05
	Costes indirectos			3%		0,30
	TOTAL PARTIDA					**10,35**
	Asciende el precio total de la partida a la mencionada cantidad de DIEZ con TREINTA Y CINCO CÉNTIMOS					
01.03	**DESMONTADO INSTALACIÓN CLIMATIZACIÓN/VENTILACIÓN**		**m2**			
E01DIC020PN	Desmontaje de instalación de climatización y ventilación existente; incluyendo conductos, rejillas y bocas de impulsión y extracción, conducciones de agua para alimentación de equipos de climatización y desmontaje de estos equípos y extractores incluso instalación eléctrica de alimentación y protecciones correspondientes, con medios manuales y mecánicos y medios auxiliares y de elevación necesarios, i/carga sobre camión o contenedor. Medida la superficie construida cubierta por la instalación a desmantelar.					
O01OB170	Oficial 1ª fontanero calefactor	0,042	h	22,55	0,95	
O01OA070	Peón ordinario	0,042	h	16,88	0,71	
M02PAE040	Plataforma articulada eléctrica 15 m	0,010	h	22,69	0,23	
M02GMH010	Camión-grúa articulada telescópica 25 t	0,005	h	70,69	0,35	
	Suma la partida					2,24
	Costes indirectos			3%		0,07
	TOTAL PARTIDA					**2,31**
	Asciende el precio total de la partida a la mencionada cantidad de DOS con TREINTA Y UN CÉNTIMOS					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02	**INSTALACIÓN ELECTRICIDAD**					
02.01	**CUADROS ELÉCTRICOS**					
02.01.01	**C.E. NUEVO UTAS PABELLÓN**		**u**			
CE-P1-02	Cuadro RED NORMAL C.E. CL-UTAS-PABELLÓN, con suministro de red, formado por armario metálico, con puerta transparente o llena y cerradura con llave, de la firma Schneider o similar, incluso 20% de reserva, incluso cableado interior libre de halógenos, bandejas, conexionado, etiqueteros, carpintería metálica, montaje en taller y montaje en el edificio. Incluyendo el aparellaje según el esquema unifilar. Totalmente instalado y funcionando.					

Contiene:

Cantidad	Referencia	Designación
3	56193	RH99M seNal 220a240Vca 50 60 400Hz
3	50421	Toro Abierto TOA120
1	A9L16482	Acti9 iPRD1 12.5r 3PN 350V remote transf
2	A9F79216	iC60N 2P 16A C
2	A9R81225	iID 2P 25A 30mA AC
12	A9F79450	iC60N 4P 50A C
4	A9F89416	iC60H 4P 16A C
4	A9F89420	iC60H 4P 20A C
12	A9R84463	iID 4P 63A 300mA AC
8	A9R84425	iID 4P 25A 300mA AC
1	METSEPM5111	PM5111 CL 0.5S, Arm ind 15, MID, Modbus
3	METSECT5CC004	TI 40/5A TIPO CC CABLE 21MM
2	C40N4	Bloque Corte NSX400N 50kA AC 4P 400A
2	C4042D400	Ud.Control NSX400 AC 4P4R 400A 2.3
36	NSYTRV22	Borne conex tornillo, 2pts, 2,5mm? gris
4	NSYTRV22	Borne conex tornillo, 2pts, 2,5mm? gris
4	NSYTRV42	Borne conex resorte, sec.extraible 2pts,
48	NSYTRV102	MALETA COLOCACION VACIA
48	NSYTRV162	Borne conex resorte, de tierra 4pts, 4mm
32	NSYTRV42	Borne conex resorte, sec.extraible 2pts,
1	LVS03401	Carril modular P,ancho 650mm
1	LVS03203	Tapa G/P Acti9, 3 Modulos, alto 150mm
2	LVS03401	Carril modular P,ancho 650mm
2	LVS03204	Tapa G/P Acti9, 4 Modulos, alto 200mm
2	LVS03401	Carril modular P,ancho 650mm
2	LVS03203	Tapa G/P Acti9, 3 Modulos, alto 150mm
2	LVS03402	Carril modular P,regulable en prof.650mm
2	LVS03204	Tapa G/P Acti9, 4 Modulos, alto 200mm
2	LVS03402	Carril modular P,regulable en prof.650mm
2	LVS03204	Tapa G/P Acti9, 4 Modulos, alto 200mm
1	LVS03903	Placa plastico G/P Perforada 96x96
3	LVS03901	Placa plastico G/P Plena 96x96,obturador
1	LVS03904	Tapa G/P Metalica componible para placas
2	LVS03452	Placa sop. P NSX-INS-CVS630 H.Fijo.M(4P)
2	LVS03644	Tapa P NSX-CVS630 Hor.F/Z.M/Rot/Tel 4P
2	LV432592	Cubrebornes cortos 4P NSX400/630
INV/INS		
2	LV432594	Cubrebornes largos 4P NSX400/630

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN			CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	INV/INS							
	4	LVS03402	Carril modular P,regulable en prof.650mm					
	4	LVS03803	Tapa G/P Plena 3 modulos, alto 150mm					
	4	LVS04202	Linergy TB 2 Colectores PE ancho 200mm					
	4	LVS04205	2 Soportes fijacion PE en carril modular					
	4	LVS03581	2 Escuadras universales					
	2	LVS08403	Armadura P Ancho 300.Prof 400.Alto 2m					
	2	LVS08513	Puerta plena P IP30,ancho 300mm					
	2	LVS08733	Fondo atornillado P IP30,ancho 300mm					
	2	LVS08433	Techo P IP30.Ancho 300mm,Prof 400mm					
	2	LVS04920	Pantalla frontal/post. Forma 2 A300mm					
	2	LVS08640	PrismaSeT P Green Cover W300					
	1	LVS08407	Armadura P Ancho650+150.Prof 400.Alto					
	2m							
	1	LVS08538	Puerta Transp. P IP30, A800mm+Pantalla					
	1	LVS08738	Fondo atornillado P IP30,ancho 800mm					
	1	LVS08438	Techo P IP30.Ancho 800mm,Prof 400mm					
	1	LVS08566	Marco pivotante tapas P Ancho 650mm					
	1	LVS08643	PrismaSeT P Green Cover W800					
	1	LVS08406	Armadura P Ancho 650.Prof 400.Alto 2m					
	1	LVS08536	Puerta Transp. P IP30, ancho 650mm					
	1	LVS08736	Fondo atornillado P IP30,ancho 650mm					
	1	LVS08436	Techo P IP30.Ancho 650mm,Prof 400mm					
	1	LVS08566	Marco pivotante tapas P Ancho 650mm					
	1	LVS08642	PrismaSeT P Green Cover W650					
	1	LVS08750	2 Paredes laterales P IP30,prof. 400mm					
	4	LVS04503	Linergy LGY Perfil vertical 800A 1,67m					
	1	LVS01109	Linergy LGY 12 Topes soporte inferior					
	3	LVS04651	Linergy LGY Soporte Vert.Pasillo lateral					
	2	LVS04502	Linergy LGY Perfil vertical 630A 1,67m					
	2	LVS04657	Linergy TB 3 Soportes para PE Vertical					
	1	LVS04512	Linergy TB Barra CU Perf. PE 25x5mm					
	1	LVS04667	Linergy TB 2 Soportes para PE Horizontal					
	1	LVS04672	Linergy TB 2 Conex. instal. PE Hor/Vert					
	1	LVS04767	Linergy LGY 20 Tornillos M8 (Barras)					
	2	LVS08794	4 Soportes P fijacion cable prof. 400mm					
	2	LVS08773	4 Soportes P fijacion cable ancho 300mm					
	2	LVS03806	Tapa G/P Plena 6 modulos, alto 300mm					
	1	LVS03802	Tapa G/P Plena 2 modulos, alto 100mm					
O01OB200	Oficial 1ª electricista			3,000	h	19,25	57,75	
O01OB220	Ayudante electricista			3,000	h	18,01	54,03	
PCE3	C.E.-CL-UTAS-PABELLON			1,000	u	54.323,40	54.323,40	
						Suma la partida		54.435,18
						Costes indirectos	3%	1.633,06
						TOTAL PARTIDA		**56.068,24**

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y SEIS MIL SESENTA Y OCHO con VEINTICUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02.02	**LÍNEAS ELÉCTRICAS**					
02.02.01	**GENERAL CABLE EXZHELLENT XXI H07Z1-K (AS) 450/750V 1x1,5mm² C200**		**m**			
1656106NGP	Cable GENERAL CABLE o similar, GENLIS-F H07V-K 450/750V 1x1,5mm². Denominación Técnica: H07V-K. Norma constructiva y de ensayos: UNE-EN 21031-3. Conductor: Cu Clase 5 Aislamiento: PVC Temperatura máxima del conductor: 70º C. No propagador de la llama UNE-EN 60332-1-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
PR1H07	GENERAL CABLE EXZHELLENT XXI H07Z1-K 1x1,5mm²	1,000	m	0,91	0,91	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					3,05
	Costes indirectos			3%		0,09
	TOTAL PARTIDA					**3,14**

Asciende el precio total de la partida a la mencionada cantidad de TRES con CATORCE CÉNTIMOS

02.02.02	**GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 3G2,5mm²**		**m**			
1992307VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 3G2,5mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
P2	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 3G2,5mm²	1,000	m	3,20	3,20	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					5,34
	Costes indirectos			3%		0,16
	TOTAL PARTIDA					**5,50**

Asciende el precio total de la partida a la mencionada cantidad de CINCO con CINCUENTA CÉNTIMOS

02.02.03	**GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G4mm²**		**m**			
1992508VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G4mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
102	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G4mm²	1,000	m	6,70	6,70	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					8,84
	Costes indirectos			3%		0,27
	TOTAL PARTIDA					**9,11**

Asciende el precio total de la partida a la mencionada cantidad de NUEVE con ONCE CÉNTIMOS

02.02.04 **GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G10mm²** **m**

1992510VDP Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G10 mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.

O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
P203	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G10mm²	1,000	m	22,70	22,70	
	Suma la partida					24,84
	Costes indirectos			3%		0,75
	TOTAL PARTIDA					**25,59**

Asciende el precio total de la partida a la mencionada cantidad de VEINTICINCO con CINCUENTA Y NUEVE CÉNTIMOS

02.02.05 **GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G16mm²** **m**

1992511VDP1 Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G16mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.

O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
103d516	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G16mm²	1,000	m	36,20	36,20	
	Suma la partida					38,34
	Costes indirectos			3%		1,15
	TOTAL PARTIDA					**39,49**

Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y NUEVE con CUARENTA Y NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02.02.06	**GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G25mm²**		**m**			
1992512VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G25mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
103-2	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G25mm²	1,000	m	37,20	37,20	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					39,34
	Costes indirectos			3%		1,18
	TOTAL PARTIDA					**40,52**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA con CINCUENTA Y DOS CÉNTIMOS

02.02.07	**GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G35mm²**		**m**			
1992512VDP100	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G35mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
103-100	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G35mm²	1,000	m	57,90	57,90	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					60,04
	Costes indirectos			3%		1,80
	TOTAL PARTIDA					**61,84**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y UN con OCHENTA Y CUATRO CÉNTIMOS

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02.02.08	**GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G95mm²**		**m**			
1992512VDP102	Cable unipolar GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 1G95mm² . Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
103-102	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G95mm²	1,000	m	28,57	28,57	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					30,71
	Costes indirectos			3%		0,92
	TOTAL PARTIDA					**31,63**

Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y UN con SESENTA Y TRES CÉNTIMOS

02.02.09	**GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G185mm²**		**m**			
1992512VDP101	Cable unipolar GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 1G185mm². Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.					
O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
103-101	GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G185mm²	1,000	m	52,88	52,88	
	Suma la partida					55,02
	Costes indirectos			3%		1,65
	TOTAL PARTIDA					**56,67**

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y SEIS con SESENTA Y SIETE CÉNTIMOS

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02.03	**BANDEJAS-CANALIZACIONES**					
02.03.01	**Bandeja Rejiband 60X100 GC**		**m**			
UPEMS60232100	Suministro y montaje bandeja de rejilla tipo Rejiband, marca PEMSA o similar, fabricada con varillas de diámetro 4 mm electrosoldadas de acero al carbono según UNE 10016-2:94 (prox. UNE-EN ISO 16120), dimensiones 100x60 mm y 3 m de longitud, ref. 60232100 con borde de seguridad, certificado de ensayo de resistencia al fuego E90, según DIN 4102-12, marcado N de AENOR, y acabado anticorrosión Galvanizado en Caliente según UNEEN-ISO 1461-99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.					
PPEM60232100	Rejiband 60x100 GC C7	1,000	m	16,86	16,86	
%PEMPP3524	P.p. soportes, uniones y accesorios	0,169	%	35,24	5,96	
O01OB200	Oficial 1ª electricista	0,100	h	19,25	1,93	
O01OB220	Ayudante electricista	0,100	h	18,01	1,80	
	Suma la partida					26,55
	Costes indirectos			3%		0,80
	TOTAL PARTIDA					**27,35**

Asciende el precio total de la partida a la mencionada cantidad de VEINTISIETE con TREINTA Y CINCO CÉNTIMOS

02.03.02	**Bandeja Rejiband 60x150 GC**		**m**			
UPEMS60232150	Suministro y montaje bandeja de rejilla tipo Rejiband, marca PEMSA o similar, fabricada con varillas de diámetro 4 mm electrosoldadas de acero al carbono según UNE 10016-2:94 (prox. UNE-EN ISO 16120), dimensiones 150x60 mm y 3 m de longitud, ref. 60232100 con borde de seguridad, certificado de ensayo de resistencia al fuego E90, según DIN 4102-12, marcado N de AENOR, y acabado anticorrosión Galvanizado en Caliente según UNEEN-ISO 1461-99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.					
PPEM60232150	Rejiband 60x150 GC C7	1,000	m	22,28	22,28	
%PEMPP3539	P.p. soportes, uniones y accesorios	0,223	%	35,39	7,89	
O01OB200	Oficial 1ª electricista	0,200	h	19,25	3,85	
O01OB220	Ayudante electricista	0,200	h	18,01	3,60	
	Suma la partida					37,62
	Costes indirectos			3%		1,13
	TOTAL PARTIDA					**38,75**

Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y OCHO con SETENTA Y CINCO CÉNTIMOS

02.03.03	**Bandeja Rejiband 60x200 GC**		**m**			
UPEMS60232200	Suministro y montaje bandeja de rejilla tipo Rejiband, marca PEMSA o similar, fabricada con varillas de diámetro 4 mm electrosoldadas de acero al carbono según UNE 10016-2:94 (prox. UNE-EN ISO 16120), dimensiones 200x60 mm y 3 m de longitud, ref. 60232200 con borde de seguridad, certificado de ensayo de resistencia al fuego E90, según DIN 4102-12, marcado N de AENOR, y acabado anticorrosión Galvanizado en Caliente según UNEEN-ISO 1461-99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.					

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
PPEM60232200	Rejiband 60x200 GC C7	1,000	m	55,33	55,33	
%PEMPP3539	P.p. soportes, uniones y accesorios	0,553	%	35,39	19,57	
O01OB200	Oficial 1ª electricista	0,200	h	19,25	3,85	
O01OB220	Ayudante electricista	0,200	h	18,01	3,60	
	Suma la partida					82,35
	Costes indirectos			3%		2,47
	TOTAL PARTIDA					**84,82**

Asciende el precio total de la partida a la mencionada cantidad de OCHENTA Y CUATRO con OCHENTA Y DOS CÉNTIMOS

02.03.04 **Bandeja Pemsaband con tapa 60x200 GC** **m**

UPEMT75832200 Suministro y montaje bandeja de rejilla tipo Pemsaband One perforada con tapa, marca PEMSA o similar, con borde de seguridad perfilado y base perforada y embutida, fabricada en acero al carbono según UNE-EN 10.130:08, dimensiones 60x200 mm y 3.05 m de longitud, ref. 75832200, certificado de ensayo de resistencia al fuego E60, según DIN 4102-12, marcado N de AENOR, y sistema de protección Galvanizado en Caliente según UNE-ISO 1461:99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.

PUPEMT7583220	Pemsaband 60x200 GC C7	1,000	m	184,28	184,28	
%PEMPP3539	P.p. soportes, uniones y accesorios	1,843	%	35,39	65,22	
O01OB200	Oficial 1ª electricista	0,200	h	19,25	3,85	
O01OB220	Ayudante electricista	0,200	h	18,01	3,60	
	Suma la partida					256,95
	Costes indirectos			3%		7,71
	TOTAL PARTIDA					**264,66**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS SESENTA Y CUATRO con SESENTA Y SEIS CÉNTIMOS

02.03.05 **CONDUCTOR COBRE DESNUDO 16 MM2** **m**

E17T030d Suministro y colocación de conductor de cobre desnudo de 16 mm2 para red de tierra. Incluye p.p. de soportación, accesorios, conexiones, material pequeño y auxiliar. En todo el recinto de piscina y edificio técnico, uniendo las masas metálicas de las bandejas, según REBT, ITC-BT-18 e ITC-BT-26.

O01OB200	Oficial 1ª electricista	0,050	h	19,25	0,96	
O01OB220	Ayudante electricista	0,050	h	18,01	0,90	
P15EB010d	Conductor cobre desnudo 16 mm2	1,000	m	1,45	1,45	
P15AH430	Pequeño material para instalación	1,000	u	1,40	1,40	
	Suma la partida					4,71
	Costes indirectos			3%		0,14
	TOTAL PARTIDA					**4,85**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con OCHENTA Y CINCO CÉNTIMOS

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02.03.06	**Tubo rígido LH M50 (inst. al aire)**		**m**			
ceE17XT360	Suministro y montaje de tubo rígido libre de halógenos de 50 mm de diámetro, con unión enchufable mediante manguito, en instalación fija al aire, con código 4321. Estable hasta 60ºC y no propagador de la llama. Resistencia a la compresion 1250 Nw. y al impacto 2 J, con temperatura máxima y mínima de instalación y servicio de 60 ºC y -5 ºC, conforme UNE-EN-61.386. Dimensiones conforme a norma UNE-60423. Libre de halógenos conforme norma UNE-EN-50267-2-2. Se incluye parte proporcional de sistema de fijación formado por tacos de expansión brida metálica o plástica, cajas de registro, derivaciones, codos y accesorios para tubo rígido de 50 mm, replanteo y conexionado, quedando la unidad totalmente instalada.					
ceO01OB240	Oficial 1ª electricista	0,050	h	19,25	0,96	
ceP15GD830	Tubo libre halógenos rígido 50 mm	1,000	m	2,39	2,39	
ceP15GD930	P.P sistema de fijación y acabados tubo rígido 50 mm	1,000	m	0,60	0,60	
%0100	Medios auxiliares	0,040	%	1,00	0,04	
	Suma la partida					3,99
	Costes indirectos			3%		0,12
	TOTAL PARTIDA					**4,11**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con ONCE CÉNTIMOS

02.03.07	**Tubo flexible reforzado M20**		**m**			
ceE17XT140	Suministro y montaje de tubo flexible doble capa de policloruro de vinilo de 20 mm de diámetro. IP54. Estable hasta 60ºC y no propagador de la llama.Resistencia a la compresion 320 Nw. y al impacto 1 J. a .5 ºC conforme UNE-EN-61.386. Dimensiones conforme a norma UNE-60423. Se incluye parte proporcional de sistema de fijación formado por tacos de expansión brida metálica o plástica, cajas de registro, derivaciones, codos y accesorios para tubo flexible de 20 mm, replanteo y conexionado, quedando la unidad totalmente instalada.					
O01OB200	Oficial 1ª electricista	0,100	h	19,25	1,93	
ceP15GE060	Reforzado M20	1,000	m	0,38	0,38	
ceP15GB420	P.P sistema de fijación y acabados tubo flexible	1,000	m	0,18	0,18	
	Suma la partida					2,49
	Costes indirectos			3%		0,07
	TOTAL PARTIDA					**2,56**

Asciende el precio total de la partida a la mencionada cantidad de DOS con CINCUENTA Y SEIS CÉNTIMOS

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02.03.08	**BLOQUE AUTÓNOMO EMERGENCIA DAISALUX NAOS N5 A + KES NAOS - 200**		**u**			
E18GDK040N05	Bloque autónomo de emergencia modelo NAOS N5 A + KES NAOS DAISALUX o similar. Luminaria de emergencia de forma rectangular con aristas redondeadas fabricada en material sintético. Baterías LiFePO4 con electrónica de control de carga en función de la temperatura y control independiente de la tensión de cada módulo. El uso de difusores planos microestructurados MCRLED asegura un óptimo rendimiento lumínico en un amplio rango de alturas de colocación en techo y pared. Dispone de una fuente de luz LED que entra en funcionamiento ante corte de red. Un microprocesador interno chequea el estado del aparato y realiza periódicamente test funcionales y de autonomía informando sobre su estado. Si la luminaria se conecta a una Central TEV, los datos sobre su estado se envían a través de dicha central a un ordenador de control, donde se puede monitorizar el estado de toda la instalación de alumbrado de emergencia.Formato: Naos, Funcionamiento: No Permanente LED TCA, Autonomía (h): 1, Lámpara en emergencia: ILMLED-NAOS, Piloto testigo de carga: LED, Aislamiento eléctrico: Clase II, Dispositivo verificación: Gestión centralizada TCA, Conexión telemando: Si, Tipo batería: LiFePO4Color: Blanco, Conjunto óptico: Antipánico IP43 IK04, Tensión de alimentación: 220-230V 50/60HzAccesorio: KES NAOS, Caja estanca IP66 IK10, Flujo emerg. (lm):176. Construido según normas: UNE-EN 60598-2-22, UNE-EN 60598-1, UNE-EN 1838 y Directivas 2014/30/UE, 2014/35/UE y 2011/65/UE RoHS, 2002/96/CE, Instalada, incluyendo replanteo, accesorios de anclaje y conexionado, conforme al CTE DB-HE-3, CTE DB-SUA-4 y NTE-IEI.					
O01OB200	Oficial 1ª electricista	0,200	h	19,25	3,85	
O01OB220	Ayudante electricista	0,200	h	18,01	3,60	
P16EDK040N05	Bloque autón. emergencia Daisalux Naos N5 A + KETB NAOS - 200 l	1,000	u	71,36	71,36	
%PM0050	Pequeño Material	0,788	%	0,50	0,39	
	Suma la partida					79,20
	Costes indirectos			3%		2,38
	TOTAL PARTIDA					**81,58**

Asciende el precio total de la partida a la mencionada cantidad de OCHENTA Y UN con CINCUENTA Y OCHO CÉNTIMOS

02.03.09	**SELLADO HUECO INSTAL. MORTERO EI-120**		**u**			
E26J002	Sistema sellado de huecos de paso de instalaciones EI-120 con compuesto de mortero preparado de cemento y áridos ligeros en un espesor de 150 mm. Medida la unidad instalada.					
O01OA060	Peón especializado	0,200	h	17,00	3,40	
P23I140	Mortero seco para sellados	1,850	kg	2,34	4,33	
%CI	Costes indirectos..(s/total)	0,077	%	3,00	0,23	
	Suma la partida					7,96
	Costes indirectos			3%		0,24
	TOTAL PARTIDA					**8,20**

Asciende el precio total de la partida a la mencionada cantidad de OCHO con VEINTE CÉNTIMOS

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02.04	**VARIOS**					
02.04.01	**DOCUMENTACIÓN DE OBRA, PRUEBAS, ENSAYOS Y LEGALIZACIÓN**		**u**			
nE44ADC2001	Documentación de obra, prueba, ensayos y legalización de la instalación.. Comprobación de la instalación comprendiendo la totalidad de pruebas y ensayos de acuerdo con la Normativa vigente y las contempladas en el Pliego de Condiciones de este proyecto. Identificación y etiquetado de todas las tomas, tanto en armarios como en puestos de trabajo, de acuerdo con las especificaciones contempladas en el Pliego de Condiciones e instrucciones de la Dirección Facultativa. Elaboración y entrega de la documentación de obra de la instalación de cableado estructurado según Pliego de Condiciones e instrucciones de la Dirección Facultativa a la propia Dirección Facultativa, comprendiendo: - Dos ejemplares completos del Proyecto de Ejecución de la Instalación, en papel, puesto al día con Memoria, Medición y Planos, en exacta correspondencia con las instalaciones realizadas. - Una colección de dicho proyecto en soporte informático. - Dos ejemplares del Esquema de Principio de la Instalación en tamaño DIN A-1 como mínimo, debidamente coloreados, plastificados y enmarcados. - Fotocopias de todos los certificados y resguardos de presentación en los Organismos Oficiales necesarios para dejar en total y perfecta legalidad la instalación realizada. - Libro de Mantenimiento de acuerdo con la normativa vigente. - Ejemplares de la documentación de las partidas que conforman la instalación que incluya documentos de origen, hoja de suministro y etiquetado, certificados de garantía del fabricante, documentos de conformidad o autorizaciones administrativas exigidas reglamentariamente, incluida en su caso el marcado CE de los productos de construcción. Esta documentación comprenderá además los manuales de instrucciones y normas de seguridad de toda la maquinaria que conforme la instalación. Toda esta documentación se entregará en papel y en formato digital. - Un ejemplar en papel y otro en formato digital con los resultados obtenidos de todas las pruebas realizadas, con especificación de todos los valores obtenidos. Legalización de la instalación, incluyendo la preparación y visados de proyectos en el Colegio Profesional correspondiente y la presentación y seguimiento hasta buen fin de los expedientes ante Servicios Territoriales de Industria y Entidades Colaboradoras, incluso el abono de las tasas correspondientes. Se incluyen todos los trámites administrativos que haya que realizar con cualquier organismo oficial para llevar a buen término las instalaciones de este capítulo.					
PDOCUM	DOCUMENTACIÓN, PRUEBAS Y LEGALIZACIÓN	1,000	u	250,00	250,00	

Suma la partida		250,00
Costes indirectos	3%	7,50
TOTAL PARTIDA		**257,50**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS CINCUENTA Y SIETE con CINCUENTA CÉNTIMOS

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02.04.02	**AYUDA ALBAÑILERÍA INST. ELECTRICIDAD**		**u**			
nE07WA013	Ayuda de albañilería a instalación de electricidad incluyendo mano de obra en carga y descarga, materiales, apertura y tapado de rozas, recibidos, remates y ayudas a puesta a tierra, caja general de protección, línea general de alimentación, contador en fachada, derivaciones individuales y cuadros de mando y protección, i/p.p. material auxiliar, limpieza y medios auxiliares.(20% sobre instalación de electricidad). Medido por unidad de partida.					
O01OA030	Oficial primera	8,470	h	19,86	168,21	
O01OA070	Peón ordinario	8,470	h	16,88	142,97	
	Suma la partida					311,18
	Costes indirectos			3%		9,34
	TOTAL PARTIDA					**320,52**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS VEINTE con CINCUENTA Y DOS CÉNTIMOS

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
03	**BMS**					
03.01	**Subestaciones de Control**					
03.01.01	**Edificio Instalaciones**					
03.01.01.01	**CC01 Edificio Instalaciones**					
03.01.01.01.01	**Automation Server SpaceLogic Controller AS-P Secure Boot (HW)**		**u**			
SXWASPSBX10001	Automation Server, plataforma EcoStruxure for Buildings, Hot-Swap ,CPU con soporte de modulos de Input/Output, controlador y servidor de comunicaciones. WebServer incluido, con la nueva tecnologia HTML5 para la facil conexion con smartphones/tablets. La solucion EcoStruxure for Buildings soporte protocolos abiertos standard. El Automation Server Premium puede comunicar nativamente con 4 de los protocolos mas usados en los edificios: BACnet, LonWorks, Modbus y Web Services. El autodireccionamiento elimina la necesidad de ajustar DIP switches o botones de programacion. Con la familia de Automation Server, cada modulo de entradas/salidas se asigna automaticamente el orden en la cadena de configuracion. Protocolos soportados: IP addressing (IPv6 ready). DUAL-PORT Ethernet para comunicaciones TCP, DHCP/DNS para un despliegue de las direcciones optimizado. Posibilidad de tener red IP privada para tener la red BMS diferenciada de la red corporativa. HTTP/HTTPS para acceso a internet a traves de firewalls, el cual permite el acceso remoto para la monitorizacion y control, NTP integrado (Network Time Protocol) para la sincronizacion del tiempo a traves del sistema. Integra SMTP para permitir enviar emails para comunicar alarmas y/o notificaciones. Marca Schneider Electric					
	Sin descomposición					722,12
	Costes indirectos		3%			21,66
	TOTAL PARTIDA					**743,78**
	Asciende el precio total de la partida a la mencionada cantidad de SETECIENTOS CUARENTA Y TRES con SETENTA Y OCHO CÉNTIMOS					
03.01.01.01.02	**ASP Bundle - Standard (25 Connected Products)**		**u**			
SXWSWXBU00009D	Licencia software embebido en el controlador AS-P que habilita la conectividad de hasta 25 equipos conectados con conectividad al Enterprise Server					
	Sin descomposición					1.143,10
	Costes indirectos		3%			34,29
	TOTAL PARTIDA					**1.177,39**
	Asciende el precio total de la partida a la mencionada cantidad de MIL CIENTO SETENTA Y SIETE con TREINTA Y NUEVE CÉNTIMOS					
03.01.01.01.03	**Activacion de Modbus - SpaceLogic AS-P Server**		**u**			
SXWSWX000MBRTU	Licencia software embebido en el controlador AS-P que habilita la conectividad ModBus					
	Sin descomposición					214,33
	Costes indirectos		3%			6,43
	TOTAL PARTIDA					**220,76**
	Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTE con SETENTA Y SEIS CÉNTIMOS					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

03.01.01.01.04 **Fuente Alimentacion SXW 24VAC/VDC** **u**

SXWPS24VX10001 Fuente de Alimentacion del sistema. Plataforma EcoStruxure for Buildings, Alimentacion suministrada al resto de modulos por backplane. 24vac/24vdc.
Marca:Schneider Electric

Sin descomposición			306,39
Costes indirectos	3%		9,19
TOTAL PARTIDA			**315,58**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS QUINCE con CINCUENTA Y OCHO CÉNTIMOS

03.01.01.01.05 **Modulo de E/S SXW 16 UI** **u**

SXWUI16XX10001 Modulo de Entradas/Salidas, Plataforma EcoStruxure for Buildings, Hot-Swap, 16 Entradas Universales, cada entrada puede soportar tanto entradas tipo de contacto, contador, y supervisada como de voltaje, corriente, termistor, y resistencia. Alimentacion por Backplane , Montaje carril DIN.
Marca: Schneider Electric

Sin descomposición			633,14
Costes indirectos	3%		18,99
TOTAL PARTIDA			**652,13**

Asciende el precio total de la partida a la mencionada cantidad de SEISCIENTOS CINCUENTA Y DOS con TRECE CÉNTIMOS

03.01.01.01.06 **Base electrica para Fuente de Alimentacion SXW** **u**

SXWTBPSW11000 Base Terminal para Fuente de Alimentacion del Sistema. Plataforma EcoStruxure for Buildings.
Marca: Schneider Electric

Sin descomposición			81,48
Costes indirectos	3%		2,44
TOTAL PARTIDA			**83,92**

Asciende el precio total de la partida a la mencionada cantidad de OCHENTA Y TRES con NOVENTA Y DOS CÉNTIMOS

03.01.01.01.07 **Base electrica para modulos SXW** **u**

SXWTBIOW11000 Base Terminal para Modulos de Entra/Salida. Plataforma EcoStruxure for Buildings.
Marca: Schneider Electric

Sin descomposición			93,65
Costes indirectos	3%		2,81
TOTAL PARTIDA			**96,46**

Asciende el precio total de la partida a la mencionada cantidad de NOVENTA Y SEIS con CUARENTA Y SEIS CÉNTIMOS

03.01.01.01.08 **Base electrica para Automation Server Premium** **u**

SXWTBASW11000 Base Terminal para Automation Server Premium del Sistema. Plataforma EcoStruxure for Buildings.
Marca: Schneider Electric

Sin descomposición			80,60
Costes indirectos	3%		2,42
TOTAL PARTIDA			**83,02**

Asciende el precio total de la partida a la mencionada cantidad de OCHENTA Y TRES con DOS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

03.01.01.01.09 **Sonda de temperatura de inmersion en tuberia 100mm NTC 10 kO Type 3 con vaina L=100. Ref STP500-100** **u**

STP500-100_v100 Sonda de temperatura de inmersion en tuberia 100mm NTC 10 kO Type 3 con vaina L=100.
Ref STP500-100

Sin descomposición			58,63
Costes indirectos	3%		1,76
TOTAL PARTIDA			**60,39**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA con TREINTA Y NUEVE CÉNTIMOS

03.01.01.01.10 **Switch No Gestionable 5x100TXRJ45** **u**

MCSESU053FN0 Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion.
Marca Schneider Electric, Referencia MCSESU053FN0

Sin descomposición			217,50
Costes indirectos	3%		6,53
TOTAL PARTIDA			**224,03**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTICUATRO con TRES CÉNTIMOS

03.01.01.01.11 **Switch gestionable RS20 6xRJ45 - 2xF.O. Multi SC** **u**

RS200800M2M2SDAE Switch gestionable con capacidad para 6 conexiones RJ45 y 2 conexiones F.O. 10/100. Incluye fuente de alimentacion modelo ABL8FEQ24010. Marca Schneider Electric modelo RS20-0800M2M2SDAE

Sin descomposición			1.468,24
Costes indirectos	3%		44,05
TOTAL PARTIDA			**1.512,29**

Asciende el precio total de la partida a la mencionada cantidad de MIL QUINIENTOS DOCE con VEINTINUEVE CÉNTIMOS

03.01.01.01.12 **CUADROS CONTROL TIPO 3 (<7 modulos)** **u**

AM-TIPO3 CUADRO DE CONTROL TIPO 3 , dimensiones 600x500x150, con capacidad para albergar un maximo de 1 controlador Smart Automation Server y seis modulos de entrada / salida.
Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion.
Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control.
Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro.
Incluye:
. Armario Schneider CRN65/150
. Placa de montaje Schneider MM 65
.
Excluye:
. Conexionado cableado a equipos.

Sin descomposición			712,31
Costes indirectos	3%		21,37
TOTAL PARTIDA			**733,68**

Asciende el precio total de la partida a la mencionada cantidad de SETECIENTOS TREINTA Y TRES con SESENTA Y OCHO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

03.01.02 Pabellon P1

03.01.02.01 CC07 P1_1

03.01.02.01.01 **Automation Server SpaceLogic Controller AS-B 36 Scalable** **u**

SXWASB36PX1000I

Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.

Sin descomposición			1.359,02
Costes indirectos	3%		40,77
TOTAL PARTIDA			**1.399,79**

Asciende el precio total de la partida a la mencionada cantidad de MIL TRESCIENTOS NOVENTA Y NUEVE con SETENTA Y NUEVE CÉNTIMOS

03.01.02.01.02 **ASB Bundle - Standard** **u**

SXWSWXBBU0103D

Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados

Sin descomposición			395,68
Costes indirectos	3%		11,87
TOTAL PARTIDA			**407,55**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS SIETE con CINCUENTA Y CINCO CÉNTIMOS

03.01.02.01.03 **AS-B Connector Kit** **u**

SXWASBCON1000I

Kit de reemplazo de terminales para todos los modelos AS-B

Sin descomposición			67,28
Costes indirectos	3%		2,02
TOTAL PARTIDA			**69,30**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y NUEVE con TREINTA CÉNTIMOS

03.01.02.01.04 **Sensor CO2 Tapa Ciega BAC/Mod MED** **u**

SLPSXCX

Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate.
Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC
Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR.
Interface de usuario: Tapa Ciega
Gama SpaceLogic de Schneider Electric.

Sin descomposición			297,95
Costes indirectos	3%		8,94
TOTAL PARTIDA			**306,89**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS SEIS con OCHENTA Y NUEVE CÉNTIMOS

03.01.02.01.05 **Actuador electromecanico 0(2)-10V** **u**

MP130-24M

El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
				Sin descomposición		161,57
				Costes indirectos	3%	4,85
				TOTAL PARTIDA		**166,42**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO SESENTA Y SEIS con CUARENTA Y DOS CÉNTIMOS

03.01.02.01.06 **Actuador Forta 500N** **u**

MP500C

Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control:
- Modulante (Y, M)
- Flotante (increase, decrease) (Y1, Y2)
Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2)
Con senal de feedback de estado 0-100% (U)
Marca Schneider Electric

				Sin descomposición		484,69
				Costes indirectos	3%	14,54
				TOTAL PARTIDA		**499,23**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS NOVENTA Y NUEVE con VEINTITRÉS CÉNTIMOS

03.01.02.01.07 **Switch No Gestionable 5x100TXRJ45** **u**

MCSESU053FN0

Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion.
Marca Schneider Electric, Referencia MCSESU053FN0

				Sin descomposición		217,50
				Costes indirectos	3%	6,53
				TOTAL PARTIDA		**224,03**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTICUATRO con TRES CÉNTIMOS

03.01.02.01.08 **CUADROS CONTROL TIPO 4 (<9 modulos)** **u**

AM-TIPO4

CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida.
Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion.
Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control.
Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro.
Incluye:
. Armario Schneider CRN86/200
. Placa de montaje Schneider MM 86
.
Excluye:
. Conexionado cableado a equipos.

				Sin descomposición		1.034,07
				Costes indirectos	3%	31,02
				TOTAL PARTIDA		**1.065,09**

Asciende el precio total de la partida a la mencionada cantidad de MIL SESENTA Y CINCO con NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

03.01.02.02 CC08 P1_2

03.01.02.02.01 **Automation Server SpaceLogic Controller AS-B 36 Scalable** **u**

SXWASB36PX1000I Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.

Sin descomposición		1.359,02
Costes indirectos	3%	40,77
**TOTAL PARTIDA ..... **		**1.399,79**

Asciende el precio total de la partida a la mencionada cantidad de MIL TRESCIENTOS NOVENTA Y NUEVE con SETENTA Y NUEVE CÉNTIMOS

03.01.02.02.02 **ASB Bundle - Standard** **u**

SXWSWXBBU0103D Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados

Sin descomposición		395,68
Costes indirectos	3%	11,87
**TOTAL PARTIDA ..... **		**407,55**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS SIETE con CINCUENTA Y CINCO CÉNTIMOS

03.01.02.02.03 **AS-B Connector Kit** **u**

SXWASBCON1000I Kit de reemplazo de terminales para todos los modelos AS-B

Sin descomposición		67,28
Costes indirectos	3%	2,02
**TOTAL PARTIDA ..... **		**69,30**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y NUEVE con TREINTA CÉNTIMOS

03.01.02.02.04 **Sensor CO2 Tapa Ciega BAC/Mod MED** **u**

SLPSXCX Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate.
Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC
Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR.
Interface de usuario: Tapa Ciega
Gama SpaceLogic de Schneider Electric.

Sin descomposición		297,95
Costes indirectos	3%	8,94
**TOTAL PARTIDA ..... **		**306,89**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS SEIS con OCHENTA Y NUEVE CÉNTIMOS

03.01.02.02.05 **Actuador electromecanico 0(2)-10V** **u**

MP130-24M El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
				Sin descomposición		161,57
				Costes indirectos	3%	4,85
				TOTAL PARTIDA		**166,42**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO SESENTA Y SEIS con CUARENTA Y DOS CÉNTIMOS

03.01.02.02.06 **Actuador Forta 500N** **u**

MP500C

Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control:
- Modulante (Y, M)
- Flotante (increase, decrease) (Y1, Y2)
Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2)
Con senal de feedback de estado 0-100% (U)
Marca Schneider Electric

				Sin descomposición		484,69
				Costes indirectos	3%	14,54
				TOTAL PARTIDA		**499,23**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS NOVENTA Y NUEVE con VEINTITRÉS CÉNTIMOS

03.01.02.02.07 **Switch No Gestionable 5x100TXRJ45** **u**

MCSESU053FN0

Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion.
Marca Schneider Electric, Referencia MCSESU053FN0

				Sin descomposición		217,50
				Costes indirectos	3%	6,53
				TOTAL PARTIDA		**224,03**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTICUATRO con TRES CÉNTIMOS

03.01.02.02.08 **CUADROS CONTROL TIPO 4 (<9 modulos)** **u**

AM-TIPO4

CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida.
Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion.
Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control.
Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro.
Incluye:
. Armario Schneider CRN86/200
. Placa de montaje Schneider MM 86
.
Excluye:
. Conexionado cableado a equipos.

				Sin descomposición		1.034,07
				Costes indirectos	3%	31,02
				TOTAL PARTIDA		**1.065,09**

Asciende el precio total de la partida a la mencionada cantidad de MIL SESENTA Y CINCO con NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

03.01.02.03 CC09 P1_3

03.01.02.03.01 **Automation Server SpaceLogic Controller AS-B 36 Scalable** **u**

SXWASB36PX1000I

Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.

Sin descomposición			1.359,02
Costes indirectos	3%		40,77
**TOTAL PARTIDA ..... **			**1.399,79**

Asciende el precio total de la partida a la mencionada cantidad de MIL TRESCIENTOS NOVENTA Y NUEVE con SETENTA Y NUEVE CÉNTIMOS

03.01.02.03.02 **ASB Bundle - Standard** **u**

SXWSWXBBU0103D

Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados

Sin descomposición			395,68
Costes indirectos	3%		11,87
**TOTAL PARTIDA ..... **			**407,55**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS SIETE con CINCUENTA Y CINCO CÉNTIMOS

03.01.02.03.03 **AS-B Connector Kit** **u**

SXWASBCON1000I

Kit de reemplazo de terminales para todos los modelos AS-B

Sin descomposición			67,28
Costes indirectos	3%		2,02
**TOTAL PARTIDA ..... **			**69,30**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y NUEVE con TREINTA CÉNTIMOS

03.01.02.03.04 **Sensor CO2 Tapa Ciega BAC/Mod MED** **u**

SLPSXCX

Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate.
Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC
Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR.
Interface de usuario: Tapa Ciega
Gama SpaceLogic de Schneider Electric.

Sin descomposición			297,95
Costes indirectos	3%		8,94
**TOTAL PARTIDA ..... **			**306,89**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS SEIS con OCHENTA Y NUEVE CÉNTIMOS

03.01.02.03.05 **Actuador electromecanico 0(2)-10V** **u**

MP130-24M

El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
				Sin descomposición		161,57
				Costes indirectos	3%	4,85
				TOTAL PARTIDA		**166,42**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO SESENTA Y SEIS con CUARENTA Y DOS CÉNTIMOS

03.01.02.03.06 **Actuador Forta 500N** **u**

MP500C

Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control:
- Modulante (Y, M)
- Flotante (increase, decrease) (Y1, Y2)
Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2)
Con senal de feedback de estado 0-100% (U)
Marca Schneider Electric

				Sin descomposición		484,69
				Costes indirectos	3%	14,54
				TOTAL PARTIDA		**499,23**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS NOVENTA Y NUEVE con VEINTITRÉS CÉNTIMOS

03.01.02.03.07 **Switch No Gestionable 5x100TXRJ45** **u**

MCSESU053FN0

Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion.
Marca Schneider Electric, Referencia MCSESU053FN0

				Sin descomposición		217,50
				Costes indirectos	3%	6,53
				TOTAL PARTIDA		**224,03**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTICUATRO con TRES CÉNTIMOS

03.01.02.03.08 **CUADROS CONTROL TIPO 4 (<9 modulos)** **u**

AM-TIPO4

CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida.
Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion.
Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control.
Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro.
Incluye:
. Armario Schneider CRN86/200
. Placa de montaje Schneider MM 86
.
Excluye:
. Conexionado cableado a equipos.

				Sin descomposición		1.034,07
				Costes indirectos	3%	31,02
				TOTAL PARTIDA		**1.065,09**

Asciende el precio total de la partida a la mencionada cantidad de MIL SESENTA Y CINCO con NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

03.01.02.04 CC10 P1_4

03.01.02.04.01 **Automation Server SpaceLogic Controller AS-B 36 Scalable** **u**

SXWASB36PX10001

Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.

Sin descomposición			1.359,02
Costes indirectos	3%		40,77
TOTAL PARTIDA			**1.399,79**

Asciende el precio total de la partida a la mencionada cantidad de MIL TRESCIENTOS NOVENTA Y NUEVE con SETENTA Y NUEVE CÉNTIMOS

03.01.02.04.02 **ASB Bundle - Standard** **u**

SXWSWXBBU0103D

Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados

Sin descomposición			395,68
Costes indirectos	3%		11,87
TOTAL PARTIDA			**407,55**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS SIETE con CINCUENTA Y CINCO CÉNTIMOS

03.01.02.04.03 **AS-B Connector Kit** **u**

SXWASBCON10001

Kit de reemplazo de terminales para todos los modelos AS-B

Sin descomposición			67,28
Costes indirectos	3%		2,02
TOTAL PARTIDA			**69,30**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y NUEVE con TREINTA CÉNTIMOS

03.01.02.04.04 **Sensor CO2 Tapa Ciega BAC/Mod MED** **u**

SLPSXCX

Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate.
Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC
Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR.
Interface de usuario: Tapa Ciega
Gama SpaceLogic de Schneider Electric.

Sin descomposición			297,95
Costes indirectos	3%		8,94
TOTAL PARTIDA			**306,89**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS SEIS con OCHENTA Y NUEVE CÉNTIMOS

03.01.02.04.05 **Actuador electromecanico 0(2)-10V** **u**

MP130-24M

El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
				Sin descomposición		161,57
				Costes indirectos	3%	4,85
				TOTAL PARTIDA		**166,42**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO SESENTA Y SEIS con CUARENTA Y DOS CÉNTIMOS

03.01.02.04.06 **Actuador Forta 500N** **u**

MP500C

Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control:
- Modulante (Y, M)
- Flotante (increase, decrease) (Y1, Y2)
Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2)
Con senal de feedback de estado 0-100% (U)
Marca Schneider Electric

				Sin descomposición		484,69
				Costes indirectos	3%	14,54
				TOTAL PARTIDA		**499,23**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS NOVENTA Y NUEVE con VEINTITRÉS CÉNTIMOS

03.01.02.04.07 **Switch No Gestionable 5x100TXRJ45** **u**

MCSESU053FN0

Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion.
Marca Schneider Electric, Referencia MCSESU053FN0

				Sin descomposición		217,50
				Costes indirectos	3%	6,53
				TOTAL PARTIDA		**224,03**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTICUATRO con TRES CÉNTIMOS

03.01.02.04.08 **CUADROS CONTROL TIPO 4 (<9 modulos)** **u**

AM-TIPO4

CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida.
Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion.
Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control.
Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro.
Incluye:
. Armario Schneider CRN86/200
. Placa de montaje Schneider MM 86
.
Excluye:
. Conexionado cableado a equipos.

				Sin descomposición		1.034,07
				Costes indirectos	3%	31,02
				TOTAL PARTIDA		**1.065,09**

Asciende el precio total de la partida a la mencionada cantidad de MIL SESENTA Y CINCO con NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
03.02	**Puesto central**					
03.02.01	**Puesto de Supervision y Control**					
03.02.01.01	**Enterprise Server para 10 SmartX Server**		**u**			
SXWSWESXX00010	Software ENTERPRISE SERVER, Plataforma EcoStruxure for Buildings. Enterprise Server es el agregador central desde donde los usuarios pueden configurar, controlar, y monitorizar el sistema completo controlado por varios SmartX Servers (Automation Servers). La licencia SXWSWESXX00010 permite gestionar hasta 10 Automation Servers (AS-P, AS-B, Edge Server). Se comunica a traves de estandares de la red, haciendo que las instalaciones sean faciles, la gestion sencilla y las transacciones ciberseguras, mediante el uso de los protocolos (TCP/IP, DHCP/DNS, HTTP/HTTPS, NTP, SMTP/SMTPS, WSS y TLS1.3...). Soporta protocolos OT como BACnet IP, BACnet SC, MODBUS TCP, mediante drivers nativos e IT mediante licencias adicionales. Gestiona alarmas, usuarios compatible con Windows Active Directory, horarios, eventos y registros. La informacion puede liberarse directamente al usuario mediante la potente interfaz grafica (HTML5), o a otros dispositivos, aplicativos o sistemas (comunicaciones en modo cliente y servidor). Dispone de dos tipos de lenguajes de programacion, script y diagrama de bloques. El Enterprise Server contiene el historico (tendencias, alarmas y eventos) y la configuracion de la BBDD, pudiendo en caso necesario, conectar con BBDD externas como TimeScaleDB (Postgre SQL), Microsoft SQL Server o AVEVA PI para una mayor capacidad de almacenamiento externo. Dispone de la capacidad integrada de generar informes sencillos en formato de texto (txt, csv), hoja de calculo (XLSX) o impresos en PDF. Permite el modelado digital de las instalaciones mediante ôetiquetado semanticoö basado en el estandar Brick Schema, que proporcina mayor comprensibilidad al usuario y contextualiza la informacion para generar el Gemelo Digital. El paquete de instalacion incluye la GraphDB que almacena la informacion de la estructura semantica. Mediante licencia adicional el sistema permite comunicacion usando protocolo Lonworks, Web services, MQTT o conexion a bases de datos externas. Mediante licencia adicional permite el cumplimiento de la certificacion CFR21 parte 11. Mediante licencia adicional permite la autenticacion de usuario mediante SAM2.0 (SSO). Incluye 3 licencias de usuario concurrentes a elegir entre licencia CLIENT Workstation o Webstation. Ver especificiaciones tecnicas para requerimientos de plataforma software y hardware. Marca: Schneider Electric, Referencia SXWSWESXX00010					

Sin descomposición			3.550,06
Costes indirectos	3%		106,50
TOTAL PARTIDA			**3.656,56**

Asciende el precio total de la partida a la mencionada cantidad de TRES MIL SEISCIENTOS CINCUENTA Y SEIS con CINCUENTA Y SEIS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
03.02.01.02	**SERVIDOR WINDOWS W7**		**u**			
THA-ELITE 7200¦W7	ORDENADOR SOBREMESA para PUESTO CENTRAL DE CONTROL y SUPERVISION, segun requerimientos hardware y software del sistema a instalar (ver hoja de caracteristicas). Incluye software y licencia de sistema operativo. Totalmente puesto en servicio. Marca / Modelo: Not Def.					
				Sin descomposición		1.627,35
				Costes indirectos	3%	48,82
				TOTAL PARTIDA		**1.676,17**
	Asciende el precio total de la partida a la mencionada cantidad de MIL SEISCIENTOS SETENTA Y SEIS con DIECISIETE CÉNTIMOS					
03.02.01.03	**Switch No Gestionable 8x100TXRJ45**		**u**			
MCSESU083FN0	Switch No Gestionable 8x100TXRJ45 Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU083FN0					
				Sin descomposición		280,20
				Costes indirectos	3%	8,41
				TOTAL PARTIDA		**288,61**
	Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS OCHENTA Y OCHO con SESENTA Y UN CÉNTIMOS					
03.02.01.04	**Switch gestionable RS20 6xRJ45 - 2xF.O. Multi SC**		**u**			
RS200800M2M2SDAE	Switch gestionable con capacidad para 6 conexiones RJ45 y 2 conexiones F.O. 10/100. Incluye fuente de alimentacion modelo ABL8FEQ24010. Marca Schneider Electric modelo RS20-0800M2M2SDAE					
				Sin descomposición		1.468,24
				Costes indirectos	3%	44,05
				TOTAL PARTIDA		**1.512,29**
	Asciende el precio total de la partida a la mencionada cantidad de MIL QUINIENTOS DOCE con VEINTINUEVE CÉNTIMOS					
03.03	**Ingenieria sistema de control**					
03.03.01	**Ingenieria, Programacion y Puesta en marcha**					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
03.03.01.01	**Ingenieria Clima**		**u**			
PEMCLIM22000	TRABAJOS DE INGENIERIA , PROGRAMACION Y PUESTA EN MARCHA de las Instalaciones de CONTROL DE CLIMA incluidas en este proyecto. Comprende: ò Desarrollo, de forma consensuada con la Dir.Facultativa y/o representantes de la Propiedad, del proyecto de Control de Clima en cuanto a las necesidades del sistema y soluciones generales. Incluye el replanteo tecnico correspondiente a la arquitectura de comunicaciones correspondiente al edificio/s objeto del proyecto.ò Ingenieria del sistema, seleccion de controladores y material de campo, realizacion de esquemas de conexionado ò Programacion de controladores para la implementacion de las regulaciones, automatizaciones y gestion del sistema, segun el proyecto de detalle. ò Diseno de las pantallas graficas de supervision , con puntos de interaccion con el sistema, para el/los puesto/s central/es de control. ò Verificacion del correcto funcionamiento del sistema de control de Clima. ò Puesta en marcha , comprobacion de todas las senales tanto fisicas como de integracion ò Verificacion del correcto funcionamiento del sistema de control de Climaò Un curso de formacion para el personal designado a la explotacion del sistema. ò Es necesaria la presencia de un representante del instalador durante la puesta en marcha. La puesta en marcha comenzara cuando la instalacion se haya ejecutado al 95% y se acordara con Schneider Electric la fecha de inicio. Antes de iniciar la puesta en marcha debera estar finalizada la red de comunicaciones. Todos los equipos deberan estar con alimentacion electrica para realizar la puesta en marcha, si por causas ajenas, la alimentacion electrica no es estable y produce retrasos en la puesta en marcha, se valorara aparte.					
				Sin descomposición		12.670,23
				Costes indirectos	3%	380,11
				TOTAL PARTIDA		**13.050,34**

Asciende el precio total de la partida a la mencionada cantidad de TRECE MIL CINCUENTA con TREINTA Y CUATRO CÉNTIMOS

03.03.02	**Integraciones**					
03.03.02.01	**Integracion Variadores (16 Uds)**		**u**			
Int_Var_16	INTEGRACION EN EL SISTEMA DE SUPERVISION de los variadores de Velocidad del edificio comprendiendo mediante protocolo Modbus o Bacnet segun Listado de Puntos Comprende: ò Mapeo de variables, segun documentacion del sistema. ò Diseno de las pantallas graficas de supervision, con puntos de interaccion con el sistema, para el/los puesto/s central/es de control. Se excluye: ò Interface y/o software necesario para la comunicacion mediante protocolos abiertos (Lon, BacNet, Modbus) del sistema que se integra (suministrado por terceros) ò Tarjetas de entradas/salidas del sistema a integrar, cuando sean requeridas ò Documentacion tecnica completa, asi como planos as-buit en soporte informatico, del sistema que se integra. ò Cualquier material y/o trabajo que deba proporcional el suministrador del sistema que se integra.					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
				Sin descomposición		1.100,00
				Costes indirectos	3%	33,00
				TOTAL PARTIDA		**1.133,00**

Asciende el precio total de la partida a la mencionada cantidad de MIL CIENTO TREINTA Y TRES

03.04 Instalacion sistema de control

03.04.01 Instalacion

03.04.01.01 **Instalacion y Montaje Clima** **u**

INSTCLIM82700

MATERIAL Y TRABAJOS PARA CABLEADO Y CONEXIONADO DE LAS INSTALACIONES.
Incluye :
Instalacion de senales digital de cuadro, conexionando en cuadro electrico y en cuadro de control los estados y las ordenes, con la p.p. de su tubo, cableado y de su puesta en marcha.
Instalacion de senal digital de variadores, conexionando en variador de velocidad y en cuadro de control los regulacion 0-10V, estados y las ordenes, con la p.p. de su tubo, cableado y de su puesta en marcha.
Instalacion de senal digital / analogica de campo, colocando el elemento de campo (actuador valvula, sonda temperatura etc), con la p.p. de su tubo, cableado y de su puesta en marcha.
Instalacion de Fancoils de clima, instalando las 2 valvulas, las tres velocidades, termostato, conexionado de los 230V, bus de comunicacion, con la p.p. de tubo Libre de Halogenos, cable Libre de halogenos, de su puesta en marcha y de su conexionado.
Instalacion del Bus Bacnet de comunicaciones, con la p.p. de su tubo de PVC, cableado y de su puesta en marcha y conexionado.
Instalacion de Red Ethernet con cable UTP CAT-6 por canalizaciones existentes, con la p.p. de su tubo de PVC, cableado y de su puesta en marcha.
Colocacion de cuadros de control a pared, con la p.p. de sus tacos, tornillos, mecanizacion de entrada de tubos.
Las salas de produccion y exteriores se realizaran en tubo de acero o bandeja metalica.
Zonas vistas con tubo rigido L.H. Falsos techos y empotrados instalacion con tubo coarrugado no propagador de la llama.
Se excluye :
- Excluye trabajos y materiales para instalacion de elementos de campo en tuberias (instalacion de valvulas, sondas de temperatura/presion, etc).
- Excluye cualquier trabajo de obra civil.
- Excluye cualquier medio de elevacion y caseta de obra.
- Alimentacion electrica a cuadros de control y controladores de unidades terminales
- Suministro de bornero adicional en cuadros de control.

				Sin descomposición		45.944,30
				Costes indirectos	3%	1.378,33
				TOTAL PARTIDA		**47.322,63**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y SIETE MIL TRESCIENTOS VEINTIDÓS con SESENTA Y TRES CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
04	**RED DE EVACUACIÓN DE CONDENSADOS**					
04.01	**DESAGÜE APARATOS**					
04.01.01	**DESAGÜE PVC C/SIFÓN EN CURVO 40 mm**		**u**			
E20WGI040ALM01	Desagüe de PVC individual, consistente en la colocación de un sifón de PVC curvo, fabricado según UNE-EN 1453-1:2017, con salida horizontal de 40 mm de diámetro, y con registro inferior, y conexión de éste mediante tubería de PVC de 40 mm de diámetro, hasta el punto de desagüe existente, instalado, con uniones roscadas o pegadas; y válido para equipos AA, i/p.p. de piezas especiales de PVC. Conforme a CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011					
O01OB170	Oficial 1ª fontanero calefactor	0,150	h	22,55	3,38	
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P17SS080	Sifón curvo PVC salida horizontal 40 mm 1 1/2"	1,000	u	5,58	5,58	
P17VC010	Tubo PVC serie B junta pegada 40 mm	0,300	m	2,05	0,62	
P17VPM010	Manguito H-H PVC serie B junta pegada 40 mm	2,000	u	0,96	1,92	
%PM0150	Pequeño Material	0,147	%	1,00	0,15	
	Suma la partida					14,89
	Costes indirectos			3%		0,45
	TOTAL PARTIDA					**15,34**

Asciende el precio total de la partida a la mencionada cantidad de QUINCE con TREINTA Y CUATRO CÉNTIMOS

04.02	**TUBERÍAS**					
04.02.01	**Red de pequeña evacuación**					
04.02.01.01	**TUBERÍA PP INSONORIZADA TRICAPA D=50 mm**		**m**			
E20WTA010	Tubería de polipropileno PP tricapa insonorizada, de 50 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	0,100	h	22,55	2,26	
O01OB180	Oficial 2ª fontanero calefactor	0,100	h	21,59	2,16	
P17LI020	Tubo PP insonorizado tricapa junta EPDM D=50 mm	1,000	m	7,55	7,55	
P17LEC020	Codo 87º PP insonorizado junta EPDM D=50 mm	0,600	u	2,61	1,57	
P17LED020	Derivación M-H 45º PP insonorizada junta EPDM D=50 mm	0,500	u	4,78	2,39	
%PM0200	Pequeño Material	0,159	%	2,00	0,32	
	Suma la partida					16,25
	Costes indirectos			3%		0,49
	TOTAL PARTIDA					**16,74**

Asciende el precio total de la partida a la mencionada cantidad de DIECISÉIS con SETENTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
04.02.01.02	**TUBERÍA PP INSONORIZADA TRICAPA D=75 mm**		**m**			
E20WTA020	Tubería de polipropileno PP tricapa insonorizada, de 75 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	0,100	h	22,55	2,26	
O01OB180	Oficial 2ª fontanero calefactor	0,100	h	21,59	2,16	
P17LI030	Tubo PP insonorizado tricapa junta EPDM D=75 mm	1,000	m	10,35	10,35	
P17LEC030	Codo 87º PP insonorizado junta EPDM D=75 mm	0,300	u	4,53	1,36	
P17LED030	Derivación M-H 45º PP insonorizada junta EPDM D=75 mm	0,500	u	7,93	3,97	
P17LEA030	Abrazadera isofónica PP junta EPDM D=75 mm	0,650	u	9,48	6,16	
%PM0200	Pequeño Material	0,263	%	2,00	0,53	
	Suma la partida					26,79
	Costes indirectos			3%		0,80
	TOTAL PARTIDA					**27,59**

Asciende el precio total de la partida a la mencionada cantidad de VEINTISIETE con CINCUENTA Y NUEVE CÉNTIMOS

04.02.01.03	**TUBERÍA PP INSONORIZADA TRICAPA D=90 mm**		**m**			
E20WTA030	Tubería de polipropileno PP tricapa insonorizada, de 90 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	0,250	h	22,55	5,64	
O01OB180	Oficial 2ª fontanero calefactor	0,250	h	21,59	5,40	
P17LI040	Tubo PP insonorizado tricapa junta EPDM D=90 mm	1,000	m	13,47	13,47	
P17LEC040	Codo 87º PP insonorizado junta EPDM D=90 mm	0,300	u	6,64	1,99	
P17LED040	Derivación M-H 45º PP insonorizada junta EPDM D=90 mm	0,500	u	12,12	6,06	
P17LEA040	Abrazadera isofónica PP junta EPDM D=90 mm	0,750	u	11,34	8,51	
%PM0200	Pequeño Material	0,411	%	2,00	0,82	
	Suma la partida					41,89
	Costes indirectos			3%		1,26
	TOTAL PARTIDA					**43,15**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y TRES con QUINCE CÉNTIMOS

04.02.01.04	**TUBERÍA PP INSONORIZADA TRICAPA D=40 mm**		**m**			
E20WTA005	Tubería de polipropileno PP tricapa insonorizada, de 40 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	0,100	h	22,55	2,26	
O01OB180	Oficial 2ª fontanero calefactor	0,100	h	21,59	2,16	
P17LI010	Tubo PP insonorizado tricapa junta EPDM D=40 mm	1,000	m	6,24	6,24	
P17LEC010	Codo 87º PP insonorizado junta EPDM D=40 mm	0,300	u	2,30	0,69	
P17LED010	Derivación M-H 45º PP insonorizada junta EPDM D=40 mm	0,500	u	4,06	2,03	

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%PM0200	Pequeño Material	0,134	%	2,00	0,27	
				Suma la partida		13,65
				Costes indirectos	3%	0,41
				TOTAL PARTIDA		**14,06**

Asciende el precio total de la partida a la mencionada cantidad de CATORCE con SEIS CÉNTIMOS

04.02.02 Bajantes

04.02.02.01 **BAJANTE PVC SERIE B JUNTA PEGADA D=90 mm** **m**

E20WBK010 Bajante de PVC insonorizada, de 90 mm de diámetro, con sistema de unión por enchufe con junta pegada, conforme UNE-EN 1453-1:2017; con una resistencia al fuego B-s1,d0, conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales, con collarín con cierre incorporado. Totalmente montada, i/p.p. de piezas especiales (codos, derivaciones, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011

O01OB170	Oficial 1ª fontanero calefactor	0,075	h	22,55	1,69	
O01OB180	Oficial 2ª fontanero calefactor	0,075	h	21,59	1,62	
P17VI030	Tubo PVC insonorizado 90 mm	1,000	m	16,40	16,40	
P17VGC030	Codo M-H PVC insonorizado 87º 90 mm	0,500	u	9,19	4,60	
P17VPI050	Injerto M-H 45º PVC serie B junta pegada 90 mm	0,300	u	9,44	2,83	
P17VGA010	Abrazadera isofónica tubo PVC 90 mm	0,750	u	5,49	4,12	
%PM0200	Pequeño Material	0,313	%	2,00	0,63	
				Suma la partida		31,89
				Costes indirectos	3%	0,96
				TOTAL PARTIDA		**32,85**

Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y DOS con OCHENTA Y CINCO CÉNTIMOS

04.03 ARQUETAS

04.03.01 **ARQUETA REGISTRABLE PREFABRICADA HM 70x70x250 cm TAPA ESTANCA** **u**

E03AHR090ALM01 Arqueta prefabricada registrable de hormigón en masa, estanca, con refuerzo de zuncho perimetral en la parte superior, de 70x70x2,5 cm, medidas interiores, completa: con tapa y marco de hormigón y formación de agujeros para conexiones de tubos. Colocada sobre solera de hormigón en masa HM-20/P/40/X0 de 10 cm de espesor, i/p.p. de medios auxiliares, sin incluir la excavación ni el relleno perimetral posterior, según CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011.

O01OA030	Oficial primera	0,740	h	19,86	14,70	
O01OA060	Peón especializado	1,450	h	17,00	24,65	
M05RN020	Retrocargadora neumáticos 75 CV	0,200	h	28,76	5,75	
P01HMV250	Hormigón HM-20/P/40/X0 central	0,060	m3	88,81	5,33	
P02EAH040	Arqueta HM c/zuncho sup-fondo ciego 70x70x50 cm	5,000	u	69,44	347,20	
P02EAT110N01	Tapa/marco cuadrada HM 70x70 cm estanca	1,000	u	91,23	91,23	
				Suma la partida		488,86
				Costes indirectos	3%	14,67
				TOTAL PARTIDA		**503,53**

Asciende el precio total de la partida a la mencionada cantidad de QUINIENTOS TRES con CINCUENTA Y TRES CÉNTIMOS

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
04.04	**VARIOS**					
04.04.01	**SELLADO HUECO INSTAL. MORTERO EI-120**		**u**			
E20VFL170N04	Sistema sellado de huecos de paso de instalaciones EI-120 con compuesto de mortero preparado de cemento y áridos ligeros en un espesor de 150 mm. Medida la unidad instalada.					
O01OB195	Ayudante fontanero	0,200	h	18,01	3,60	
P23I140	Mortero seco para sellados	1,850	kg	2,34	4,33	
	Suma la partida					7,93
	Costes indirectos			3%		0,24
	TOTAL PARTIDA					**8,17**
	Asciende el precio total de la partida a la mencionada cantidad de OCHO con DIECISIETE CÉNTIMOS					
04.04.02	**AYUDA ALBAÑILERÍA INST. SANEAMIENTO**		**u**			
E20OC010N02	Ayuda de albañilería a instalación de saneamiento incluyendo mano de obra en carga y descarga, materiales, apertura y tapado de rozas, recibidos, remates, canalizaciones y ayudas varias, i/p.p. material auxiliar, limpieza y medios auxiliares.					
O01OA030	Oficial primera	5,600	h	19,86	111,22	
O01OA070	Peón ordinario	5,600	h	16,88	94,53	
	Suma la partida					205,75
	Costes indirectos			3%		6,17
	TOTAL PARTIDA					**211,92**
	Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS ONCE con NOVENTA Y DOS CÉNTIMOS					

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05	**CLIMATIZACIÓN**					
05.01	**CONDUCTOS**					
05.01.01	**Circular**					
05.01.01.01	**TUBO HELIC. CHAPA ACERO GALVANIZADA D=600 mm**		**m**			
E23DCG020ALM01	Conducto formado por tubo helicoidal de chapa de acero galvanizada de 1 mm de espesor, de diámetro 600 mm, conforme a Norma UNE-EN 1506:2007, con panel rígido de alta densidad de lana de vidrio según UNE-EN 14303 revestido por sus dos caras, la exterior con un compledo de aluminio visto + malla de fibra de vidrio y la interior con un velo de vidrio de 25mm de espesor, resistencia térmica 0,75 m"K/W y conductividad térmica 0,032W/(mK) Euroclase B-s1, d0 de reacción al fuego según UNE-EN 13501-1; fijado a paramento o forjado mediante medios mecánicos. Totalmente instalado; i/p.p. de embocaduras, derivaciones, elementos de fijación y piezas especiales, homologado, instalado según CTE DB-HS-3 y RITE (RD 1027/2007). Medido en su longitud.					
O01OB170	Oficial 1ª fontanero calefactor	0,333	h	22,55	7,51	
O01OB190	Ayudante fontanero	0,333	h	20,96	6,98	
MT42CON030A	Panel rígido de alta densidad de lana de vidrio 0,75m2K/W y 0,032W/(mK)	2,167	m	14,73	31,92	
P21DCG020ALM01	Tubo helicoidal acero galvaniz. 1 mm D=600 mm	1,080	m	40,42	43,65	
%PM2000	Pequeño Material	0,901	%	20,00	18,02	
	Suma la partida					108,08
	Costes indirectos			3%		3,24
	TOTAL PARTIDA					**111,32**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO ONCE con TREINTA Y DOS CÉNTIMOS

05.01.01.02	**TUBO HELIC. CHAPA ACERO GALVANIZADA D=750 mm**		**m**			
E23DCG020ALM02	Conducto formado por tubo helicoidal de chapa de acero galvanizada de 1 mm de espesor, de diámetro 750 mm, conforme a Norma UNE-EN 1506:2007, con panel rígido de alta densidad de lana de vidrio según UNE-EN 14303 revestido por sus dos caras, la exterior con un compledo de aluminio visto + malla de fibra de vidrio y la interior con un velo de vidrio de 25mm de espesor, resistencia térmica 0,75 m"K/W y conductividad térmica 0,032W/(mK) Euroclase B-s1, d0 de reacción al fuego según UNE-EN 13501-1; fijado a paramento o forjado mediante medios mecánicos. Totalmente instalado; i/p.p. de embocaduras, derivaciones, elementos de fijación y piezas especiales, homologado, instalado según CTE DB-HS-3 y RITE (RD 1027/2007). Medido en su longitud.					
O01OB170	Oficial 1ª fontanero calefactor	0,333	h	22,55	7,51	
O01OB190	Ayudante fontanero	0,333	h	20,96	6,98	
MT42CON030A	Panel rígido de alta densidad de lana de vidrio 0,75m2K/W y 0,032W/(mK)	2,710	m	14,73	39,92	
P21DCG020ALM02	Tubo helicoidal acero galvaniz. 1 mm D=750 mm	1,080	m	50,91	54,98	
%PM2000	Pequeño Material	1,094	%	20,00	21,88	
	Suma la partida					131,27
	Costes indirectos			3%		3,94
	TOTAL PARTIDA					**135,21**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO TREINTA Y CINCO con VEINTIÚN CÉNTIMOS

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.01.01.03	**TUBO HELIC. CHAPA ACERO GALVANIZADA D=1250 mm**		**m**			
E23DCG020ALM03	Conducto formado por tubo helicoidal de chapa de acero galvanizada de 1 mm de espesor, de diámetro 1250 mm, conforme a Norma UNE-EN 1506:2007, con panel rígido de alta densidad de lana de vidrio según UNE-EN 14303 revestido por sus dos caras, la exterior con un compledo de aluminio visto + malla de fibra de vidrio y la interior con un velo de vidrio de 25mm de espesor, resistencia térmica 0,75 m"K/W y conductividad térmica 0,032W/(mK) Euroclase B-s1, d0 de reacción al fuego según UNE-EN 13501-1; fijado a paramento o forjado mediante medios mecánicos. Totalmente instalado; i/p.p. de embocaduras, derivaciones, elementos de fijación y piezas especiales, homologado, instalado según CTE DB-HS-3 y RITE (RD 1027/2007). Medido en su longitud.					
O01OB170	Oficial 1ª fontanero calefactor	0,333	h	22,55	7,51	
O01OB190	Ayudante fontanero	0,333	h	20,96	6,98	
MT42CON030A	Panel rígido de alta densidad de lana de vidrio 0,75m2K/W y 0,032W/(mK)	4,516	m	14,73	66,52	
P21DCG020ALM03	Tubo helicoidal acero galvaniz. 1 mm D=1250 mm	1,080	m	109,35	118,10	
%PM2000	Pequeño Material	1,991	%	20,00	39,82	
	Suma la partida					238,93
	Costes indirectos			3%		7,17
	TOTAL PARTIDA					**246,10**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS CUARENTA Y SEIS con DIEZ CÉNTIMOS

05.01.02 Rectangular

05.01.02.01	**CONDUCTO ISOVER CLIMAVER NETO**		**m2**			
E23DCF010	Conducto autoportante rectangular para la distribución de aire climatizado formado por Climaver Neto de Isover o SIMILAR, 25 mm de espesor, constituido por un panel de lana mineral hidrofugada, revestido por aluminio (aluminio visto + kraft + malla de refuerzo + velo de vidrio) por el exterior y con un tejido de vidrio negro NETO de alta resistencia mecánica por el interior (tejido Neto), cumpliendo la norma UNE-EN 14303 Productos aislantes térmicos para equipos en edificación e instalaciones industriales. Productos manufacturados de lana mineral (MW), con una conductividad térmica de 0,032 W / (m·K), clase de reacción al fuego Bs1d0, valor de coeficiente de absorción acústica 0,85, clase de estanqueidad D y con marcas guía MTR exteriormente. Totalmente montado, i/p.p. de piezas especiales (codos, transformaciones, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	0,351	h	22,55	7,92	
O01OB190	Ayudante fontanero	0,351	h	20,96	7,36	
P21DCF030	Panel lana mineral Climaver Neto 25 mm 3,0x1,19 m	1,150	m2	18,45	21,22	
P21DCF030ALM01	Chapa galvanizada e 1mm de espesor	1,150	m2	13,05	15,01	
P21DCF050	Cinta de aluminio Climaver	1,500	m	0,39	0,59	
P21DCF315	Soporte metálico acero galvanizado sujeción a forjado	0,500	u	4,26	2,13	
%MA0100	Medios auxiliares	0,542	%	1,00	0,54	

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Suma la partida 54,77
Costes indirectos 3% 1,64

TOTAL PARTIDA 56,41

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y SEIS con CUARENTA Y UN CÉNTIMOS

05.02 REJILLAS

05.02.01 EXPULSIÓN

05.02.01.01 **Toma de aire 210-TA 2000x1000** **Ud**

210TA200X100 Suministro e instalación de toma de aire exterior o expulsión de aire con malla metállica, marca KOOLAIR, modelo 210-TA, dimensiones 2000x1000 mm o EQUIVALENTE. No permite el paso de agua de lluvia, nieve, etc, ya que está diseñada principalmente para su instalación en intemperie. Se suministra con malla antipájaros o antiinsectos. Fabricado en aluminio extruido. Acabado en aluminio natural. Incorpora en el cuello del bastidor patillas de anclaje para recibir en obra y compuerta de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.

O01OB170	Oficial 1ª fontanero calefactor	1,000	h	22,55	22,55
O01OA060	Peón especializado	0,500	h	17,00	8,50
210-TA200X100	Toma de aire 210-TA 2000x1000	1,000	Ud	289,74	289,74
%PM0150	Pequeño Material	3,208	%	1,00	3,21

Suma la partida 324,00
Costes indirectos 3% 9,72

TOTAL PARTIDA 333,72

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS TREINTA Y TRES con SETENTA Y DOS CÉNTIMOS

05.02.02 TOMA

05.02.02.01 **Toma de aire 210-TA 2000x1000** **Ud**

210TA200X100 Suministro e instalación de toma de aire exterior o expulsión de aire con malla metállica, marca KOOLAIR, modelo 210-TA, dimensiones 2000x1000 mm o EQUIVALENTE. No permite el paso de agua de lluvia, nieve, etc, ya que está diseñada principalmente para su instalación en intemperie. Se suministra con malla antipájaros o antiinsectos. Fabricado en aluminio extruido. Acabado en aluminio natural. Incorpora en el cuello del bastidor patillas de anclaje para recibir en obra y compuerta de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.

O01OB170	Oficial 1ª fontanero calefactor	1,000	h	22,55	22,55
O01OA060	Peón especializado	0,500	h	17,00	8,50
210-TA200X100	Toma de aire 210-TA 2000x1000	1,000	Ud	289,74	289,74
%PM0150	Pequeño Material	3,208	%	1,00	3,21

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Suma la partida 324,00
Costes indirectos 3% 9,72

TOTAL PARTIDA 333,72

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS TREINTA Y TRES con SETENTA Y DOS CÉNTIMOS

05.02.03 RETORNO

05.02.03.01 **Rejilla retorno 22-5-MM 1000x2000** **Ud**

RR22-5 100X200 Suministro y montaje de rejilla de retorno de retícula, marca KOOLAIR, modelo 22-5-MM o EQUIVALENTE, de dimensiones 1000x2000 mm, para retorno de aire. Acabado estándar aluminio anodizado natural mate. Incluye suministro de marco metálico de montaje y compuerta de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.

O01OB170	Oficial 1ª fontanero calefactor	1,000	h	22,55	22,55
O01OA060	Peón especializado	0,500	h	17,00	8,50
RR22560X30	Rejilla retorno 22-5-MM 1000X2000	1,000	Ud	184,71	184,71
%PM0150	Pequeño Material	2,158	%	1,00	2,16

Suma la partida 217,92
Costes indirectos 3% 6,54

TOTAL PARTIDA 224,46

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS VEINTICUATRO con CUARENTA Y SEIS CÉNTIMOS

05.03 TOBERAS

05.03.01 **Difusor de largo alcance DF-49-A-TR-12** **Ud**

DF49TR12 Suministro e instalación de tobera termorregulable de largo alcance de acoplamiento recto, marca KOOLAIR, modelo DF-49-A-TR-12 o EQUIVALENTE. La variación del ángulo de impulsión (±30º) se realiza mediante un elemento térmico autorregulado con la temperatura de impulsión. Incorpora embellecedor exterior, para impedir la visión de los tornillos de fijación. Fabricado en aluminio. Acabado en color RAL a definir por Dirección Facultativa. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.

O01OB170	Oficial 1ª fontanero calefactor	1,000	h	22,55	22,55
O01OA060	Peón especializado	0,500	h	17,00	8,50
DF49TR-12	Difusor DF-49-A-TR-12	1,000	Ud	352,90	352,90
%PM0150	Pequeño Material	3,840	%	1,00	3,84

Suma la partida 387,79
Costes indirectos 3% 11,63

TOTAL PARTIDA 399,42

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS NOVENTA Y NUEVE con CUARENTA Y DOS CÉNTIMOS

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05.04	**COMPUERTAS REGULACIÓN**					
05.04.01	**Regulador caudal constante RCCK-400**		**Ud**			
RCCK-400	Regulador de caudal de aire constante, marca KOOLAIR o EQUIVALENTE, modelo RCCK-D, de sección circular de 400 mm de diámetro, para impulsión o retorno de aire. Automecánico, sin necesidad de energía exterior, garantizando un caudal de aire constante independientemente de las variaciones de presión que sufra el sistema. Envolventes y compuerta de chapa de acero galvanizado. Aporta el caudal requerido con una elevada exactitud, fácilmente ajustable a otros volúmenes de aire en obra. Presión de entrada mínima necesaria de 50 Pa. Puede instalarse en posición horizontal o vertical. Incorpora aislamiento termoacústico de espesor 50 mm. Los reguladores de caudal constante, modelo RCCK, cumplen con las especificaciones según normativa EN 1751 obteniendo clase "C" en el ensayo de estanquidad a través de la envolvente de la unidad de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material y medios auxiliares					
O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
RCCK 400	Regulador caudal constante RCCK-400	1,000	Ud	198,95	198,95	
%PM0150	Pequeño Material	2,328	%	1,00	2,33	
	Suma la partida					235,11
	Costes indirectos			3%		7,05
	TOTAL PARTIDA					**242,16**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS CUARENTA Y DOS con DIECISÉIS CÉNTIMOS

05.05	**TUBERÍAS POLIPROPILENO PP-R**					

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.01	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 50 mm**		**m**			
TNIRCL5011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 50 mm y 4,6 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL5011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011. .					
UTNIRCL5011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 50 x 4,6 mm	1,000	m	8,50	8,50	
AB115048AZ	Material aux. sujeción: Abrazadera isofónica NIRON	1,280	u	2,96	3,79	
mo002	Oficial 1ª calefactor.	0,093	h	16,18	1,50	
mo053	Ayudante calefactor.	0,093	h	14,68	1,37	
NMAN50	Accesorio Manguito Socket, PP-RCT, D= 50 mm	0,250	u	3,04	0,76	
NT50	Accesorio Te Socket, PP-RCT, D= 50 mm	0,100	u	6,81	0,68	
NG50	Accesorio Codo Socket, PP-RCT, D= 50 mm	0,100	u	4,96	0,50	
%0200	Medios auxiliares	0,171	%	2,00	0,34	
	Suma la partida					17,44
	Costes indirectos			3%		0,52
	TOTAL PARTIDA					**17,96**

Asciende el precio total de la partida a la mencionada cantidad de DIECISIETE con NOVENTA Y SEIS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.02	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 63 mm**		**m**			
TNIRCL6311	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 63 mm y 5,8 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL6311 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL6311	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 63 x 5,8 mm	1,000	m	13,10	13,10	
AB115060AZ	Material aux. sujeción: Abrazadera isofónica NIRON	1,030	u	3,48	3,58	
mo002	Oficial 1ª calefactor.	0,086	h	16,18	1,39	
mo053	Ayudante calefactor.	0,086	h	14,68	1,26	
NMAN63	Accesorio Manguito Socket, PP-RCT, D= 63 mm	0,250	u	4,94	1,24	
NT63	Accesorio Te Socket, PP-RCT, D= 63 mm	0,100	u	11,02	1,10	
NG63	Accesorio Codo Socket, PP-RCT, D= 63 mm	0,100	u	8,19	0,82	
%0200	Medios auxiliares	0,225	%	2,00	0,45	
				Suma la partida		22,94
				Costes indirectos	3%	0,69
				TOTAL PARTIDA		**23,63**

Asciende el precio total de la partida a la mencionada cantidad de VEINTITRÉS con SESENTA Y TRES CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.03	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 75 mm**		**m**			
TNIRCL7511	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 75 mm y 6,8 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL7511 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL7511	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 75 x 6,8 mm	1,000	m	17,10	17,10	
AB115075AZ	Material aux. sujeción: Abrazadera isofónica NIRON	0,850	u	4,31	3,66	
mo002	Oficial 1ª calefactor.	0,079	h	16,18	1,28	
mo053	Ayudante calefactor.	0,079	h	14,68	1,16	
NMAN75	Accesorio Manguito Socket, PP-RCT, D= 75 mm	0,250	u	7,64	1,91	
NT75	Accesorio Te Socket, PP-RCT, D= 75 mm	0,100	u	17,22	1,72	
NG75	Accesorio Codo Socket, PP-RCT, D= 75 mm	0,100	u	15,26	1,53	
%0200	Medios auxiliares	0,284	%	2,00	0,57	
				Suma la partida		28,93
				Costes indirectos	3%	0,87
				TOTAL PARTIDA		**29,80**

Asciende el precio total de la partida a la mencionada cantidad de VEINTINUEVE con OCHENTA CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.04	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 90 mm**		**m**			
TNIRCL9011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 90 mm y 8,2 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL9011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL9011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 90 x 8,2 mm	1,000	m	24,28	24,28	
AB115090AZ	Material aux. sujeción: Abrazadera isofónica NIRON	0,700	u	5,09	3,56	
mo002	Oficial 1ª calefactor.	0,074	h	16,18	1,20	
mo053	Ayudante calefactor.	0,074	h	14,68	1,09	
NMAN90	Accesorio Manguito Socket, PP-RCT, D= 90 mm	0,250	u	13,95	3,49	
NT90	Accesorio Te Socket, PP-RCT, D= 90 mm	0,100	u	29,40	2,94	
NG90	Accesorio Codo Socket, PP-RCT, D= 90 mm	0,100	u	25,72	2,57	
%0200	Medios auxiliares	0,391	%	2,00	0,78	
				Suma la partida		39,91
				Costes indirectos	3%	1,20
				TOTAL PARTIDA		**41,11**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y UN con ONCE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.05	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 110 mm**		**m**			
TNIRCL11011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 110 mm y 10,0 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL11011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL11011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 110 x 10,0 mm	1,000	m	36,90	36,90	
AB115110AZ	Material aux. sujeción: Abrazadera isofónica NIRON	0,590	u	6,47	3,82	
mo002	Oficial 1ª calefactor.	0,072	h	16,18	1,16	
mo053	Ayudante calefactor.	0,072	h	14,68	1,06	
NMAN110	Accesorio Manguito Socket, PP-RCT, D= 110 mm	0,250	u	21,41	5,35	
NT110	Accesorio Te Socket, PP-RCT, D= 110 mm	0,100	u	50,18	5,02	
NG110	Accesorio Codo Socket, PP-RCT, D= 110 mm	0,100	u	40,15	4,02	
%0200	Medios auxiliares	0,573	%	2,00	1,15	
				Suma la partida		58,48
				Costes indirectos	3%	1,75
				TOTAL PARTIDA		**60,23**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA con VEINTITRÉS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.06	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 125 mm**		**m**			
TNIRCL12511	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 125 mm y 11,4 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL12511 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL12511	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 125 x 11,4 mm	1,000	m	43,50	43,50	
AB115125AZ	Material aux. sujeción: Abrazadera isofónica NIRON	0,550	u	8,22	4,52	
mo002	Oficial 1ª calefactor.	0,074	h	16,18	1,20	
mo053	Ayudante calefactor.	0,074	h	14,68	1,09	
NMAN125	Accesorio Manguito Socket, PP-RCT, D= 125 mm	0,250	u	31,42	7,86	
NT125	Accesorio Te Socket, PP-RCT, D= 125 mm	0,100	u	70,53	7,05	
NG125	Accesorio Codo Socket, PP-RCT, D= 125 mm	0,100	u	63,08	6,31	
%0200	Medios auxiliares	0,715	%	2,00	1,43	
				Suma la partida		72,96
				Costes indirectos	3%	2,19
				TOTAL PARTIDA		**75,15**

Asciende el precio total de la partida a la mencionada cantidad de SETENTA Y CINCO con QUINCE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.07	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 160 mm**		**m**			
TNIRCL16011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 160 mm y 14,6 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL16011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL16011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 160 x 14,6 mm	1,000	m	80,60	80,60	
AB115160AZ	Material aux. sujeción: Abrazadera isofónica NIRON	0,330	u	10,18	3,36	
mo004	Oficial 1º fontanero	0,161	h	16,18	2,60	
mo005	Ayudante fontanero	0,161	h	14,68	2,36	
NT11160MM	Accesorio Te "a tope", PP-RCT, D= 160 mm	0,100	u	107,23	10,72	
NG9011160MM	Accesorio Codo "a tope", PP-RCT, D= 160 mm	0,100	u	96,20	9,62	
%0200	Medios auxiliares	1,093	%	2,00	2,19	
				Suma la partida		111,45
				Costes indirectos	3%	3,34
				TOTAL PARTIDA		**114,79**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO CATORCE con SETENTA Y NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.08	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 200 mm**		**m**			
TNIRCL20011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 200 mm y 18,2 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL20011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL20011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 200 x 18,2 mm	1,000	m	139,40	139,40	
AB115200AZ	Material aux. sujeción: Abrazadera isofónica NIRON	0,310	u	16,95	5,25	
mo004	Oficial 1º fontanero	0,181	h	16,18	2,93	
mo005	Ayudante fontanero	0,181	h	14,68	2,66	
NT11200MM	Accesorio Te "a tope", PP-RCT, D= 200 mm	0,100	u	301,32	30,13	
NG9011200MM	Accesorio Codo "a tope",PP-RCT, D=200 mm	0,100	u	246,48	24,65	
%0200	Medios auxiliares	2,050	%	2,00	4,10	
	Suma la partida					209,12
	Costes indirectos			3%		6,27
	TOTAL PARTIDA					**215,39**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS QUINCE con TREINTA Y NUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.05.09	**Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 250 mm**		**m**			
TNIRCL25011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 250 mm y 22,7 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL25011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
UTNIRCL25011	Tubo PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 250 x 22,7 mm	1,000	m	201,20	201,20	
33168250	Material aux. sujeción: Abrazadera isofónica Niron, de carga pesada	0,390	u	52,25	20,38	
mo004	Oficial 1º fontanero	0,242	h	16,18	3,92	
mo005	Ayudante fontanero	0,242	h	14,68	3,55	
NT11250MMB	Accesorio Te "a tope", PP-RCT, D= 250 mm	0,100	u	502,43	50,24	
NG9011250MM	Accesorio Codo "a tope",PP-RCT, D=250 mm	0,100	u	293,59	29,36	
%0200	Medios auxiliares	3,087	%	2,00	6,17	
				Suma la partida		314,82
				Costes indirectos	3%	9,44
				TOTAL PARTIDA		**324,26**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS VEINTICUATRO con VEINTISÉIS CÉNTIMOS

05.06 AISLAMIENTO DE COQUILLA DE ESPUMA ELASTOMÉRICA

05.06.01	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=50 mm SH/ARMAFLEX® - INTERIOR**		**m**
E22OC120N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 50 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.		

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC118N01	Coquilla espuma elastomérica Ø 50 mm SH/ARMAFLEX SH-45X050	1,000	m	29,63	29,63	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,408	%	1,00	0,41	
				Suma la partida		41,18
				Costes indirectos	3%	1,24
				TOTAL PARTIDA		**42,42**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y DOS con CUARENTA Y DOS CÉNTIMOS

05.06.02 **COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=63 mm SH/ARMAFLEX® - INTERIOR** **m**

E22OC140N01 Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 63 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.

O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC122N01	Coquilla espuma elastomérica Ø 63 mm SH/ARMAFLEX SH-45X063	1,000	m	33,24	33,24	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,444	%	1,00	0,44	
				Suma la partida		44,82
				Costes indirectos	3%	1,34
				TOTAL PARTIDA		**46,16**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y SEIS con DIECISÉIS CÉNTIMOS

05.06.03 **COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=75 mm SH/ARMAFLEX® - INTERIOR** **m**

E22OC150N01 Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 75 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.

O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC124N01	Coquilla espuma elastomérica Ø 75 mm SH/ARMAFLEX SH-45X075	1,000	m	36,52	36,52	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,477	%	1,00	0,48	
				Suma la partida		48,14
				Costes indirectos	3%	1,44
				TOTAL PARTIDA		**49,58**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y NUEVE con CINCUENTA Y OCHO CÉNTIMOS

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.06.04	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=90 mm SH/ARMAFLEX® - INTERIOR**		**m**			
E22OC160N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 90 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.					
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC126N01	Coquilla espuma elastomérica Ø 90 mm SH/ARMAFLEX SH-45X090	1,000	m	39,68	39,68	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,508	%	1,00	0,51	
	Suma la partida					51,33
	Costes indirectos			3%		1,54
	TOTAL PARTIDA					**52,87**

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y DOS con OCHENTA Y SIETE CÉNTIMOS

05.06.05	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=110 mm SH/ARMAFLEX® - INTERIOR**		**m**			
E22OC170N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 110 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.					
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC134N01	Coquilla espuma elastomérica Ø 110 mm SH/ARMAFLEX SH-45X110	1,000	m	47,51	47,51	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,587	%	1,00	0,59	
	Suma la partida					59,24
	Costes indirectos			3%		1,78
	TOTAL PARTIDA					**61,02**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y UN con DOS CÉNTIMOS

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.06.06	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=125 mm SH/ARMAFLEX® - INTERIOR**		**m**			
E22OC190N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 125 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.					
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC138	Coquilla espuma elastomérica Ø 125 mm SH/ARMAFLEX SH-45X125	1,000	m	51,23	51,23	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,624	%	1,00	0,62	
	Suma la partida					62,99
	Costes indirectos			3%		1,89
	TOTAL PARTIDA					**64,88**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y CUATRO con OCHENTA Y OCHO CÉNTIMOS

05.06.07	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=160 mm SH/ARMAFLEX® - INTERIOR**		**m**			
E22OC200N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 160 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.					
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07CC140	Coquilla espuma elastomérica Ø 160 mm SH/ARMAFLEX SH-45X160	1,000	m	70,11	70,11	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
%PM0150	Pequeño Material	0,813	%	1,00	0,81	
	Suma la partida					82,06
	Costes indirectos			3%		2,46
	TOTAL PARTIDA					**84,52**

Asciende el precio total de la partida a la mencionada cantidad de OCHENTA Y CUATRO con CINCUENTA Y DOS CÉNTIMOS

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.06.08	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=200 mm SH/ARMAFLEX® - INTERIOR**		**m**			
E22OC200N01ALM01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 200 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.					
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
P07CC140ALM01	Coquilla espuma elastomérica Ø 200 mm SH/ARMAFLEX SH-45X160	1,000	m	99,03	99,03	
%PM0150	Pequeño Material	1,102	%	1,00	1,10	
	Suma la partida					111,27
	Costes indirectos			3%		3,34
	TOTAL PARTIDA					**114,61**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO CATORCE con SESENTA Y UN CÉNTIMOS

05.06.09	**COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=250 mm SH/ARMAFLEX® - INTERIOR**		**m**			
E22OC200N01ALM02	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 250 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.					
O01OB180	Oficial 2ª fontanero calefactor	0,150	h	21,59	3,24	
P07W600	Adhesivo ARMAFLEX 520 1 litro	0,300	u	26,34	7,90	
P07CC140ALM02	Coquilla espuma elastomérica Ø 250 mm SH/ARMAFLEX SH-45X160	1,000	m	118,66	118,66	
%PM0150	Pequeño Material	1,298	%	1,00	1,30	
	Suma la partida					131,10
	Costes indirectos			3%		3,93
	TOTAL PARTIDA					**135,03**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO TREINTA Y CINCO con TRES CÉNTIMOS

05.07 VALVULERÍA CLIMATIZACIÓN POR AGUA

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

05.07.01 Válvulas de mariposa

05.07.01.01 VÁLVULA MARIPOSA DN 50mm C/REDUCTOR u

E22NVM040N01ALM02 Válvula de mariposa PN-16 de 50mm DN", con reductor, con cuerpo de latón fabricada conforme UNE-EN 12165:2017. Completamente instalada, probada y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.

O01OB170	Oficial 1ª fontanero calefactor	0,200	h	22,55	4,51
O01OB180	Oficial 2ª fontanero calefactor	0,200	h	21,59	4,32
P20TVM040N01ALM02	Válvula mariposa c/reductor DN 50mm eje libre fl5 inoxidable	1,000	u	39,93	39,93
%PM0200	Pequeño Material	0,488	%	2,00	0,98

Suma la partida 49,74
Costes indirectos 3% 1,49

TOTAL PARTIDA 51,23

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y UN con VEINTITRÉS CÉNTIMOS

05.07.01.02 VÁLVULA MARIPOSA DN 80mm C/REDUCTOR u

E22NVM040N01ALM01 Válvula de mariposa PN-16 de 80mm DN", con reductor, con cuerpo de latón fabricada conforme UNE-EN 12165:2017. Completamente instalada, probada y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.

O01OB170	Oficial 1ª fontanero calefactor	0,200	h	22,55	4,51
O01OB180	Oficial 2ª fontanero calefactor	0,200	h	21,59	4,32
P20TVM040N01ALM01	Válvula mariposa c/reductor DN 80mm eje libre fl5 inoxidable	1,000	u	51,95	51,95
%PM0200	Pequeño Material	0,608	%	2,00	1,22

Suma la partida 62,00
Costes indirectos 3% 1,86

TOTAL PARTIDA 63,86

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y TRES con OCHENTA Y SEIS CÉNTIMOS

05.07.02 Válvula de equilibrado

05.07.02.01 VÁLVULA EQUILIBRADO ASIENTO DN50 u

E22MUV030ALM04 Suministro y colocación de válvula de equilibrado, tipo asiento, de 50mm de diámetro nominal, de fundición nodular IMI TA (STAD) o EQUVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.

O01OB170	Oficial 1ª fontanero calefactor	0,750	h	22,55	16,91
P20SE030ALM04	Válvula equilibrado DN50	1,000	u	181,28	181,28
%PM0150	Pequeño Material	1,982	%	1,00	1,98

Suma la partida 200,17
Costes indirectos 3% 6,01

TOTAL PARTIDA 206,18

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS SEIS con DIECIOCHO CÉNTIMOS

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05.07.02.02	**VÁLVULA EQUILIBRADO ASIENTO DN80**		**u**			
E22MUV030ALM02	Suministro y colocación de válvula de equilibrado, tipo asiento, de 80mm de diámetro nominal, de fundición nodular IMI TA (STAF-SG) o EQUIVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.					
O01OB170	Oficial 1ª fontanero calefactor	0,750	h	22,55	16,91	
P20SE030ALM02	Válvula equilibrado DN80	1,000	u	627,62	627,62	
%PM0150	Pequeño Material	6,445	%	1,00	6,45	
	Suma la partida					650,98
	Costes indirectos			3%		19,53
	TOTAL PARTIDA					**670,51**

Asciende el precio total de la partida a la mencionada cantidad de SEISCIENTOS SETENTA con CINCUENTA Y UN CÉNTIMOS

05.07.02.03	**VÁLVULA EQUILIBRADO ASIENTO DN150**		**u**			
E22MUV030ALM03	Suministro y colocación de válvula de equilibrado, tipo asiento, de 150mm de diámetro nominal, de fundición nodular IMI TA (STAF-SG) o EQUIVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.					
O01OB170	Oficial 1ª fontanero calefactor	0,750	h	22,55	16,91	
P20SE030ALM03	Válvula equilibrado DN150	1,000	u	1.781,80	1.781,80	
%PM0150	Pequeño Material	17,987	%	1,00	17,99	
	Suma la partida					1.816,70
	Costes indirectos			3%		54,50
	TOTAL PARTIDA					**1.871,20**

Asciende el precio total de la partida a la mencionada cantidad de MIL OCHOCIENTOS SETENTA Y UN con VEINTE CÉNTIMOS

05.07.02.04	**VÁLVULA EQUILIBRADO ASIENTO DN250**		**u**			
E22MUV030ALM01	Suministro y colocación de válvula de equilibrado, tipo asiento, de 250mm de diámetro nominal, de fundición nodular IMI TA (STAF-SG) o EQUIVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.					
O01OB170	Oficial 1ª fontanero calefactor	0,750	h	22,55	16,91	
P20SE030ALM01	Válvula equilibrado DN250	1,000	u	4.230,92	4.230,92	
%PM0150	Pequeño Material	42,478	%	1,00	42,48	
	Suma la partida					4.290,31
	Costes indirectos			3%		128,71
	TOTAL PARTIDA					**4.419,02**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO MIL CUATROCIENTOS DIECINUEVE con DOS CÉNTIMOS

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

05.07.03 Vaso de Expansión

05.07.03.01 **VASO EXPANSIÓN CALEFACCIÓN 1.000 litros** **u**

E22NEC140 Vaso de expansión para circuito de calefacción cerrado, de 1.000 litros de capacidad; para una temperatura del agua de entre -10 y 130 ºC, presión máxima 6 bar. Con membrana fija no recambiable según UNE-EN 13831:2008. Conexión a 1". Conexión a 3/4". Incluso válvula de seguridad con grifo de vaciado. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.

O01OB170	Oficial 1ª fontanero calefactor	2,000	h	22,55	45,10
P20TEC140	Vaso expansión calefacción 1.000 l (1") 6 bar	1,000	u	2.512,94	2.512,94
P20TVE030	Válvula de esfera 1"	1,000	u	17,80	17,80
%PM0200	Pequeño Material	25,758	%	2,00	51,52

Suma la partida		2.627,36
Costes indirectos	3%	78,82
TOTAL PARTIDA		**2.706,18**

Asciende el precio total de la partida a la mencionada cantidad de DOS MIL SETECIENTOS SEIS con DIECIOCHO CÉNTIMOS

05.07.03.02 **VASO EXPANSIÓN CALEFACCIÓN 800 litros** **u**

E22NEC130 Vaso de expansión para circuito de calefacción cerrado, de 800 litros de capacidad; para una temperatura del agua de entre -10 y 130 ºC, presión máxima 6 bar. Con membrana fija no recambiable según UNE-EN 13831:2008. Conexión a 1". Conexión a 3/4". Incluso válvula de seguridad con grifo de vaciado. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.

O01OB170	Oficial 1ª fontanero calefactor	1,750	h	22,55	39,46
P20TEC130	Vaso expansión calefacción 800 l (1") 6 bar	1,000	u	2.132,86	2.132,86
P20TVE030	Válvula de esfera 1"	1,000	u	17,80	17,80
%PM0200	Pequeño Material	21,901	%	2,00	43,80

Suma la partida		2.233,92
Costes indirectos	3%	67,02
TOTAL PARTIDA		**2.300,94**

Asciende el precio total de la partida a la mencionada cantidad de DOS MIL TRESCIENTOS con NOVENTA Y CUATRO CÉNTIMOS

05.07.04 Colectores

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.07.04.01	**COLECTOR ACERO NEGRO SIN SOLDADURA 1 ENTRADA 3 SALIDAS 3m DN250**		**u**			
E22NC310ALM01	(Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 250 mm de diámetro y 6,3 mm de espesor, de 3 m de longitud, con 1 conexión de entrada (DN160) y 3 conexiones de salida (2 de DN125 y 1 de DN90), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	1,700	h	22,55	38,34	
O01OB180	Oficial 2ª fontanero calefactor	1,700	h	21,59	36,70	
P20TL250	Tubo de acero negro estirado sin soldadura, DN 250 mm de diámetro y 6,3 mm de espesor, según UNE 19052	3,000	m	73,77	221,31	
mt17coe010j	Plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, 50mm espesor	2,610	m2	131,07	342,09	
mt42www040	Manómetro con baño de glicerina y diámetro de esfera de 100 mm, con toma vertical, para montaje roscado de 1/2", 0 a 5 bar	1,000	u	43,29	43,29	
mt42www050	Termómetro bimetálico, diámetro de esfera de 100 mm, con toma vertical, con vaina de 1/2", escala de temperatura de 0 a 120°C.	4,000	u	54,70	218,80	
%PM0200	Pequeño Material	9,005	%	2,00	18,01	
	Suma la partida					918,54
	Costes indirectos			3%		27,56
	TOTAL PARTIDA					**946,10**

Asciende el precio total de la partida a la mencionada cantidad de NOVECIENTOS CUARENTA Y SEIS con DIEZ CÉNTIMOS

05.07.04.02	**COLECTOR ACERO NEGRO SIN SOLDADURA 1 ENTRADA 3 SALIDAS 3m DN550**		**u**			
E22NC310ALM04	(Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 550 mm de diámetro y 11 mm de espesor, de 3 m de longitud, con 1 conexión de entrada (DN314) y 3 conexiones de salida (2 de DN250 y 1 de DN160), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.					
O01OB170	Oficial 1ª fontanero calefactor	1,700	h	22,55	38,34	
O01OB180	Oficial 2ª fontanero calefactor	1,700	h	21,59	36,70	
P20TL550	Tubo de acero negro estirado sin soldadura, DN 550 mm de diámetro y 11 mm de espesor, según UNE 19052	3,000	m	406,47	1.219,41	
mt17coe010j	Plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, 50mm espesor	5,994	m2	131,07	785,63	
mt42www040	Manómetro con baño de glicerina y diámetro de esfera de 100 mm, con toma vertical, para montaje roscado de 1/2", 0 a 5 bar	1,000	u	43,29	43,29	
mt42www050	Termómetro bimetálico, diámetro de esfera de 100 mm, con toma vertical, con vaina de 1/2", escala de temperatura de 0 a 120°C.	4,000	u	54,70	218,80	
%PM0200	Pequeño Material	23,422	%	2,00	46,84	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
					Suma la partida	2.389,01
					Costes indirectos 3%	71,67
					TOTAL PARTIDA	**2.460,68**

Asciende el precio total de la partida a la mencionada cantidad de DOS MIL CUATROCIENTOS SESENTA con SESENTA Y OCHO CÉNTIMOS

05.07.04.03 **COLECTOR ACERO NEGRO SIN SOLDADURA 2 ENTRADA 2 SALIDAS 3m DN600** **u**

E22NC310ALM02 Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 600 mm de diámetro y 12 mm de espesor, de 3 m de longitud, con 2 conexión de entrada (DN 160) y 2 conexiones de salida (DN 160), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.

O01OB170	Oficial 1ª fontanero calefactor	3,000	h	22,55	67,65
O01OB180	Oficial 2ª fontanero calefactor	3,000	h	21,59	64,77
P20TL600	Tubo de acero negro estirado sin soldadura, DN 600 mm de diámetro y 12 mm de espesor, según UNE 19052	3,000	m	496,79	1.490,37
mt17coe010j	Plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, 50mm espesor	5,994	m2	131,07	785,63
mt42www040	Manómetro con baño de glicerina y diámetro de esfera de 100 mm, con toma vertical, para montaje roscado de 1/2", 0 a 5 bar	1,000	u	43,29	43,29
mt42www050	Termómetro bimetálico, diámetro de esfera de 100 mm, con toma vertical, con vaina de 1/2", escala de temperatura de 0 a 120°C.	3,000	u	54,70	164,10
%PM0200	Pequeño Material	26,158	%	2,00	52,32
					Suma la partida 2.668,13
					Costes indirectos 3% 80,04
					TOTAL PARTIDA **2.748,17**

Asciende el precio total de la partida a la mencionada cantidad de DOS MIL SETECIENTOS CUARENTA Y OCHO con DIECISIETE CÉNTIMOS

05.07.04.04 **COLECTOR ACERO NEGRO SIN SOLDADURA 2 ENTRADA 2 SALIDAS 4.6m DN1000** **u**

E22NC310ALM03 Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 1000 mm de diámetro y 18 mm de espesor, de 4.6 m de longitud, con 2 conexión de entrada (DN 315) y 2 conexiones de salida (DN 315), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.

O01OB170	Oficial 1ª fontanero calefactor	3,000	h	22,55	67,65
O01OB180	Oficial 2ª fontanero calefactor	3,000	h	21,59	64,77
P20TL1000	Tubo de acero negro estirado sin soldadura, DN 1000 mm de diámetro y 18 mm de espesor, según UNE 19052	4,600	m	835,52	3.843,39
mt17coe010j	Plancha flexible de espuma elastomérica, a base de caucho sintético	9,191	m2	131,07	1.204,66

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	flexible, de estructura celular cerrada, 50mm espesor					
mt42www040	Manómetro con baño de glicerina y diámetro de esfera de 100 mm, con toma vertical, para montaje roscado de 1/2", 0 a 5 bar	1,000	u	43,29	43,29	
mt42www050	Termómetro bimetálico, diámetro de esfera de 100 mm, con toma vertical, con vaina de 1/2", escala de temperatura de 0 a 120°C.	3,000	u	54,70	164,10	
%PM0200	Pequeño Material	53,879	%	2,00	107,76	
				Suma la partida		5.495,62
				Costes indirectos	3%	164,87
				TOTAL PARTIDA		**5.660,49**

Asciende el precio total de la partida a la mencionada cantidad de CINCO MIL SEISCIENTOS SESENTA con CUARENTA Y NUEVE CÉNTIMOS

05.08 UTAS

05.08.01 **CLIMATIZADOR 30.514 M3/H 39YA- 8.6 MARCA CARRIER O EQUIVALENTE** **u**

UTA1 PA

SUMINISTRO E INSTALACIÓN DE CLIMATIZADOR DE 30.514 m³/h MARCA CARRIER MODELO 39YA- 8.6 O EQUIVALENTE, CERTIFICADO EUROVENT (EN 1886) D1/L1/F9/T2/TB2. INCLUYE: BATERÍA DE FRÍO Y CALOR, VENTILADORES, RECUPERADOR ROTATIVO, HUMECTADOR, COMPUERTAS, PRE-FILTRO Y FILTRO DE IMPULSIÓN/RETORNO, CUADRO DE FUERZA Y CONTROL CON LAS PROTECCIONES INDIVIDUALES Y CONTACTORES DE MOTORES, INTERFACE DE CONTROL CON PANTALLA DIGITAL, CON LAS SIGUIENTES CARACTERÍSTICAS:

- CAUDAL AIRE: 30.514 m³/h

- CAPACIDAD REFRIGERACIÓN: 95,12 kW
- TEMPERATURA FLUIDO ENTRADA: 7,0 ºC
- TEMPERATURA FLUIDO SALIDA: 12,0 ºC
- CAUDAL AGUA FRÍA: 6,13 l/s

- CAPACIDAD CALEFACCIÓN: 20,46 kW
- TEMPERATURA FLUIDO ENTRADA: 45,0 ºC
- TEMPERATURA FLUIDO SALIDA: 40,0 ºC
- CAUDAL AGUA CALIENTE: 0,99 l/s

- PESO MÁX: 3.325 kg
- DIMENSIONES MÁX: 5410 X 2727 X 3614 mm
- TENSIÓN: 400V

INCLUYE ADEMÁS LO SIGUIENTE:
- CONTROL E INSTRUMENTACIÓN INSTALADO EN EL INTERIOR DEL CLIMATIZADOR. CON COMUNICACIÓN CON BMS EN BACNET IP.
- KIT VÁLVULAS Y ACTUADORES DEL CLIMATIZADOR.

SE INCLUYE PEQUEÑO MATERIAL Y MEDIOS AUXILIARES PARA LA CORRECTA INSTALACIÓN Y PUESTA EN MARCHA. ADEMÁS, SE INCLUYE MONTAJE 'IN SITU' DE LA UTA EN EL CUARTO TÉCNICO CORRESPONDIENTE. INCLUYE MALLAS ANTIPÁJAROS EN LA ADMISIÓN Y EXPULSIÓN DE AIRE, APOYOS SILENBLOC DE MUELLE DE HASTA 350 KG Y PERFILERÍAS METÁLICAS PARA SOPORTACIÓN ADECUADA ENTRE LA ESTRUCTURA EXISTENTE. TOTALMENTE INSTALADO Y FUNCIONANDO

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
UTA1 PA P	UTA1 PA	1,000	u	55.850,30	55.850,30	
GRÚA	Grúa telescópica autopropulsada 20 t	2,000	h	57,82	115,64	
O01OB170	Oficial 1ª fontanero calefactor	10,000	h	22,55	225,50	
O01OB195	Ayudante fontanero	10,000	h	18,01	180,10	
PSOPORTA	Apoyos silenbloc de muelle de hasta 350 Kg	4,000	u	125,32	501,28	
PESTRUC	Perfilerías metálicas de soportación unidad	1,000	u	1.225,21	1.225,21	
				Suma la partida		58.098,03
				Costes indirectos	3%	1.742,94
				TOTAL PARTIDA		**59.840,97**

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y NUEVE MIL OCHOCIENTOS CUARENTA con NOVENTA Y SIETE CÉNTIMOS

05.08.02 **INTEGRACIÓN CONTROLES UTAS** **u**

INTEGRA Colaboración en la integración del control de la UTA en un BMS del cliente cuando se contemplen entre 16 y 25 puntos de control (sin contar GENERALES). Se incluye configuración y prueba de la tarjeta de comunicación UTA-BMS y verificación del mapa de variables para integración. Totalmente funcionando.

O01OB170	Oficial 1ª fontanero calefactor	2,000	h	22,55	45,10	
O01OB195	Ayudante fontanero	2,000	h	18,01	36,02	
PINTEGRA	Integración UTAS	1,000	u	597,00	597,00	
				Suma la partida		678,12
				Costes indirectos	3%	20,34
				TOTAL PARTIDA		**698,46**

Asciende el precio total de la partida a la mencionada cantidad de SEISCIENTOS NOVENTA Y OCHO con CUARENTA Y SEIS CÉNTIMOS

05.08.03 **PUESTA EN MARCHA** **u**

PUESTAMARCHA Trabajos de puesta en marcha para Unidad de Tratamiento de Aire de 16 a 25 puntos de control (sin contar GENERALES). Se incluye configuración y prueba de tarjeta de comunicación UTA-BMS, si la hubiera. No incluye soporte al integrador en la integración del mapa de variables a supervisar. Totalmente terminada y funcionando.

O01OB170	Oficial 1ª fontanero calefactor	2,000	h	22,55	45,10	
O01OB195	Ayudante fontanero	2,000	h	18,01	36,02	
PUESTAMAR	Puesta en marcha	1,000	u	651,63	651,63	
				Suma la partida		732,75
				Costes indirectos	3%	21,98
				TOTAL PARTIDA		**754,73**

Asciende el precio total de la partida a la mencionada cantidad de SETECIENTOS CINCUENTA Y CUATRO con SETENTA Y TRES CÉNTIMOS

05.09 BOMBAS

05.09.01 **BOMBA WILO PLANTA ALTA CALOR**

EALTACALOR Bomba centrífuga de rotor seco de una etapa en diseño monobloc para el montaje sobre bancada, de la marca Wilo o equivalente, modelo BL-E100/190-5,5/4 PG3, con convertidor de frecuencia integrado para la regulación electrónica de, entre otros, una presión diferencial constante o variable (Äp-c/Äp-v).
Diseño
- Bomba centrífuga de baja presión de una etapa
- Carcasa espiral en diseño monobloc con dimensiones de brida y cárter de conformidad con la
norma DIN EN 733 y bridas PN 16 de conformidad con la norma EN 1092-2

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

- Construcción monobloc silenciosa y sin vibraciones con linterna, pie en la carcasa de la bomba y
motor estándar unido de forma rígida (motor normalizado)
- Todos los componentes de fundición gris de serie con revestimiento por cataforesis
- Cierre mecánico de fuelle de inundación forzada e independiente del sentido de giro y rodete
reductor de la cavitación
- Cierre mecánico para el bombeo de agua hasta Tmax. = +140 °C. Hasta T . +40 °C está
permitido un aditivo de glicol de un 20 %…40 % de proporción en volumen. Se debe prever un
cierre mecánico alternativo en mezclas agua-glicol con una proporción de glicol > 40 % hasta
como máx. un 50 % de proporción en volumen y una temperatura del fluido > +40 °C hasta como
máx. +120 °C u otros fluidos distintos al agua. En caso de utilizarse mezclas agua-glicol, se
recomienda de forma general usar una variante S1 con el cierre mecánico correspondiente.
Equipo de serie
Pantalla de la bomba para indicar:
- Modo de regulación Äp-c (presión diferencial constante), Äp-v (presión diferencial variable),
regulador PID, n-constant (modo de control)
- Valor de consigna (p. ej., presión diferencial o velocidad).
- Mensajes de fallo y de advertencia
- Valores reales (p. ej., el consumo de potencia, el valor real del sensor).
- Datos de funcionamiento (p.ej., las horas de funcionamiento, el consumo de energía).
- Datos de estado (p. ej., el estado del relé SSM y SBM).
- Datos del aparato (p. ej., el nombre de la bomba).
- Modo de funcionamiento (únicamente en caso de utilizar pieza de unión: funcionamiento
principal/reserva, funcionamiento en paralelo)
Nivel de mando manual mediante un botón para:
- Bomba ON/OFF
- Ajuste del valor de consigna y de la velocidad
- Selección del modo de funcionamiento y regulación
- Configuración de los parámetros de funcionamiento
- Confirmación de fallo
Funciones adicionales
- Interfaces: Entrada de control "Prioridad OFF", entrada analógica 0-10 V, 2–10 V, 0-20 mA, 4-20
mA para modo manual (DDC) o para la regulación a distancia del valor de consigna, interfaz de
infrarrojos para la comunicación inalámbrica con el dispositivo de mando y servicio del IRStick/
monitor IR de Wilo, punto de conexión para módulos IF de Wilo para conectar a la Gestión
Técnica Centralizada, indicación de disposición/de funcionamiento y avería configurable y libre de

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

tensión
- Motor trifásico con convertidor de frecuencia.
- Gestión de bombas dobles integrada
- Protección total del motor integrada (termistor) con sistema electrónico de disparo
- Orificios de serie para salida de condensado en la carcasa del motor (cerrados en el momento de
la entrega)
- Modos de funcionamiento distintos para aplicaciones de calefacción (HV) o aplicaciones de
climatización (AC)
- Bloqueo de acceso a la bomba
- Distintos niveles de mando: Estándar/Servicio

Datos de funcionamiento
Fluido: Agua 100 %
Temperatura del fluido: 50.00 °C
Caudal: 9.21 l/s
Altura de impulsión: 9.13 m
Temperatura mínima del fluido: -20 °C
Temperatura máxima del fluido: 140 °C
Temperatura ambiente mínima: 0 °C
Temperatura ambiente máxima: 40 °C
Presión máxima de trabajo: 16 bar
Indicación para el dimensionamiento:
Índice de eficiencia mínima (MEI): . 0.4
Accionamiento
Alimentación eléctrica: 3~400V/50 Hz
Clase de eficiencia energética del motor: IE4
Consumo de potencia: 6300 W
Potencia nominal del motor: 5.5 kW
Intensidad nominal: 10.3 A
Velocidad máxima: 1460 1/min
Emisión de interferencias: EN 61800-3
Resistencia a interferencias: EN 61800-3
Clase de aislamiento: F
Tipo de protección del motor: IP55
Protección de motor: Sensor PTC integrado
Materiales
Carcasa de la bomba: 5.1301, EN-GJL-250 con revestimiento por cataforesis
Rodete: EN-GJL-200
Eje: 1.4122
Junta del eje: AQ1EGG
Linterna:
Dimensiones de instalación
Conexión de tubería del lado de aspiración: DN 125, PN 16
Conexión de tubería del lado de impulsión: DN 100, PN 16

Incluye Módulo de comunicación Modbus RTU PG14. Incluye apoyos silenbloc de nepreno de hasta 200 kg. Totalmente instalada y funcionando.

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
O01OB195	Ayudante fontanero	1,500	h	18,01	27,02	
ALC	BOMBA WILO PLANTA ALTA CALOR	1,000	u	7.092,00	7.092,00	
PSOPORTA1	Apoyos silenbloc de neopreno de hasta 200 Kg	4,000	u	52,10	208,40	
				Suma la partida		7.361,25
				Costes indirectos	3%	220,84
				TOTAL PARTIDA		**7.582,09**

Asciende el precio total de la partida a la mencionada cantidad de SIETE MIL QUINIENTOS OCHENTA Y DOS con NUEVE CÉNTIMOS

05.09.02 **BOMBA WILO PLANTA ALTA FRÍO**

EALTAFRIO

Bomba centrífuga de rotor seco de una etapa en diseño monobloc para el montaje sobre bancada, de la marca Wilo o equivalente, modelo BL-E100/200-7,5/4 PG3, con convertidor de frecuencia integrado para la regulación electrónica de, entre otros, una presión diferencial constante o variable (Äp-c/Äp-v).
Diseño
- Bomba centrífuga de baja presión de una etapa
- Carcasa espiral en diseño monobloc con dimensiones de brida y cárter de conformidad con la norma DIN EN 733 y bridas PN 16 de conformidad con la norma EN 1092-2
- Construcción monobloc silenciosa y sin vibraciones con linterna, pie en la carcasa de la bomba y motor estándar unido de forma rígida (motor normalizado)
- Todos los componentes de fundición gris de serie con revestimiento por cataforesis
- Cierre mecánico de fuelle de inundación forzada e independiente del sentido de giro y rodete reductor de la cavitación
- Cierre mecánico para el bombeo de agua hasta Tmax. = +140 °C. Hasta T . +40 °C está permitido un aditivo de glicol de un 20 %…40 % de proporción en volumen. Se debe prever un cierre mecánico alternativo en mezclas agua-glicol con una proporción de glicol > 40 % hasta como máx. un 50 % de proporción en volumen y una temperatura del fluido > +40 °C hasta como máx. +120 °C u otros fluidos distintos al agua. En caso de utilizarse mezclas agua-glicol, se recomienda de forma general usar una variante S1 con el cierre mecánico correspondiente.

Equipo de serie
Pantalla de la bomba para indicar:
- Modo de regulación Äp-c (presión diferencial constante), Äp-v (presión diferencial variable), regulador PID, n-constant (modo de control)
- Valor de consigna (p. ej., presión diferencial o velocidad).
- Mensajes de fallo y de advertencia
- Valores reales (p. ej., el consumo de potencia, el valor real del sensor).
- Datos de funcionamiento (p.ej., las horas de funcionamiento, el consumo de energía).
- Datos de estado (p. ej., el estado del relé SSM y SBM).

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- Datos del aparato (p. ej., el nombre de la bomba).
- Modo de funcionamiento (únicamente en caso de utilizar pieza de unión: funcionamiento
principal/reserva, funcionamiento en paralelo)
Nivel de mando manual mediante un botón para:
- Bomba ON/OFF
- Ajuste del valor de consigna y de la velocidad
- Selección del modo de funcionamiento y regulación
- Configuración de los parámetros de funcionamiento
- Confirmación de fallo
Funciones adicionales
- Interfaces: Entrada de control "Prioridad OFF", entrada analógica 0-10 V, 2–10 V, 0-20 mA, 4-20
mA para modo manual (DDC) o para la regulación a distancia del valor de consigna, interfaz de
infrarrojos para la comunicación inalámbrica con el dispositivo de mando y servicio del IRStick/
monitor IR de Wilo, punto de conexión para módulos IF de Wilo para conectar a la Gestión
Técnica Centralizada, indicación de disposición/de funcionamiento y avería configurable y libre de
tensión
- Motor trifásico con convertidor de frecuencia.
- Gestión de bombas dobles integrada
- Protección total del motor integrada (termistor) con sistema electrónico de disparo
- Orificios de serie para salida de condensado en la carcasa del motor (cerrados en el momento de
la entrega)
- Modos de funcionamiento distintos para aplicaciones de calefacción (HV) o aplicaciones de
climatización (AC)
- Bloqueo de acceso a la bomba
- Distintos niveles de mando: Estándar/Servicio

Datos de funcionamiento
Fluido: Agua 100 %
Temperatura del fluido: 7.00 °C
Caudal: 55.40 l/s
Altura de impulsión: 7.88 m
Temperatura mínima del fluido: -20 °C
Temperatura máxima del fluido: 140 °C
Temperatura ambiente mínima: 0 °C
Temperatura ambiente máxima: 40 °C
Presión máxima de trabajo: 16 bar
Indicación para el dimensionamiento:
Índice de eficiencia mínima (MEI): . 0.4
Accionamiento
Alimentación eléctrica: 3~400V/50 Hz
Clase de eficiencia energética del motor: IE4
Consumo de potencia: 6300 W
Potencia nominal del motor: 5.5 kW

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

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Intensidad nominal: 10.3 A
Velocidad máxima: 1460 1/min
Emisión de interferencias: EN 61800-3
Resistencia a interferencias: EN 61800-3
Clase de aislamiento: F
Tipo de protección del motor: IP55
Protección de motor: Sensor PTC integrado
Materiales
Carcasa de la bomba: 5.1301, EN-GJL-250 con revestimiento por catafore-
sis
Rodete: EN-GJL-200
Eje: 1.4122
Junta del eje: AQ1EGG
Linterna:
Dimensiones de instalación
Conexión de tubería del lado de aspiración: DN 125, PN 16
Conexión de tubería del lado de impulsión: DN 100, PN 16

Incluye Módulo de comunicación Modbus RTU PG14. Incluye apoyos si-
lenbloc de nepreno de hasta 200 kg. Totalmente instalada y funcionando.

O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
O01OB195	Ayudante fontanero	1,500	h	18,01	27,02	
ALF	BOMBA WILO PLANTA ALTA FRIO	1,000	u	7.866,00	7.866,00	
PSOPORTA1	Apoyos silenbloc de neopreno de hasta 200 Kg	4,000	u	52,10	208,40	
				Suma la partida		8.135,25
				Costes indirectos	3%	244,06
				TOTAL PARTIDA		**8.379,31**

Asciende el precio total de la partida a la mencionada cantidad de OCHO MIL TRESCIENTOS SETENTA Y NUEVE con TREINTA Y UN CÉNTIMOS

05.10 BANCADAS PARA BOMBAS UTAS DE P.BAJA Y EXTRACTORES

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.10.01	**BANCADA DE EQUIPOS DE CLIMATIZACIÓN**		**m2**			
E23PAC010N01ALM01	Bancada de planta baja para soporte de equipos de climatización, bombas y extractores de incendios. Formada por: - Cubículo de tabicón de ladrillo cerámico hueco doble 24x11,5x7 cm, recibido con mortero de cemento CEM II/B-M 32,5 N y arena de río, tipo M-5, preparado en central y suministrado a pie de obra, para revestir. - Recrecido del soporte de pavimentos con mortero CT-C5 F-2 de cemento CEM II/B-P 32,5 N y arena de río (M-5) de 5 cm de espesor. - Aislamiento acústico al ruido de impacto de forjados mediante lámina antiimpacto de 4 mm compuesto por lámina de nopreno. - Recrecido del soporte de pavimentos con mortero CT-C2,5 F-2 de cemento CEM II/B-P 32,5 N y arena de río (M-2,5) de 4 cm de espesor. - Aislamiento con paneles de lana mineral no hidrófila y sin recubrimiento de 100 mm de espesor. - Se incluyen soportes anivibratorios tipo Silentblock de resorte. Incluso replanteo, nivelación y aplomado, rejuntado, limpieza y medios auxiliares. Según UNE-EN 998-2:2018, RC-16, NTE-PTL y CTE DB-SE-F. Materiales con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011.					
E07LD130	TABICÓN LADRILLO HUECO DOBLE 24x11,5x7 cm MORTERO M-5	1,000	m2	16,75	16,75	
E11D070	RECRECIDO 5 cm MORTERO CT-C5	1,000	m2	16,50	16,50	
E10AAF035N01	AISLAMIENTO RUIDO IMPACTO FORMADO POR LÁMINA DE NEOPRENO DE 4 mm DE ESPESOR	1,000	m2	7,14	7,14	
E11D040	RECRECIDO 4 cm MORTERO CT-C2,5	1,000	m2	13,65	13,65	
E10ATV058	AISLAMIENTO TÉRMICO MW 100 mm	1,000	m2	11,55	11,55	
	Suma la partida					65,59
	Costes indirectos			3%		1,97
	TOTAL PARTIDA					**67,56**

Asciende el precio total de la partida a la mencionada cantidad de SESENTA Y SIETE con CINCUENTA Y SEIS CÉNTIMOS

05.11 VARIOS

05.11.01	**AYUDA ALBAÑILERÍA INST. CLIMATIZACIÓN**		**u**			
E23C100N02	Ayuda de albañilería a instalación de climatización incluyendo mano de obra en carga y descarga, materiales, apertura y tapado de rozas, recibidos, remates, canalizaciones y ayudas varias, i/p.p. material auxiliar, limpieza y medios auxiliares.					
O01OA030	Oficial primera	8,470	h	19,86	168,21	
O01OA070	Peón ordinario	8,470	h	16,88	142,97	
	Suma la partida					311,18
	Costes indirectos			3%		9,34
	TOTAL PARTIDA					**320,52**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS VEINTE con CINCUENTA Y DOS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.11.02	**SELLADO HUECO INSTAL. MORTERO EI-120**		**u**			
E20VFL170N04	Sistema sellado de huecos de paso de instalaciones EI-120 con compuesto de mortero preparado de cemento y áridos ligeros en un espesor de 150 mm. Medida la unidad instalada.					
O01OB195	Ayudante fontanero	0,200	h	18,01	3,60	
P23I140	Mortero seco para sellados	1,850	kg	2,34	4,33	
	Suma la partida					7,93
	Costes indirectos			3%		0,24
	TOTAL PARTIDA					**8,17**

Asciende el precio total de la partida a la mencionada cantidad de OCHO con DIECISIETE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
05.11.03	**DOCUMENTACIÓN DE OBRA, PRUEBAS, ENSAYOS Y LEGALIZACIÓN**		**u**			
E17SGA010N03	Documentación de obra, prueba, ensayos y legalización de la instalación.. Comprobación de la instalación comprendiendo la totalidad de pruebas y ensayos de acuerdo con la Normativa vigente y las contempladas en el Pliego de Condiciones de este proyecto. Identificación y etiquetado de todas las tomas, tanto en armarios como en puestos de trabajo, de acuerdo con las especificaciones contempladas en el Pliego de Condiciones e instrucciones de la Dirección Facultativa. Elaboración y entrega de la documentación de obra de la instalación de cableado estructurado según Pliego de Condiciones e instrucciones de la Dirección Facultativa a la propia Dirección Facultativa, comprendiendo: - Dos ejemplares completos del Proyecto de Ejecución de la Instalación, en papel, puesto al día con Memoria, Medición y Planos, en exacta correspondencia con las instalaciones realizadas. - Una colección de dicho proyecto en soporte informático. - Dos ejemplares del Esquema de Principio de la Instalación en tamaño DIN A-1 como mínimo, debidamente coloreados, plastificados y enmarcados. - Fotocopias de todos los certificados y resguardos de presentación en los Organismos Oficiales necesarios para dejar en total y perfecta legalidad la instalación realizada. - Libro de Mantenimiento de acuerdo con la normativa vigente. - Ejemplares de la documentación de las partidas que conforman la instalación que incluya documentos de origen, hoja de suministro y etiquetado, certificados de garantía del fabricante, documentos de conformidad o autorizaciones administrativas exigidas reglamentariamente, incluida en su caso el marcado CE de los productos de construcción. Esta documentación comprenderá además los manuales de instrucciones y normas de seguridad de toda la maquinaria que conforme la instalación. Toda esta documentación se entregará en papel y en formato digital. - Un ejemplar en papel y otro en formato digital con los resultados obtenidos de todas las pruebas realizadas, con especificación de todos los valores obtenidos. Legalización de la instalación, incluyendo la preparación y visados de proyectos en el Colegio Profesional correspondiente y la presentación y seguimiento hasta buen fin de los expedientes ante Servicios Territoriales de Industria y Entidades Colaboradoras, incluso el abono de las tasas correspondientes. Se incluyen todos los trámites administrativos que haya que realizar con cualquier organismo oficial para llevar a buen término las instalaciones de este capítulo.					
P15JAA010N02	DOCUMENTACIÓN, PRUEBAS Y LEGALIZACIÓN	1,000	u	250,00	250,00	

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CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

Suma la partida			250,00
Costes indirectos	3%		7,50
TOTAL PARTIDA			**257,50**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS CINCUENTA Y SIETE con CINCUENTA CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
06	**TELECOMUNICACIONES**					
06.01	**CABLEADO**					
06.01.01	**Cableado fibra óptica**					
06.01.01.01	**CABLEADO VERTICAL MONOMODO DE 8 FIBRAS**		**m**			
E19IF020N01	Cableado vertical (backbone) de fibra monomodo, formado por cable de 8 fibras ópticas monomodo con refuerzo de aramida y cubierta de LSZH Cca-a1-d0-a1, no propagador de la llama y baja emisión de humos, en montaje en canal o bandeja. Estándar 100 BASE-FX y 1000 BASE FX. Instalado y conexionado. Conforme ANSI/TIA/EIA 568-C.3, ISO/IEC 11801:2017 y UNE-EN 50173-1:2018. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.					
O01OB222	Oficial 1ª instalador telecomunicación	0,024	h	22,00	0,53	
O01OB223	Oficial 2ª instalador telecomunicación	0,024	h	20,96	0,50	
P22IF020N01	Cable monomodo vertical 8 fibras Cca,s1-d0-a1	1,000	m	4,52	4,52	
P15AH430	Pequeño material para instalación	0,200	u	1,40	0,28	
	Suma la partida					5,83
	Costes indirectos			3%		0,17
	TOTAL PARTIDA					**6,00**

Asciende el precio total de la partida a la mencionada cantidad de SEIS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
07	**GESTIÓN DE RESIDUOS**					
07.01	**GESTIÓN DE RESIDUOS GENERADOS DURANTE LA OBRA**		**Ud**			
G03BA071PN	Gestión de los residuos generados durante el trascurso de las obras incluyendo clasificación, carga y transporte a gestores autorizados. Incluso costes de gestión y medios auxiliares.					
GE01CMS01	Gestión de residuos generados en obra	1,000	Ud	11.926,47	11.926,47	
	Suma la partida					11.926,47
	Costes indirectos			3%		357,79
	TOTAL PARTIDA					**12.284,26**

Asciende el precio total de la partida a la mencionada cantidad de DOCE MIL DOSCIENTOS OCHENTA Y CUATRO con VEINTISÉIS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

08 SEGURIDAD Y SALUD

08.01 INSTALACIONES DE BIENESTAR

08.01.01 **ALQUILER CASETA ALMACÉN** **mes**

S01B080

Mes de alquiler de caseta prefabricada para almacén de 12 m2. Estructura de acero galvanizado. Cubierta y cerramiento lateral de chapa galvanizada trapezoidal de 0,6 mm reforzada con perfiles de acero, interior prelacado. Suelo de aglomerado hidrófugo de 19 mm puerta de acero de 1 mm, de 0,80x2,00 m pintada con cerradura y punto de luz. Ventana fija de cristal de 6 mm, recercado con perfil de goma. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

O01OA070	Peón ordinario	0,085	h	16,88	1,43
P31BC120CEM	Alquiler mes caseta almacén	1,000	u	71,09	71,09
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66

Suma la partida		117,18
Costes indirectos	3%	3,52
TOTAL PARTIDA		**120,70**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO VEINTE con SETENTA CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.02	**ALQUILER CASETA VESTUARIOS-ASEOS**		**mes**			
S01B190	Mes de alquiler de caseta prefabricada para vestuarios, 2 duchas y un aseo con inodoro y 2 lavabos. Dimensiones mínimas 30 m2 en vestuario. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. 2 Puertas de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. 2 ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Mobiliario completo para su uso. Instalación eléctrica a 220 V, toma de tierra, automático, 4 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,085	h	16,88	1,43	
P31BC190CEM	Alquiler mes caseta vestuarios aseos	1,000	u	162,98	162,98	
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66	
	Suma la partida					209,07
	Costes indirectos			3%		6,27
	TOTAL PARTIDA					**215,34**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS QUINCE con TREINTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.03	**ALQUILER CASETA COMEDOR**		**mes**			
S01B191PN	Mes de alquiler de caseta prefabricada para comedor de obra de mínimo 15 m2. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,085	h	16,88	1,43	
P31BC190CEM2	Alquiler mes caseta comedor	1,000	u	162,98	162,98	
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66	
				Suma la partida		209,07
				Costes indirectos	3%	6,27
				**TOTAL PARTIDA		**215,34**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS QUINCE con TREINTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.04	**ALQUILER CASETA OFICINA REUNIONES**		**mes**			
S01B180PN	Mes de alquiler de caseta prefabricada para oficina y reuniones. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Divisiones en tablero de melamina. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,093	h	16,88	1,57	
P31BC180CEM	Alquiler mes caseta oficina	1,000	u	191,32	191,32	
P31BC340	Transporte 150 km entrega y recogida de módulo	0,085	u	525,44	44,66	
S01C090	MESA MELAMINA PARA 10 PERSONAS	1,000	u	64,04	64,04	
	Suma la partida					301,59
	Costes indirectos			3%		9,05
	TOTAL PARTIDA					**310,64**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS DIEZ con SESENTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.05	**ACOMETIDA AÉREA MONOFÁSICA COBRE 2x16 mm2**		**m**			
E17AAM010PN	Acometida aérea monofásica instalada sobre fachada, formada por conductores de cobre aislados con polietileno reticulado (XLPE), en cable rígido multiconductor trenzado en haz 0,6/1kV RZ Fca, de sección 2x16 mm2, fabricado conforme a UNE 21030-2; fijado a fachada mediante abrazadera de acero con tornillo autorroscante plastificada resistente a la intemperie. Totalmente realizada; i/p.p. de conexiones y medios auxiliares (excepto elevación y/o transporte). Conforme a REBT: ITC-BT-06 e ITC-BT-11, NTE-IER, UNE-HD 60364-1:2009 y UNE-HD 60364-1:2009/A11:2018. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB200	Oficial 1ª electricista	0,220	h	19,25	4,24	
O01OB210	Oficial 2ª electricista	0,220	h	21,59	4,75	
P15NAB050	Cable rígido trenzado Cu 0,6/1kV RZ Fca - 2x16 mm2	1,050	m	5,69	5,97	
P15AH395	Abrazadera acero c/tornillo autorroscante SAF-25	3,000	u	0,57	1,71	
	Suma la partida					16,67
	Costes indirectos			3%		0,50
	TOTAL PARTIDA					**17,17**

Asciende el precio total de la partida a la mencionada cantidad de DIECISIETE con DIECISIETE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.06	**ACOMETIDA PROVISIONAL FONTANERÍA 25 mm**		**u**			
S01A030PN	Acometida provisional de fontanería para obra de la red general municipal de agua potable hasta una longitud máxima de 8 m, realizada con tubo de polietileno de 25 mm de diámetro, de alta densidad y para 10 atmósferas de presión máxima con collarín de toma de fundición, p.p. de piezas especiales de polietileno y tapón roscado, incluso derechos y permisos para la conexión, terminada y funcionando, y sin incluir la rotura del pavimento. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
P31BA010	Acometida provisional fontanería a caseta	1,000	u	95,81	95,81	
	Suma la partida					129,64
	Costes indirectos			3%		3,89
	TOTAL PARTIDA					**133,53**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO TREINTA Y TRES con CINCUENTA Y TRES CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.07	**ACOMETIDA PROVISIONAL SANEAMIENTO EN SUPERFICIE**		**u**			
S01A050PN	Acometida provisional de saneamiento de caseta de obra a la red general municipal (pozo o imbornal), hasta una distancia máxima de 8 m, formada por tubería en superficie de PVC de 110 mm de diámetro interior, tapado posterior de la acometida con hormigón en masa HM-20/P/20/I, y con p.p. de medios auxiliares. Incluso p.p de limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB170	Oficial 1ª fontanero calefactor	1,500	h	22,55	33,83	
P31BA030	Acometida provisional saneamiento a caseta en superficie	1,000	u	138,09	138,09	
	Suma la partida					171,92
	Costes indirectos			3%		5,16
	TOTAL PARTIDA					**177,08**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO SETENTA Y SIETE con OCHO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.08	**CUADRO DE OBRA 80 A MODELO 8**		**u**			
S02DC100PN	Cuadro de obra trifásico 80 A, compuesto por armario metálico con revestimiento de poliéster de 600x500 cm con salida lateral por toma de corriente y salida interior por bornes fijos, soportes, manecilla de sujeción y/o anillos de elevación, con cerradura, MT General de 4x80 A, 3 diferenciales de 4x25 A 30 mA, 4x63 A 30 mA y 4x40 A 300 mA, respectivamente, 7 MT por base, tres de 2x16 A, tres de 4x16 A y uno de 4x32 A, incluyendo cableado, rótulos de identificación, 7 bases de salida y p.p. de conexión a tierra, instalado (amortizable en 4 obras), según ITC-BT-33 del REBT (R.D. 842/2002), R.D. 614/2001 y UNE-EN 61439-4:2013. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OB200	Oficial 1ª electricista	1,200	h	19,25	23,10	
P31CE240	Cuadro de obra 80 A Modelo 8	0,250	u	2.230,09	557,52	
	Suma la partida					580,62
	Costes indirectos			3%		17,42
	TOTAL PARTIDA					**598,04**

Asciende el precio total de la partida a la mencionada cantidad de QUINIENTOS NOVENTA Y OCHO con CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.01.09	**TOMA DE TIERRA R80 Ohm R=100 Ohm**		**u**			
S02DT010PN	Toma de tierra para una resistencia de tierra R<=80 Ohmios y una resistividad R=100 Ohm formada por arqueta de ladrillo macizo de 24x11,5x7 cm, tapa de hormigón armado, tubo de PVC de D=75 mm, electrodo de acero cobrizado 14,3 mm y 100 cm, de profundidad hincado en el terreno, línea de t.t. de cobre desnudo de 35 mm2, con abrazadera a la pica, instalado. Según ITC-BT-18 y MIE-BT-039 del REBT (R.D. 842/2002) y R.D. 614/2001. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA030	Oficial primera	1,316	h	19,86	26,14	
O01OA050	Ayudante	0,659	h	20,32	13,39	
O01OA070	Peón ordinario	0,438	h	16,88	7,39	
O01OB200	Oficial 1ª electricista	0,659	h	19,25	12,69	
O01OB210	Oficial 2ª electricista	0,659	h	21,59	14,23	
P01LT040	Ladrillo perforado tosco 24x11,5x7 cm	0,045	mu	151,87	6,83	
A02A080	MORTERO CEMENTO M-5 C/HORMIGONERA	0,020	m3	91,71	1,83	
P04RR070	Mortero revoco CSIV-W2	0,950	kg	1,67	1,59	
P02EAT020	Tapa cuadrada HA e=6 cm 50x50 cm	1,000	u	20,03	20,03	
P17VPC040	Codo M-H 87º PVC serie B junta pegada 75 mm	0,500	u	2,41	1,21	
P31CE040	Pica cobre para toma tierra 14,3 mm	1,000	m	13,63	13,63	
P31CE020	Cable cobre desnudo D=35 mm	3,000	m	1,77	5,31	
P31CE050	Grapa para pica	1,000	u	2,88	2,88	
P15EC020	Puente de prueba	1,000	u	22,13	22,13	
	Suma la partida					149,28
	Costes indirectos			3%		4,48
	TOTAL PARTIDA					**153,76**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO CINCUENTA Y TRES con SETENTA Y SEIS CÉNTIMOS

08.02 PROTECCIONES COLECTIVAS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.02.01	**EXTINTOR POLVO ABC 6 kg PROTECCIÓN INCENDIOS**		**u**			
S02E010PN	Extintor de polvo químico ABC polivalente antibrasa de eficacia 21A/113B, de 6 kg de agente extintor, con soporte, manómetro comprobable y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
	Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.					
	Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,088	h	16,88	1,49	
P31CI020	Extintor polvo ABC 6 kg 21A/113B	1,000	u	46,49	46,49	
	Suma la partida					47,98
	Costes indirectos			3%		1,44
	TOTAL PARTIDA					**49,42**
	Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y NUEVE con CUARENTA Y DOS CÉNTIMOS					
08.02.02	**EXTINTOR CO2 5 kg ACERO**		**u**			
S02E030PN	Extintor de nieve carbónica CO2, de eficacia 89B, con 5 kg de agente extintor, construido en acero, con soporte y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
	Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.					
	Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
O01OA070	Peón ordinario	0,088	h	16,88	1,49	
P31CI050	Extintor CO2 5 kg acero 89B	1,000	u	118,51	118,51	
				Suma la partida		120,00
				Costes indirectos	3%	3,60
				TOTAL PARTIDA		**123,60**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO VEINTITRÉS con SESENTA CÉNTIMOS

08.02.03 **VALLA ENREJADO GALVANIZADO/PLIEGUES** **m**

S02BV020PN

Valla metálica móvil de módulos prefabricados de 3,50x2,00 m de altura, enrejados de malla de D=5 mm de espesor con cuatro pliegues de refuerzo, bastidores verticales de D=40 mm y 1,50 mm de espesor, todo ello galvanizado en caliente, sobre soporte de hormigón prefabricado de 230x600x150 mm, separados cada 3,50 m, accesorios de fijación, considerando 5 usos, incluso montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

O01OA050	Ayudante	0,050	h	20,32	1,02	
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31CB190	Valla enrejado móvil pliegues 3,5x2 m	0,200	m	20,74	4,15	
P31CB200	Pie de hormigón con 4 agujeros	0,333	u	3,71	1,24	
				Suma la partida		7,25
				Costes indirectos	3%	0,22
				TOTAL PARTIDA		**7,47**

Asciende el precio total de la partida a la mencionada cantidad de SIETE con CUARENTA Y SIETE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.02.04	**VALLA CONTENCIÓN DE PEATONES**		**u**			
S02BV040	Valla de contención de peatones, metálica, prolongable de 2,50 m de largo y 1,00 m de altura, color amarillo, amortizable en 5 usos, incluso colocación y desmontaje, según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31CB100	Valla contención peatones 2,5x1 m	0,200	u	32,75	6,55	
	Suma la partida					8,24
	Costes indirectos			3%		0,25
	TOTAL PARTIDA					**8,49**
	Asciende el precio total de la partida a la mencionada cantidad de OCHO con CUARENTA Y NUEVE CÉNTIMOS					
08.02.05	**PUERTA PEATONAL CHAPA 1,00x2,00 m**		**u**			
S02BV080PN	Puerta de acceso peatonal de chapa galvanizada de 1,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.					
O01OA050	Ayudante	0,050	h	20,32	1,02	
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31CB220	Puerta chapa galvanizada 1x2 m	0,200	u	239,10	47,82	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

	Suma la partida					49,68
	Costes indirectos				3%	1,49
	TOTAL PARTIDA					**51,17**

Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y UN con DIECISIETE CÉNTIMOS

08.02.06 **PUERTA CAMIÓN CHAPA 4,00x2,00 m** **u**

S02BV090

Puerta de acceso de vehículos de chapa galvanizada de 4,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97.

Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento provenientes de la Presidencia del Gobierno y demás Ministerios

O01OA050	Ayudante	0,050	h	20,32	1,02	
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31CB210	Puerta chapa galvanizada 4x2 m	0,200	u	870,16	174,03	
	Suma la partida					175,89
	Costes indirectos				3%	5,28
	TOTAL PARTIDA					**181,17**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO OCHENTA Y UN con DIECISIETE CÉNTIMOS

08.02.07 **PROTECCIÓN HORIZONTAL CUAJADO TABLONES** **m2**

S02F110

Protección horizontal de huecos con cuajado de tablones de madera de pino de 20x7 cm unidos a clavazón, incluso instalación y desmontaje (amortizable en 2 usos), según R.D. 486/97 y R.D. 1627/97.

O01OB010	Oficial 1ª encofrador	0,250	h	22,55	5,64	
O01OB020	Ayudante encofrador	0,250	h	20,96	5,24	
P31CB070	Tablón madera pino 20x7 cm	0,050	m3	287,65	14,38	
P31CB300	Puntas planas acero 20x100 mm	0,050	kg	1,14	0,06	
	Suma la partida					25,32
	Costes indirectos				3%	0,76
	TOTAL PARTIDA					**26,08**

Asciende el precio total de la partida a la mencionada cantidad de VEINTISÉIS con OCHO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.02.08	**PROTECCIÓN HUECO CON RED HORIZONTAL**		**m2**			
S02F100	Red horizontal de seguridad en cubrición de huecos formada por malla de poliamida de 10x10 cm anudada con cuerda de D=3 mm y cuerda perimetral de D=10 mm para amarre de la red a los anclajes de acero de D=10 mm conectados a las armaduras perimetrales del hueco cada 50 cm y cinta perimetral de señalización fijada a pies derechos (amortizable en 4 usos), según R.D. 486/97 y R.D. 1627/97.					
O01OA030	Oficial primera	0,080	h	19,86	1,59	
O01OA060	Peón especializado	0,080	h	17,00	1,36	
P31CR030	Red seguridad poliamida 10x10 cm	0,250	m2	2,98	0,75	
P31SB010	Cinta balizamiento bicolor 8 cm	1,428	m	0,06	0,09	
P31CR210	Cuerda de unión redes de seguridad	1,280	m	0,49	0,63	
P31CR150	Gancho montaje red D=10 mm	1,600	u	0,21	0,34	
P31SV080	Poste galvanizado 80x40x2 mm 2,00 m	0,125	u	23,90	2,99	
	Suma la partida					7,75
	Costes indirectos			3%		0,23
	TOTAL PARTIDA					**7,98**

Asciende el precio total de la partida a la mencionada cantidad de SIETE con NOVENTA Y OCHO CÉNTIMOS

08.03 EQUIPOS DE PROTECCION INDIVIDUAL

08.03.01	**PAR DE RODILLERAS**		**u**			
S03D150PN	Par de rodilleras ajustables de protección ergonómica (amortizables en 3 usos). Según UNE-EN 340, UNE-EN 14404, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IP150	Par rodilleras	0,333	u	14,54	4,84	
	Suma la partida					4,84
	Costes indirectos			3%		0,15
	TOTAL PARTIDA					**4,99**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con NOVENTA Y NUEVE CÉNTIMOS

08.03.02	**PANTALLA DE CABEZA SOLDADOR**		**u**			
S03A040PN	Pantalla de seguridad de cabeza, para soldador, de fibra vulcanizada, con cristal de 110x55 mm (amortizable en 5 usos). Según UNE-EN 175, UNE-EN 379, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA080	Pantalla seguridad cabeza soldador	0,200	u	13,48	2,70	
	Suma la partida					2,70
	Costes indirectos			3%		0,08
	TOTAL PARTIDA					**2,78**

Asciende el precio total de la partida a la mencionada cantidad de DOS con SETENTA Y OCHO CÉNTIMOS

08.03.03	**MANDIL CUERO PARA SOLDADOR**		**u**			
S03B140PN	Mandil de cuero para soldador (amortizable en 3 usos). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IC140	Mandil cuero para soldador	0,333	u	9,66	3,22	

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	Suma la partida					3,22
	Costes indirectos				3%	0,10
	TOTAL PARTIDA					**3,32**

Asciende el precio total de la partida a la mencionada cantidad de TRES con TREINTA Y DOS CÉNTIMOS

08.03.04 **PAR GUANTES SOLDADOR** **u**

S03C100PN

Par de guantes para soldador (amortizables en 2 usos). Según UNE-EN 12477, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IM100	Par guantes para soldador	0,500	u	2,93	1,47	
	Suma la partida					1,47
	Costes indirectos				3%	0,04
	TOTAL PARTIDA					**1,51**

Asciende el precio total de la partida a la mencionada cantidad de UN con CINCUENTA Y UN CÉNTIMOS

08.03.05 **PAR DE BOTAS AISLANTES** **u**

S03D080PN

Par de botas aislantes para electricista hasta 5000 V de tensión (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IP080	Par botas aislantes 5000 V	0,333	u	70,61	23,51	
	Suma la partida					23,51
	Costes indirectos				3%	0,71
	TOTAL PARTIDA					**24,22**

Asciende el precio total de la partida a la mencionada cantidad de VEINTICUATRO con VEINTIDÓS CÉNTIMOS

08.03.06 **CUBREGRAFAS DE SEGURIDAD** **u**

S03A065PN

Cubregafas de seguridad con ocular transparente diseñado para poder llevar gafas graduadas. Según UNE-EN 166, R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IA230	Cubregafas de seguridad	0,333	u	1,67	0,56	
	Suma la partida					0,56
	Costes indirectos				3%	0,02
	TOTAL PARTIDA					**0,58**

Asciende el precio total de la partida a la mencionada cantidad de CERO con CINCUENTA Y OCHO CÉNTIMOS

08.03.07 **PROTECCIÓN LUMBAR CON TIRANTES** **u**

S03B020PN

Protector lumbar con tirantes (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC020	Protector lumbar con tirantes	0,250	u	42,48	10,62	

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
					Suma la partida	10,62
					Costes indirectos 3%	0,32
					TOTAL PARTIDA	**10,94**

Asciende el precio total de la partida a la mencionada cantidad de DIEZ con NOVENTA Y CUATRO CÉNTIMOS

08.03.08 **CINTURÓN PORTAHERRAMIENTAS** **u**

S03B030PN

Cinturón portaherramientas (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC030	Cinturón portaherramientas	0,250	u	16,83	4,21	
					Suma la partida	4,21
					Costes indirectos 3%	0,13
					TOTAL PARTIDA	**4,34**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con TREINTA Y CUATRO CÉNTIMOS

08.03.09 **TRAJE IMPERMEABLE** **u**

S03B090PN

Traje impermeable de trabajo, 2 piezas de PVC (amortizable en un uso). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC090	Traje impermeable 2 piezas PVC	1,000	u	9,47	9,47	
					Suma la partida	9,47
					Costes indirectos 3%	0,28
					TOTAL PARTIDA	**9,75**

Asciende el precio total de la partida a la mencionada cantidad de NUEVE con SETENTA Y CINCO CÉNTIMOS

08.03.10 **ABRIGO PARA EL FRÍO** **u**

S03B125PN

Abrigo para el frío (amortizable en 3 usos). Según UNE-EN 342, UNE-EN 14058, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC120	Abrigo para frío	0,333	u	34,15	11,37	
					Suma la partida	11,37
					Costes indirectos 3%	0,34
					TOTAL PARTIDA	**11,71**

Asciende el precio total de la partida a la mencionada cantidad de ONCE con SETENTA Y UN CÉNTIMOS

08.03.11 **CHALECO DE OBRAS REFLECTANTE** **u**

S03B180PN

Chaleco de obras con bandas reflectante (amortizable en 1 usos). Según UNE-EN 471 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

P31IC180	Chaleco de obras reflectante	1,000	u	3,01	3,01	
					Suma la partida	3,01
					Costes indirectos 3%	0,09
					TOTAL PARTIDA	**3,10**

Asciende el precio total de la partida a la mencionada cantidad de TRES con DIEZ CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.03.12	**CHUBASQUERO ALTA VISIBILIDAD**		**u**			
S03B230PN	Chubasquero de lluvia impregnado exterior de PVC, capucha fija con cordón de apriete. Alta visibilidad, con tiras retroreflejantes microburbujas termoselladas, color plata, 50 mm, montaje paralelo (amortizable en 3 usos). Según UNE-EN 471, UNE-EN 343 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IC230	Chubasquero alta visibilidad	0,333	u	10,64	3,54	
	Suma la partida					3,54
	Costes indirectos			3%		0,11
	TOTAL PARTIDA					**3,65**

Asciende el precio total de la partida a la mencionada cantidad de TRES con SESENTA Y CINCO CÉNTIMOS

08.03.13	**PAR GUANTES LONA REFORZADOS**		**u**			
S03C020PN	Par de guantes de lona reforzados. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IM020	Par guantes lona reforzados	1,000	u	3,19	3,19	
	Suma la partida					3,19
	Costes indirectos			3%		0,10
	TOTAL PARTIDA					**3,29**

Asciende el precio total de la partida a la mencionada cantidad de TRES con VEINTINUEVE CÉNTIMOS

08.03.14	**PAR GUANTES LÁTEX ANTICORTE**		**u**			
S03C040PN	Par de guantes de goma látex anticorte. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IM040	Par guantes goma látex anticorte	1,000	u	2,08	2,08	
	Suma la partida					2,08
	Costes indirectos			3%		0,06
	TOTAL PARTIDA					**2,14**

Asciende el precio total de la partida a la mencionada cantidad de DOS con CATORCE CÉNTIMOS

08.03.15	**PAR GUANTES AISLANTES 5000 V**		**u**			
S03C110PN	Par de guantes aislantes para protección de contacto eléctrico en tensión hasta 5000 V (amortizables en 3 usos). Según UNE-EN 60903, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IM110	Par guantes aislamiento 5000 V	0,333	u	29,20	9,72	
	Suma la partida					9,72
	Costes indirectos			3%		0,29
	TOTAL PARTIDA					**10,01**

Asciende el precio total de la partida a la mencionada cantidad de DIEZ con UN CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.03.16	**PAR DE BOTAS DE SEGURIDAD**		**u**			
S03D070PN	Par de botas de seguridad con plantilla y puntera de acero (amortizables en 1 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IP070	Par botas de seguridad	1,000	u	27,56	27,56	
	Suma la partida					27,56
	Costes indirectos			3%		0,83
	TOTAL PARTIDA					**28,39**

Asciende el precio total de la partida a la mencionada cantidad de VEINTIOCHO con TREINTA Y NUEVE CÉNTIMOS

08.03.17	**CASCO DE SEGURIDAD AJUSTABLE RUEDA**		**u**			
S03A010PN	Casco de seguridad con arnés de cabeza ajustable por medio de rueda dentada, para uso normal y eléctrico hasta 440 V. Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA030	Casco seguridad con rueda	1,000	u	8,38	8,38	
	Suma la partida					8,38
	Costes indirectos			3%		0,25
	TOTAL PARTIDA					**8,63**

Asciende el precio total de la partida a la mencionada cantidad de OCHO con SESENTA Y TRES CÉNTIMOS

08.03.18	**CASCO SEGURIDAD DIELÉCTRICO**		**u**			
S03A030PN	Casco de seguridad dieléctrico con pantalla para protección de descargas eléctricas (amortizable en 5 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA060	Casco seguridad dieléctrica con pantalla	0,200	u	19,44	3,89	
	Suma la partida					3,89
	Costes indirectos			3%		0,12
	TOTAL PARTIDA					**4,01**

Asciende el precio total de la partida a la mencionada cantidad de CUATRO con UN CÉNTIMOS

08.03.19	**PANTALLA CONTRA PARTÍCULAS**		**u**			
S03A060PN	Pantalla para protección contra partículas, con sujeción en cabeza (amortizable en 5 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA100	Pantalla protección contra partículas	0,200	u	9,17	1,83	
	Suma la partida					1,83
	Costes indirectos			3%		0,05
	TOTAL PARTIDA					**1,88**

Asciende el precio total de la partida a la mencionada cantidad de UN con OCHENTA Y OCHO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.03.20	**GAFAS CONTRA IMPACTOS**		**u**			
S03A070PN	Gafas protectoras contra impactos, incoloras (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA120	Gafas protectoras	0,333	u	8,80	2,93	
	Suma la partida					2,93
	Costes indirectos			3%		0,09
	TOTAL PARTIDA					**3,02**
	Asciende el precio total de la partida a la mencionada cantidad de TRES con DOS CÉNTIMOS					
08.03.21	**GAFAS ANTIPOLVO**		**u**			
S03A090PN	Gafas antipolvo antiempañables, panorámicas (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA140	Gafas antipolvo	0,333	u	8,60	2,86	
	Suma la partida					2,86
	Costes indirectos			3%		0,09
	TOTAL PARTIDA					**2,95**
	Asciende el precio total de la partida a la mencionada cantidad de DOS con NOVENTA Y CINCO CÉNTIMOS					
08.03.22	**SEMI MÁSCARA ANTIPOLVO 1 FILTRO**		**u**			
S03A100PN	Semi-mascarilla antipolvo un filtro (amortizable en 3 usos). Según UNE-EN 140, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA150	Semi-mascarilla 1 filtro	0,333	u	17,92	5,97	
	Suma la partida					5,97
	Costes indirectos			3%		0,18
	TOTAL PARTIDA					**6,15**
	Asciende el precio total de la partida a la mencionada cantidad de SEIS con QUINCE CÉNTIMOS					
08.03.23	**FILTRO RECAMBIO MASCARILLA**		**u**			
S03A110PN	Filtro de recambio de mascarilla para polvo y humos. Según UNE-EN 136, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA180	Filtro antipolvo	1,000	u	1,77	1,77	
	Suma la partida					1,77
	Costes indirectos			3%		0,05
	TOTAL PARTIDA					**1,82**
	Asciende el precio total de la partida a la mencionada cantidad de UN con OCHENTA Y DOS CÉNTIMOS					

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.03.24	**CASCOS PROTECTORES AUDITIVOS**		**u**			
S03A120PN	Protectores auditivos con arnés a la nuca (amortizables en 3 usos). Según UNE-EN 458, UNE-EN 352, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
P31IA190	Cascos protectores auditivos	0,333	u	11,97	3,99	
	Suma la partida					3,99
	Costes indirectos			3%		0,12
	TOTAL PARTIDA					**4,11**
	Asciende el precio total de la partida a la mencionada cantidad de CUATRO con ONCE CÉNTIMOS					
08.03.25	**BARBUQUEJO CON MENTONERA PARA CASCO**		**u**			
S03A032	Cinta o correa elástica de sujeción con mentonera para casco de seguridad.					
P31IA220	Barbuquejo con mentonera para casco	1,000	u	4,87	4,87	
	Suma la partida					4,87
	Costes indirectos			3%		0,15
	TOTAL PARTIDA					**5,02**
	Asciende el precio total de la partida a la mencionada cantidad de CINCO con DOS CÉNTIMOS					
08.03.26	**PAR DE POLAINAS SOLDADURA**		**u**			
S03D090	Par de polainas para soldador (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.					
P31IP090	Par polainas para soldador	0,333	u	5,11	1,70	
	Suma la partida					1,70
	Costes indirectos			3%		0,05
	TOTAL PARTIDA					**1,75**
	Asciende el precio total de la partida a la mencionada cantidad de UN con SETENTA Y CINCO CÉNTIMOS					
08.03.27	**ARNÉS AMARRE DORSAL Y TORÁCICO**		**u**			
S03EA030	Arnés básico de seguridad amarre dorsal con anilla y torácico con cintas, regulación en piernas, fabricado con cinta de nailon de 45 mm y elementos metálicos de acero inoxidable (amortizable en 5 obras). Según UNE-EN 361, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.					
P31IS030	Arnés amarre dorsal + torácicos	0,200	u	44,44	8,89	
	Suma la partida					8,89
	Costes indirectos			3%		0,27
	TOTAL PARTIDA					**9,16**
	Asciende el precio total de la partida a la mencionada cantidad de NUEVE con DIECISÉIS CÉNTIMOS					
08.03.28	**CUERDA CON REDUCTOR 2,00 m MOSQUETONES+GANCHO**		**u**			
S03ED040	Eslinga anticaída regulable con absorbedor de energía compuesta por cuerda de poliamida de 12 mm de diámetro y 2,00 m de longitud, con reductor, con un mosquetón de 17 mm de apertura y un gancho de 60 mm de apertura (amortizable en 4 usos). Según UNE-EN 355, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.					
P31IS300	Cuerda con reductor 2 m 2 mosquetones 17 mm-60 mm	0,250	u	78,90	19,73	

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE

				Suma la partida		19,73
				Costes indirectos	3%	0,59
				TOTAL PARTIDA		**20,32**

Asciende el precio total de la partida a la mencionada cantidad de VEINTE con TREINTA Y DOS CÉNTIMOS

08.03.29 **ANCLAJE DE CINTA L=250 cm** **u**

S03EE080PN Dispositivo de anclaje para sistemas anticaídas, instalado con taco metálico en estructuras de hormigón armado y estructura metálica. Se instala a techo o pared y dispone en uno de los extremos de la cinta de una anilla de acero para el enganche del elemento de amarre del arnés anticaídas. Tiene una longitud de 250 cm, siendo adecuado su aplicación para todos aquellos puntos en los que se de el riesgo de caída a distinto nivel, bordes de forjados, etc. Su uso está limitado a un solo trabajador. Certificado según UNE-EN 795:2012.

O01OA030	Oficial primera	0,050	h	19,86	0,99
O01OA070	Peón ordinario	0,100	h	16,88	1,69
P31IS800	Anclaje cinta con taco metálico L=250 cm 1 trabajador	1,000	u	9,75	9,75
P31IS710	Punto de anclaje fijo	1,000	u	18,65	18,65

Suma la partida			31,08
Costes indirectos	3%		0,93
TOTAL PARTIDA			**32,01**

Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y DOS con UN CÉNTIMOS

08.04 SEÑALIZACION

08.04.01 **PLACA SEÑALIZACIÓN RIESGO** **u**

S05C080PN Placa señalización-información en PVC serigrafiado de 50x30 cm, fijada mecánicamente (amortizable en 2 usos), incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

O01OA070	Peón ordinario	0,150	h	16,88	2,53
P31SV120	Placa informativa PVC 50x30 cm	0,500	u	7,42	3,71

Suma la partida			6,24
Costes indirectos	3%		0,19
TOTAL PARTIDA			**6,43**

Asciende el precio total de la partida a la mencionada cantidad de SEIS con CUARENTA Y TRES CÉNTIMOS

08.04.02 **PANEL COMPLETO PVC 700x1000 mm** **u**

S05B030PN Panel completo serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Tamaño 700x1000 mm. Válido para incluir hasta 15 símbolos de señales, incluso textos "Prohibido el paso a toda persona ajena a la obra", incluido colocación, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

O01OA070	Peón ordinario	0,100	h	16,88	1,69
P31SC030	Panel completo PVC 700x1000 mm	1,000	u	14,74	14,74

Suma la partida			16,43
Costes indirectos	3%		0,49
TOTAL PARTIDA			**16,92**

Asciende el precio total de la partida a la mencionada cantidad de DIECISÉIS con NOVENTA Y DOS CÉNTIMOS

CUADRO DE DESCOMPUESTOS

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
08.04.03	**BALIZA LUMINOSA INTERMITENTE**		**u**			
S05A050PN	Foco de balizamiento intermitente (amortizable en 4 usos), según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31SB080	Baliza luminosa intermitente	0,250	u	22,39	5,60	
	Suma la partida					7,29
	Costes indirectos			3%		0,22
	TOTAL PARTIDA					**7,51**

Asciende el precio total de la partida a la mencionada cantidad de SIETE con CINCUENTA Y UN CÉNTIMOS

08.04.04	**CINTA BALIZAMIENTO BICOLOR 8 cm**		**m**			
S05A010PN	Cinta de balizamiento bicolor rojo/blanco de material plástico, incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.					
O01OA070	Peón ordinario	0,050	h	16,88	0,84	
P31SB010	Cinta balizamiento bicolor 8 cm	1,100	m	0,06	0,07	
	Suma la partida					0,91
	Costes indirectos			3%		0,03
	TOTAL PARTIDA					**0,94**

Asciende el precio total de la partida a la mencionada cantidad de CERO con NOVENTA Y CUATRO CÉNTIMOS

08.04.05	**CARTEL PVC SEÑALIZACIÓN EXTINTOR BOCA INCENDIO**		**u**			
S05B020	Cartel serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Para señales de lucha contra incendios (extintor, boca de incendio), incluido colocación, según R.D. 485/97 y R.D. 1627/97.					
O01OA070	Peón ordinario	0,100	h	16,88	1,69	
P31SC020	Cartel PVC señalización extintor/boca incendios	1,000	u	9,24	9,24	
	Suma la partida					10,93
	Costes indirectos			3%		0,33
	TOTAL PARTIDA					**11,26**

Asciende el precio total de la partida a la mencionada cantidad de ONCE con VEINTISÉIS CÉNTIMOS

08.04.06	**PANEL DIRECCIONAL CON SOPORTE**		**u**			
S05C070	Panel direccional reflectante de 165x45 cm, con soporte metálico (amortizable en cinco usos), incluido p.p. de apertura de pozo, hormigonado H-100/40, colocación y montaje, según R.D. 485/97 y R.D. 1627/97.					
O01OA070	Peón ordinario	0,300	h	16,88	5,06	
P31SV100	Panel dirección reflectante 164x45 cm	0,200	u	162,50	32,50	
P31SV110	Soporte panel dirección metálico	0,200	u	17,29	3,46	
A03H040	HORMIGÓN HM-20/B/25/X0 o XC1 DOSIFICACIÓN 200 kg/m3 CEMENTO Tmáx.25 mm	0,064	m3	98,12	6,28	
	Suma la partida					47,30
	Costes indirectos			3%		1,42
	TOTAL PARTIDA					**48,72**

Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y OCHO con SETENTA Y DOS CÉNTIMOS

4. MEDICIONES Y PRESUPUESTO

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01	**DEMOLICIONES Y DESMONTAJES**							
01.01	**m2 DEMOLICIÓN TABIQUE LADRILLO HUECO DOBLE e=7 cm A MANO**							
E01DFB030	Demolición de tabicones de ladrillo hueco doble de 7 cm de espesor, por medios manuales, incluso limpieza y retirada de escombros a pie de carga, sin transporte al vertedero y con parte proporcional de medios auxiliares. Según RD 105/2008 y NTE-ADD. Medición de superficie realmente ejecutada.							
	Tabiques en cuarto de máquinas P. Baja	1	4,60		3,00	13,80		
		1	3,56		3,00	10,68		
		1	10,55		3,00	31,65		
						56,13	9,91	556,25
01.02	**m2 LEVANTADO CERRAJERÍA EN TABIQUES A MANO**							
E01DKA020	Levantado de carpintería metálica, en cualquier tipo de tabiques, incluidos cercos, hojas y accesorios, por medios manuales, incluso limpieza, retirada de escombros a pie de carga, sin transporte a vertedero o planta de reciclaje y con parte proporcional de medios auxiliares. Según RD 105/2008 y NTE-ADD. Medición de superficie realmente ejecutada.							
	Cuarto de máquinas planta baja	1	0,80		2,10	1,68		
		1	1,80		2,10	3,78		
						5,46	10,35	56,51
01.03	**m2 DESMONTADO INSTALACIÓN CLIMATIZACIÓN/VENTILACIÓN**							
E01DIC020PN	Desmontaje de instalación de climatización y ventilación existente; incluyendo conductos, rejillas y bocas de impulsión y extracción, conducciones de agua para alimentación de equipos de climatización y desmontaje de estos equípos y extractores incluso instalación eléctrica de alimentación y protecciones correspondientes, con medios manuales y mecánicos y medios auxiliares y de elevación necesarios, i/carga sobre camión o contenedor. Medida la superficie construida cubierta por la instalación a desmantelar.							
	Planta alta	1	9.310,18			9.310,18		
						9.310,18	2,31	21.506,52
	TOTAL 01							**22.119,28**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02	**INSTALACIÓN ELECTRICIDAD**							
02.01	**CUADROS ELÉCTRICOS**							
02.01.01	**C.E. NUEVO UTAS PABELLÓN**	**u**						
CE-P1-02	Cuadro RED NORMAL C.E. CL-UTAS-PABELLÓN, con suministro de red, formado por armario metálico, con puerta transparente o llena y cerradura con llave, de la firma Schneider o similar, incluso 20% de reserva, incluso cableado interior libre de halógenos, bandejas, conexionado, etiqueteros, carpintería metálica, montaje en taller y montaje en el edificio. Incluyendo el aparellaje según el esquema unifilar. Totalmente instalado y funcionando.							

Contiene:

Cantidad	Referencia	Designación
3	56193	RH99M seNal 220a240Vca 50 60 400Hz
3	50421	Toro Abierto TOA120
1	A9L16482	Acti9 iPRD1 12.5r 3PN 350V remote transf
2	A9F79216	iC60N 2P 16A C
2	A9R81225	iID 2P 25A 30mA AC
12	A9F79450	iC60N 4P 50A C
4	A9F89416	iC60H 4P 16A C
4	A9F89420	iC60H 4P 20A C
12	A9R84463	iID 4P 63A 300mA AC
8	A9R84425	iID 4P 25A 300mA AC
1	METSEPM5111	PM5111 CL 0.5S, Arm ind 15, MID, Modbus
3	METSECT5CC004	TI 40/5A TIPO CC CABLE 21MM
2	C40N4	Bloque Corte NSX400N 50kA AC 4P 400A
2	C4042D400	Ud.Control NSX400 AC 4P4R 400A 2.3
36	NSYTRV22	Borne conex tornillo, 2pts, 2,5mm? gris
4	NSYTRV22	Borne conex tornillo, 2pts, 2,5mm? gris
4	NSYTRV42	Borne conex resorte, sec.extraible 2pts,
48	NSYTRV102	MALETA COLOCACION VACIA
48	NSYTRV162	Borne conex resorte, de tierra 4pts, 4mm
32	NSYTRV42	Borne conex resorte, sec.extraible 2pts,
1	LVS03401	Carril modular P,ancho 650mm
1	LVS03203	Tapa G/P Acti9, 3 Modulos, alto 150mm
2	LVS03401	Carril modular P,ancho 650mm
2	LVS03204	Tapa G/P Acti9, 4 Modulos, alto 200mm
2	LVS03401	Carril modular P,ancho 650mm
2	LVS03203	Tapa G/P Acti9, 3 Modulos, alto 150mm
2	LVS03402	Carril modular P,regulable en prof.650mm
2	LVS03204	Tapa G/P Acti9, 4 Modulos, alto 200mm
2	LVS03402	Carril modular P,regulable en prof.650mm
2	LVS03204	Tapa G/P Acti9, 4 Modulos, alto 200mm
1	LVS03903	Placa plastico G/P Perforada 96x96
3	LVS03901	Placa plastico G/P Plena 96x96,obturador
1	LVS03904	Tapa G/P Metalica componible para placas
2	LVS03452	Placa sop. P NSX-INS-CVS630 H.Fijo.M(4P)
2	LVS03644	Tapa P NSX-CVS630 Hor.F/Z.M/Rot/Tel 4P
2	LV432592	Cubrebornes cortos 4P NSX400/630 INV/INS
2	LV432594	Cubrebornes largos 4P NSX400/630 INV/INS

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN		UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	4	LVS03402	Carril modular P,regulable en prof.650mm						
	4	LVS03803	Tapa G/P Plena 3 modulos, alto 150mm						
	4	LVS04202	Linergy TB 2 Colectores PE ancho 200mm						
	4	LVS04205	2 Soportes fijacion PE en carril modular						
	4	LVS03581	2 Escuadras universales						
	2	LVS08403	Armadura P Ancho 300.Prof 400.Alto 2m						
	2	LVS08513	Puerta plena P IP30,ancho 300mm						
	2	LVS08733	Fondo atornillado P IP30,ancho 300mm						
	2	LVS08433	Techo P IP30.Ancho 300mm,Prof 400mm						
	2	LVS04920	Pantalla frontal/post. Forma 2 A300mm						
	2	LVS08640	PrismaSeT P Green Cover W300						
	1	LVS08407	Armadura P Ancho650+150.Prof 400.Alto 2m						
	1	LVS08538	Puerta Transp. P IP30, A800mm+Pantalla						
	1	LVS08738	Fondo atornillado P IP30,ancho 800mm						
	1	LVS08438	Techo P IP30.Ancho 800mm,Prof 400mm						
	1	LVS08566	Marco pivotante tapas P Ancho 650mm						
	1	LVS08643	PrismaSeT P Green Cover W800						
	1	LVS08406	Armadura P Ancho 650.Prof 400.Alto 2m						
	1	LVS08536	Puerta Transp. P IP30, ancho 650mm						
	1	LVS08736	Fondo atornillado P IP30,ancho 650mm						
	1	LVS08436	Techo P IP30.Ancho 650mm,Prof 400mm						
	1	LVS08566	Marco pivotante tapas P Ancho 650mm						
	1	LVS08642	PrismaSeT P Green Cover W650						
	1	LVS08750	2 Paredes laterales P IP30,prof. 400mm						
	4	LVS04503	Linergy LGY Perfil vertical 800A 1,67m						
	1	LVS01109	Linergy LGY 12 Topes soporte inferior						
	3	LVS04651	Linergy LGY Soporte Vert.Pasillo lateral						
	2	LVS04502	Linergy LGY Perfil vertical 630A 1,67m						
	2	LVS04657	Linergy TB 3 Soportes para PE Vertical						
	1	LVS04512	Linergy TB Barra CU Perf. PE 25x5mm						
	1	LVS04667	Linergy TB 2 Soportes para PE Horizontal						
	1	LVS04672	Linergy TB 2 Conex. instal. PE Hor/Vert						
	1	LVS04767	Linergy LGY 20 Tornillos M8 (Barras)						
	2	LVS08794	4 Soportes P fijacion cable prof. 400mm						
	2	LVS08773	4 Soportes P fijacion cable ancho 300mm						
	2	LVS03806	Tapa G/P Plena 6 modulos, alto 300mm						
	1	LVS03802	Tapa G/P Plena 2 modulos, alto 100mm						
	Baja			1			1,00		
							1,00	56.068,24	56.068,24
			TOTAL 02.01						**56.068,24**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.02	**LÍNEAS ELÉCTRICAS**							
02.02.01	**m GENERAL CABLE EXZHELLENT XXI H07Z1-K (AS) 450/750V 1x1,5mm² C200**							
1656106NGP	Cable GENERAL CABLE o similar, GENLIS-F H07V-K 450/750V 1x1,5mm². Denominación Técnica: H07V-K. Norma constructiva y de ensayos: UNE-EN 21031-3. Conductor: Cu Clase 5 Aislamiento: PVC Temperatura máxima del conductor: 70º C. No propagador de la llama UNE-EN 60332-1-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Baja - Emergencias	1	18,00			18,00		
						18,00	3,14	56,52
02.02.02	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 3G2,5mm²**							
1992307VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 3G2,5mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación							
	Actuación	1	45,00			45,00		
						45,00	5,50	247,50
02.02.03	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G4mm²**							
1992508VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G4mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación	1	440,00			440,00		
						440,00	9,11	4.008,40

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.02.04	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G10mm²**							
1992510VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G10 mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación							
	Actuación	1	104,00			104,00		
						104,00	25,59	2.661,36
02.02.05	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G16mm²**							
1992511VDP1	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G16mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación							
	Actuación	1	275,00			275,00		
						275,00	39,49	10.859,75
02.02.06	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G25mm²**							
1992512VDP	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G25mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación	1	429,00			429,00		
						429,00	40,52	17.383,08

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.02.07	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 5G35mm²**							
1992512VDP100	Manguera GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 5G35mm² (colores de fases: Marrón-Azul.Amarillo/Verde). Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación	1	308,00			308,00		
						308,00	61,84	19.046,72
02.02.08	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G95mm²**							
1992512VDP102	Cable unipolar GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 1G95mm² . Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación	1	40,00			40,00		
						40,00	31,63	1.265,20
02.02.09	**m GENERAL CABLE EXZHELLENT XXI RZ1-K Cu (AS) 0,6/1kV 1G185mm²**							
1992512VDP101	Cable unipolar GENERAL CABLE o similar, EXZHELLENT XXI RZ1-K Cu (AS) 1kV 1G185mm². Denominación Técnica: RZ1-K (AS). Norma constructiva y de ensayos: UNE 21123-4. Conductor: Cu Clase 5 Aislamiento: Polietileno reticulado (XLPE) Cubierta: Poliolefina Color de cubierta: VERDE. Temperatura máxima del conductor: 90º C. UNFIRE® No propagador del incendio UNE-EN 60332-3-24 No propagador de la llama UNE-EN 60332-1-2. Libre de halógenos UNE-EN 50267-2-1. Baja emisión de humos opacos UNE-EN 61034-2. Baja corrosividad UNE-EN 50267-2-2. Totalmente instalado y conexionado; según REBT, ITC-BT-15 y ITC-BT-07. Código CPR Cca,s1d,d1,a1.							
	Actuación	1	160,00			160,00		
						160,00	56,67	9.067,20
	TOTAL 02.02							**64.595,73**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.03	**BANDEJAS-CANALIZACIONES**							
02.03.01	**m Bandeja Rejiband 60X100 GC**							
UPEMS60232100	Suministro y montaje bandeja de rejilla tipo Rejiband, marca PEMSA o similar, fabricada con varillas de diámetro 4 mm electrosoldadas de acero al carbono según UNE 10016-2:94 (prox. UNE-EN ISO 16120), dimensiones 100x60 mm y 3 m de longitud, ref. 60232100 con borde de seguridad, certificado de ensayo de resistencia al fuego E90, según DIN 4102-12, marcado N de AENOR, y acabado anticorrosión Galvanizado en Caliente según UNEEN-ISO 1461-99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.							
	Alta	1	195,00			195,00		
						195,00	27,35	5.333,25
02.03.02	**m Bandeja Rejiband 60x150 GC**							
UPEMS60232150	Suministro y montaje bandeja de rejilla tipo Rejiband, marca PEMSA o similar, fabricada con varillas de diámetro 4 mm electrosoldadas de acero al carbono según UNE 10016-2:94 (prox. UNE-EN ISO 16120), dimensiones 150x60 mm y 3 m de longitud, ref. 60232100 con borde de seguridad, certificado de ensayo de resistencia al fuego E90, según DIN 4102-12, marcado N de AENOR, y acabado anticorrosión Galvanizado en Caliente según UNEEN-ISO 1461-99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.							
	Alta	1	42,00			42,00		
	Baja	1	51,00			51,00		
						93,00	38,75	3.603,75
02.03.03	**m Bandeja Rejiband 60x200 GC**							
UPEMS60232200	Suministro y montaje bandeja de rejilla tipo Rejiband, marca PEMSA o similar, fabricada con varillas de diámetro 4 mm electrosoldadas de acero al carbono según UNE 10016-2:94 (prox. UNE-EN ISO 16120), dimensiones 200x60 mm y 3 m de longitud, ref. 60232200 con borde de seguridad, certificado de ensayo de resistencia al fuego E90, según DIN 4102-12, marcado N de AENOR, y acabado anticorrosión Galvanizado en Caliente según UNEEN-ISO 1461-99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.							
	Alta	1	68,00			68,00		
						68,00	84,82	5.767,76

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.03.04	**m Bandeja Pemsaband con tapa 60x200 GC**							
UPEMT75832200	Suministro y montaje bandeja de rejilla tipo Pemsaband One perforada con tapa, marca PEMSA o similar, con borde de seguridad perfilado y base perforada y embutida, fabricada en acero al carbono según UNE-EN 10.130:08, dimensiones 60x200 mm y 3.05 m de longitud, ref. 75832200, certificado de ensayo de resistencia al fuego E60, según DIN 4102-12, marcado N de AENOR, y sistema de protección Galvanizado en Caliente según UNE-ISO 1461:99, con espesor medio de la capa protectora de 70 micras. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR. Incluso parte proporcional de soportes Omega o Reforzados, originales de PEMSA, y otros accesorios necesarios. Todo ello acorde con la norma UNE-EN-61537 según Marcado N de AENOR.							
	Alta	1	31,00			31,00		
						31,00	264,66	8.204,46
02.03.05	**m CONDUCTOR COBRE DESNUDO 16 MM2**							
E17T030d	Suministro y colocación de conductor de cobre desnudo de 16 mm2 para red de tierra. Incluye p.p. de soportación, accesorios, conexiones, material pequeño y auxiliar. En todo el recinto de piscina y edificio técnico, uniendo las masas metálicas de las bandejas, según REBT, ITC-BT-18 e ITC-BT-26.							
	Baja	1	45,00			45,00		
						45,00	4,85	218,25
02.03.06	**m Tubo rígido LH M50 (inst. al aire)**							
ceE17XT360	Suministro y montaje de tubo rígido libre de halógenos de 50 mm de diámetro, con unión enchufable mediante manguito, en instalación fija al aire, con código 4321. Estable hasta 60ºC y no propagador de la llama. Resistencia a la compresion 1250 Nw. y al impacto 2 J, con temperatura máxima y mínima de instalación y servicio de 60 ºC y -5 ºC, conforme UNE-EN-61.386. Dimensiones conforme a norma UNE-60423. Libre de halógenos conforme norma UNE-EN-50267-2-2. Se incluye parte proporcional de sistema de fijación formado por tacos de expansión brida metálica o plástica, cajas de registro, derivaciones, codos y accesorios para tubo rígido de 50 mm, replanteo y conexionado, quedando la unidad totalmente instalada.							
	Alta	1	62,00			62,00		
						62,00	4,11	254,82
02.03.07	**m Tubo flexible reforzado M20**							
ceE17XT140	Suministro y montaje de tubo flexible doble capa de policloruro de vinilo de 20 mm de diámetro. IP54. Estable hasta 60ºC y no propagador de la llama.Resistencia a la compresion 320 Nw. y al impacto 1 J. a .5 ºC conforme UNE-EN-61.386. Dimensiones conforme a norma UNE-60423. Se incluye parte proporcional de sistema de fijación formado por tacos de expansión brida metálica o plástica, cajas de registro, derivaciones, codos y accesorios para tubo flexible de 20 mm, replanteo y conexionado, quedando la unidad totalmente instalada.							
	Baja	1	42,00			42,00		
						42,00	2,56	107,52

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.03.08	**u BLOQUE AUTÓNOMO EMERGENCIA DAISALUX NAOS N5 A + KES NAOS - 200**							
E18GDK040N05	Bloque autónomo de emergencia modelo NAOS N5 A + KES NAOS DAISALUX o similar. Luminaria de emergencia de forma rectangular con aristas redondeadas fabricada en material sintético. Baterías LiFePO4 con electrónica de control de carga en función de la temperatura y control independiente de la tensión de cada módulo. El uso de difusores planos microestructurados MCRLED asegura un óptimo rendimiento lumínico en un amplio rango de alturas de colocación en techo y pared. Dispone de una fuente de luz LED que entra en funcionamiento ante corte de red. Un microprocesador interno chequea el estado del aparato y realiza periódicamente test funcionales y de autonomía informando sobre su estado. Si la luminaria se conecta a una Central TEV, los datos sobre su estado se envían a través de dicha central a un ordenador de control, donde se puede monitorizar el estado de toda la instalación de alumbrado de emergencia.Formato: Naos, Funcionamiento: No Permanente LED TCA, Autonomía (h): 1, Lámpara en emergencia: ILMLED-NAOS, Piloto testigo de carga: LED, Aislamiento eléctrico: Clase II, Dispositivo verificación: Gestión centralizada TCA, Conexión telemando: Si, Tipo batería: LiFePO4Color: Blanco, Conjunto óptico: Antipánico IP43 IK04, Tensión de alimentación: 220-230V 50/60HzAccesorio: KES NAOS, Caja estanca IP66 IK10, Flujo emerg. (lm):176. Construido según normas: UNE-EN 60598-2-22, UNE-EN 60598-1, UNE-EN 1838 y Directivas 2014/30/UE, 2014/35/UE y 2011/65/UE RoHS, 2002/96/CE, Instalada, incluyendo replanteo, accesorios de anclaje y conexionado, conforme al CTE DB-HE-3, CTE DB-SUA-4 y NTE-IEI.							
	Baja	3				3,00		
						3,00	81,58	244,74
02.03.09	**u SELLADO HUECO INSTAL. MORTERO EI-120**							
E26J002	Sistema sellado de huecos de paso de instalaciones EI-120 con compuesto de mortero preparado de cemento y áridos ligeros en un espesor de 150 mm. Medida la unidad instalada.							
	Actuación	10				10,00		
						10,00	8,20	82,00
	TOTAL 02.03							**23.816,55**
02.04	**VARIOS**							

PRESUPUESTO Y MEDICIONES

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02.04.01	**u DOCUMENTACIÓN DE OBRA, PRUEBAS, ENSAYOS Y LEGALIZACIÓN**							
nE44ADC2001	Documentación de obra, prueba, ensayos y legalización de la instalación.. Comprobación de la instalación comprendiendo la totalidad de pruebas y ensayos de acuerdo con la Normativa vigente y las contempladas en el Pliego de Condiciones de este proyecto. Identificación y etiquetado de todas las tomas, tanto en armarios como en puestos de trabajo, de acuerdo con las especificaciones contempladas en el Pliego de Condiciones e instrucciones de la Dirección Facultativa. Elaboración y entrega de la documentación de obra de la instalación de cableado estructurado según Pliego de Condiciones e instrucciones de la Dirección Facultativa a la propia Dirección Facultativa, comprendiendo: - Dos ejemplares completos del Proyecto de Ejecución de la Instalación, en papel, puesto al día con Memoria, Medición y Planos, en exacta correspondencia con las instalaciones realizadas. - Una colección de dicho proyecto en soporte informático. - Dos ejemplares del Esquema de Principio de la Instalación en tamaño DIN A-1 como mínimo, debidamente coloreados, plastificados y enmarcados. - Fotocopias de todos los certificados y resguardos de presentación en los Organismos Oficiales necesarios para dejar en total y perfecta legalidad la instalación realizada. - Libro de Mantenimiento de acuerdo con la normativa vigente. - Ejemplares de la documentación de las partidas que conforman la instalación que incluya documentos de origen, hoja de suministro y etiquetado, certificados de garantía del fabricante, documentos de conformidad o autorizaciones administrativas exigidas reglamentariamente, incluida en su caso el marcado CE de los productos de construcción. Esta documentación comprenderá además los manuales de instrucciones y normas de seguridad de toda la maquinaria que conforme la instalación. Toda esta documentación se entregará en papel y en formato digital. - Un ejemplar en papel y otro en formato digital con los resultados obtenidos de todas las pruebas realizadas, con especificación de todos los valores obtenidos. Legalización de la instalación, incluyendo la preparación y visados de proyectos en el Colegio Profesional correspondiente y la presentación y seguimiento hasta buen fin de los expedientes ante Servicios Territoriales de Industria y Entidades Colaboradoras, incluso el abono de las tasas correspondientes. Se incluyen todos los trámites administrativos que haya que realizar con cualquier organismo oficial para llevar a buen término las instalaciones de este capítulo.				2	2,00		
						2,00	257,50	515,00
02.04.02	**u AYUDA ALBAÑILERÍA INST. ELECTRICIDAD**							
nE07WA013	Ayuda de albañilería a instalación de electricidad incluyendo mano de obra en carga y descarga, materiales, apertura y tapado de rozas, recibidos, remates y ayudas a puesta a tierra, caja general de protección, línea general de alimentación, contador en fachada, derivaciones individuales y cuadros de mando y protección, i/p.p. material auxiliar, limpieza y medios auxiliares.(20% sobre instalación de electricidad). Medido por unidad de partida.				3	3,00		

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
						3,00	320,52	961,56
	TOTAL 02.04							**1.476,56**
	TOTAL 02							**145.957,08**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03	**BMS**							
03.01	**Subestaciones de Control**							
03.01.01	**Edificio Instalaciones**							
03.01.01.01	**CC01 Edificio Instalaciones**							
03.01.01.01.01	**Automation Server SpaceLogic Controller AS-P Secure Boot (HW)**	**u**						
SXWASPSBX10001	Automation Server, plataforma EcoStruxure for Buildings, Hot-Swap ,CPU con soporte de modulos de Input/Output, controlador y servidor de comunicaciones. WebServer incluido, con la nueva tecnologia HTML5 para la facil conexion con smartphones/tablets. La solucion EcoStruxure for Buildings soporte protocolos abiertos standard. El Automation Server Premium puede comunicar nativamente con 4 de los protocolos mas usados en los edificios: BACnet, LonWorks, Modbus y Web Services. El autodireccionamiento elimina la necesidad de ajustar DIP switches o botones de programacion. Con la familia de Automation Server, cada modulo de entradas/salidas se asigna automaticamente el orden en la cadena de configuracion. Protocolos soportados: IP addressing (IPv6 ready). DUAL-PORT Ethernet para comunicaciones TCP, DHCP/DNS para un despliegue de las direcciones optimizado. Posibilidad de tener red IP privada para tener la red BMS diferenciada de la red corporativa. HTTP/HTTPS para acceso a internet a traves de firewalls, el cual permite el acceso remoto para la monitorizacion y control, NTP integrado (Network Time Protocol) para la sincronizacion del tiempo a traves del sistema. Integra SMTP para permitir enviar emails para comunicar alarmas y/o notificaciones. Marca Schneider Electric					1,00	743,78	743,78
03.01.01.01.02	**ASP Bundle - Standard (25 Connected Products)**	**u**						
SXWSWXBU0000S	Licencia software embebido en el controlador AS-P que habilita la conectividad de hasta 25 equipos conectados con conectividad al Enterprise Server					1,00	1.177,39	1.177,39
03.01.01.01.03	**Activacion de Modbus - SpaceLogic AS-P Server**	**u**						
SXWSWX000MBRTU	Licencia software embebido en el controlador AS-P que habilita la conectividad ModBus					1,00	220,76	220,76
03.01.01.01.04	**Fuente Alimentacion SXW 24VAC/VDC**	**u**						
SXWPS24VX10001	Fuente de Alimentacion del sistema. Plataforma EcoStruxure for Buildings, Alimentacion suministrada al resto de modulos por backplane. 24vac/24vdc. Marca:Schneider Electric					1,00	315,58	315,58
03.01.01.01.05	**Modulo de E/S SXW 16 UI**	**u**						
SXWUI16XX10001	Modulo de Entradas/Salidas, Plataforma EcoStruxure for Buildings, Hot-Swap, 16 Entradas Universales, cada entrada puede soportar tanto entradas tipo de contacto, contador, y supervisada como de voltaje, corriente, termistor, y resistencia. Alimentacion por Backplane , Montaje carril DIN. Marca: Schneider Electric					1,00	652,13	652,13

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.01.01.06	**u Base electrica para Fuente de Alimentacion SXW**							
SXWTBPSW110001	Base Terminal para Fuente de Alimentacion del Sistema. Plataforma EcoStruxure for Buildings. Marca: Schneider Electric					1,00	83,92	83,92
03.01.01.01.07	**u Base electrica para modulos SXW**							
SXWTBIOW110001	Base Terminal para Modulos de Entra/Salida. Plataforma EcoStruxure for Buildings. Marca: Schneider Electric					1,00	96,46	96,46
03.01.01.01.08	**u Base electrica para Automation Server Premium**							
SXWTBASW110002	Base Terminal para Automation Server Premium del Sistema. Plataforma EcoStruxure for Buildings. Marca: Schneider Electric					1,00	83,02	83,02
03.01.01.01.09	**u Sonda de temperatura de inmersion en tuberia 100mm NTC 10 kO Type 3 con vaina L=100. Ref STP500-100**							
STP500-100_v100	Sonda de temperatura de inmersion en tuberia 100mm NTC 10 kO Type 3 con vaina L=100. Ref STP500-100					6,00	60,39	362,34
03.01.01.01.10	**u Switch No Gestionable 5x100TXRJ45**							
MCSESU053FN0	Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU053FN0					1,00	224,03	224,03
03.01.01.01.11	**u Switch gestionable RS20 6xRJ45 - 2xF.O. Multi SC**							
RS200800M2M2SDAE	Switch gestionable con capacidad para 6 conexiones RJ45 y 2 conexiones F.O. 10/100. Incluye fuente de alimentacion modelo ABL8FEQ24010. Marca Schneider Electric modelo RS20-0800M2M2SDAE					1,00	1.512,29	1.512,29
03.01.01.01.12	**u CUADROS CONTROL TIPO 3 (<7 modulos)**							
AM-TIPO3	CUADRO DE CONTROL TIPO 3 , dimensiones 600x500x150, con capacidad para albergar un maximo de 1 controlador Smart Automation Server y seis modulos de entrada / salida. Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion. Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control. Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro. Incluye: . Armario Schneider CRN65/150 . Placa de montaje Schneider MM 65 . Excluye: . Conexionado cableado a equipos.					1,00	733,68	733,68
	TOTAL 03.01.01.01							**6.205,38**
	TOTAL 03.01.01							**6.205,38**

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.02	**Pabellon P1**							
03.01.02.01	**CC07 P1_1**							
03.01.02.01.01	**Automation Server SpaceLogic Controller AS-B 36 Scalable**	u						
SXWASB36PX1000I	Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.					3,00	1.399,79	4.199,37
03.01.02.01.02	**ASB Bundle - Standard**	u						
SXWSWXBBU0103D	Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados					3,00	407,55	1.222,65
03.01.02.01.03	**AS-B Connector Kit**	u						
SXWASBCON1000I	Kit de reemplazo de terminales para todos los modelos AS-B					3,00	69,30	207,90
03.01.02.01.04	**Sensor CO2 Tapa Ciega BAC/Mod MED**	u						
SLPSXCX	Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate. Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR. Interface de usuario: Tapa Ciega Gama SpaceLogic de Schneider Electric.					1,00	306,89	306,89
03.01.02.01.05	**Actuador electromecanico 0(2)-10V**	u						
MP130-24M	El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.					3,00	166,42	499,26
03.01.02.01.06	**Actuador Forta 500N**	u						
MP500C	Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control: - Modulante (Y, M) - Flotante (increase, decrease) (Y1, Y2) Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2) Con senal de feedback de estado 0-100% (U) Marca Schneider Electric					3,00	499,23	1.497,69
03.01.02.01.07	**Switch No Gestionable 5x100TXRJ45**	u						
MCSESU053FN0	Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU053FN0					1,00	224,03	224,03

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.02.01.08	**u CUADROS CONTROL TIPO 4 (<9 modulos)**							
AM-TIPO4	CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida. Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion. Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control. Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro. Incluye: . Armario Schneider CRN86/200 . Placa de montaje Schneider MM 86 . Excluye: . Conexionado cableado a equipos.					1,00	1.065,09	1.065,09
	TOTAL 03.01.02.01							**9.222,88**
03.01.02.02	**CC08 P1_2**							
03.01.02.02.01	**u Automation Server SpaceLogic Controller AS-B 36 Scalable**							
SXWASB36PX10001	Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.					3,00	1.399,79	4.199,37
03.01.02.02.02	**u ASB Bundle - Standard**							
SXWSWXBBU0103D	Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados					3,00	407,55	1.222,65
03.01.02.02.03	**u AS-B Connector Kit**							
SXWASBCON10001	Kit de reemplazo de terminales para todos los modelos AS-B					3,00	69,30	207,90
03.01.02.02.04	**u Sensor CO2 Tapa Ciega BAC/Mod MED**							
SLPSXCX	Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate. Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR. Interface de usuario: Tapa Ciega Gama SpaceLogic de Schneider Electric.					1,00	306,89	306,89
03.01.02.02.05	**u Actuador electromecanico 0(2)-10V**							
MP130-24M	El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.					3,00	166,42	499,26

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.02.02.06	**u Actuador Forta 500N**							
MP500C	Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control: - Modulante (Y, M) - Flotante (increase, decrease) (Y1, Y2) Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2) Con senal de feedback de estado 0-100% (U) Marca Schneider Electric					3,00	499,23	1.497,69
03.01.02.02.07	**u Switch No Gestionable 5x100TXRJ45**							
MCSESU053FN0	Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU053FN0					1,00	224,03	224,03
03.01.02.02.08	**u CUADROS CONTROL TIPO 4 (<9 modulos)**							
AM-TIPO4	CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida. Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion. Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control. Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro. Incluye: . Armario Schneider CRN86/200 . Placa de montaje Schneider MM 86 . Excluye: . Conexionado cableado a equipos.					1,00	1.065,09	1.065,09
	TOTAL 03.01.02.02							**9.222,88**
03.01.02.03	**CC09 P1_3**							
03.01.02.03.01	**u Automation Server SpaceLogic Controller AS-B 36 Scalable**							
SXWASB36PX1000X	Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.					3,00	1.399,79	4.199,37
03.01.02.03.02	**u ASB Bundle - Standard**							
SXWSWXBBU0103D	Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados					3,00	407,55	1.222,65
03.01.02.03.03	**u AS-B Connector Kit**							
SXWASBCON1000X	Kit de reemplazo de terminales para todos los modelos AS-B					3,00	69,30	207,90

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.02.03.04	**u Sensor CO2 Tapa Ciega BAC/Mod MED**							
SLPSXCX	Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate. Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR. Interface de usuario: Tapa Ciega Gama SpaceLogic de Schneider Electric.					1,00	306,89	306,89
03.01.02.03.05	**u Actuador electromecanico 0(2)-10V**							
MP130-24M	El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.					3,00	166,42	499,26
03.01.02.03.06	**u Actuador Forta 500N**							
MP500C	Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control: - Modulante (Y, M) - Flotante (increase, decrease) (Y1, Y2) Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2) Con senal de feedback de estado 0-100% (U) Marca Schneider Electric					3,00	499,23	1.497,69
03.01.02.03.07	**u Switch No Gestionable 5x100TXRJ45**							
MCSESU053FN0	Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU053FN0					1,00	224,03	224,03
03.01.02.03.08	**u CUADROS CONTROL TIPO 4 (<9 modulos)**							
AM-TIPO4	CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida. Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion. Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control. Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro. Incluye: . Armario Schneider CRN86/200 . Placa de montaje Schneider MM 86 . Excluye: . Conexionado cableado a equipos.					1,00	1.065,09	1.065,09
	TOTAL 03.01.02.03							**9.222,88**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.02.04	**CC10 P1_4**							
03.01.02.04.01	**Automation Server SpaceLogic Controller AS-B 36 Scalable**	u						
SXWASB36PX1000I	Automation Server-BUNDLE, Plataforma EcoStruxure. Servidor compacto que incluye fuente de alimentacion, CPU, controlador de 36 Entradas/Salidas (28 Universales) y Servidor/Gestor de comunicaciones , Incorpora Webserver , con comunicaciones BacNet o ModBus Nativo, autodireccionable, Soporta TCP/IP , DHCP/DNS , HTTP, NTP, SMTP , WebSevices (SOAP,REST). Interfaz de usuario Webstation Incluida. Esta nueva referencia es compatible con las licencias Standard y Full.					3,00	1.399,79	4.199,37
03.01.02.04.02	**ASB Bundle - Standard**	u						
SXWSWXBBU010SD	Licencia software embebido en el controlador AS-B que habilita la conectividad de hasta 10 equipos conectados					3,00	407,55	1.222,65
03.01.02.04.03	**AS-B Connector Kit**	u						
SXWASBCON1000I	Kit de reemplazo de terminales para todos los modelos AS-B					3,00	69,30	207,90
03.01.02.04.04	**Sensor CO2 Tapa Ciega BAC/Mod MED**	u						
SLPSXCX	Sensor de Temperatura y CO2 con protocolo Modbus RTU/ BACnet MSTP seleccionable, acabado MEDIUM Blanco mate. Precision sensor temperatura ' 0.2 QC. Rango de operacion 0-50QC. Resolucion 0.1QC. Terminales de conexion 18-24 AWG. 24VAC Precision sensor de CO2 '30ppm '3% valor medido. Rango de salida de 0 a 2000 ppm. Sensor CO2 tipo NDIR. Interface de usuario: Tapa Ciega Gama SpaceLogic de Schneider Electric.					1,00	306,89	306,89
03.01.02.04.05	**Actuador electromecanico 0(2)-10V**	u						
MP130-24M	El MP130 es un actuador electromecanico disenado para proporcionar un control 0-10V junto con las valvulas de control independientes de la presion VP228/229.					3,00	166,42	499,26
03.01.02.04.06	**Actuador Forta 500N**	u						
MP500C	Actuador Forta MP500C para valvulas PIBCV, alimentacion 24Vac, con posibilidad de eleccion entre control: - Modulante (Y, M) - Flotante (increase, decrease) (Y1, Y2) Fuerza 500N, running time modulating 15s, increase/decrease 300s/60s, IP54 (NEMA2) Con senal de feedback de estado 0-100% (U) Marca Schneider Electric					3,00	499,23	1.497,69
03.01.02.04.07	**Switch No Gestionable 5x100TXRJ45**	u						
MCSESU053FN0	Switch No Gestionable 5x100TXRJ45. Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU053FN0					1,00	224,03	224,03

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.01.02.04.08	**u CUADROS CONTROL TIPO 4 (<9 modulos)**							
AM-TIPO4	CUADRO DE CONTROL TIPO 4 , dimensiones 800x600x200 , con capacidad para albergar un maximo de 1 controlador Smart Automation Server y ocho modulos de entrada / salida. Incluye equipos suficientes para albergar los puntos de control que dependen de esta subestacion. Cuadro sin bornas de conexionado, previsto para conexionarse directamente en las bornas de los controladores o equipos de control. Elementos montados y con cableado interno del bus de comunicaciones y de alimentacion electrica de elementos interiores al cuadro. Incluye: . Armario Schneider CRN86/200 . Placa de montaje Schneider MM 86 . Excluye: . Conexionado cableado a equipos.					1,00	1.065,09	1.065,09
	TOTAL 03.01.02.04							**9.222,88**
	TOTAL 03.01.02							**36.891,52**
	TOTAL 03.01							**43.096,90**
03.02	**Puesto central**							
03.02.01	**Puesto de Supervision y Control**							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.02.01.01	**u Enterprise Server para 10 SmartX Server**							
SXWSWESXX00010	Software ENTERPRISE SERVER, Plataforma EcoStruxure for Buildings. Enterprise Server es el agregador central desde donde los usuarios pueden configurar, controlar, y monitorizar el sistema completo controlado por varios SmartX Servers (Automation Servers). La licencia SXWSWESXX00010 permite gestionar hasta 10 Automation Servers (AS-P, AS-B, Edge Server). Se comunica a traves de estandares de la red, haciendo que las instalaciones sean faciles, la gestion sencilla y las transacciones ciberseguras, mediante el uso de los protocolos (TCP/IP, DHCP/DNS, HTTP/HTTPS, NTP, SMTP/SMTPS, WSS y TLS1.3...). Soporta protocolos OT como BACnet IP, BACnet SC, MODBUS TCP, mediante drivers nativos e IT mediante licencias adicionales. Gestiona alarmas, usuarios compatible con Windows Active Directory, horarios, eventos y registros. La informacion puede liberarse directamente al usuario mediante la potente interfaz grafica (HTML5), o a otros dispositivos, aplicativos o sistemas (comunicaciones en modo cliente y servidor). Dispone de dos tipos de lenguajes de programacion, script y diagrama de bloques. El Enterprise Server contiene el historico (tendencias, alarmas y eventos) y la configuracion de la BBDD, pudiendo en caso necesario, conectar con BBDD externas como TimeScaleDB (Postgre SQL), Microsoft SQL Server o AVEVA PI para una mayor capacidad de almacenamiento externo. Dispone de la capacidad integrada de generar informes sencillos en formato de texto (txt, csv), hoja de calculo (XLSX) o impresos en PDF. Permite el modelado digital de las instalaciones mediante ôetiquetado semanticoö basado en el estandar Brick Schema, que proporcina mayor comprensibilidad al usuario y contextualiza la informacion para generar el Gemelo Digital. El paquete de instalacion incluye la GraphDB que almacena la informacion de la estructura semantica. Mediante licencia adicional el sistema permite comunicacion usando protocolo Lonworks, Web services, MQTT o conexion a bases de datos externas. Mediante licencia adicional permite el cumplimiento de la certificacion CFR21 parte 11. Mediante licencia adicional permite la autenticacion de usuario mediante SAM2.0 (SSO). Incluye 3 licencias de usuario concurrentes a elegir entre licencia CLIENT Workstation o Webstation. Ver especificiaciones tecnicas para requerimientos de plataforma software y hardware. Marca: Schneider Electric, Referencia SXWSWESXX00010					1,00	3.656,56	3.656,56
03.02.01.02	**u SERVIDOR WINDOWS W7**							
THA-ELITE 7200¦W7	ORDENADOR SOBREMESA para PUESTO CENTRAL DE CONTROL y SUPERVISION, segun requerimientos hardware y software del sistema a instalar (ver hoja de caracteristicas). Incluye software y licencia de sistema operativo. Totalmente puesto en servicio. Marca / Modelo: Not Def.					1,00	1.676,17	1.676,17

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.02.01.03	**u Switch No Gestionable 8x100TXRJ45**							
MCSESU083FN0	Switch No Gestionable 8x100TXRJ45 Incluye fuente de alimentacion. Marca Schneider Electric, Referencia MCSESU083FN0							
						1,00	288,61	288,61
03.02.01.04	**u Switch gestionable RS20 6xRJ45 - 2xF.O. Multi SC**							
RS200800M2M2SDAE	Switch gestionable con capacidad para 6 conexiones RJ45 y 2 conexiones F.O. 10/100. Incluye fuente de alimentacion modelo ABL8FEQ24010. Marca Schneider Electric modelo RS20-0800M2M2SDAE							
						1,00	1.512,29	1.512,29
	TOTAL 03.02.01							**7.133,63**
	TOTAL 03.02							**7.133,63**
03.03	**Ingenieria sistema de control**							
03.03.01	**Ingenieria, Programacion y Puesta en marcha**							
03.03.01.01	**u Ingenieria Clima**							
PEMCLIM22000	TRABAJOS DE INGENIERIA , PROGRAMACION Y PUESTA EN MARCHA de las Instalaciones de CONTROL DE CLIMA incluidas en este proyecto. Comprende: ò Desarrollo, de forma consensuada con la Dir.Facultativa y/o representantes de la Propiedad, del proyecto de Control de Clima en cuanto a las necesidades del sistema y soluciones generales. Incluye el replanteo tecnico correspondiente a la arquitectura de comunicaciones correspondiente al edificio/s objeto del proyecto.ò Ingenieria del sistema, seleccion de controladores y material de campo, realizacion de esquemas de conexionado ò Programacion de controladores para la implementacion de las regulaciones, automatizaciones y gestion del sistema, segun el proyecto de detalle. ò Diseno de las pantallas graficas de supervision , con puntos de interaccion con el sistema, para el/los puesto/s central/es de control. ò Verificacion del correcto funcionamiento del sistema de control de Clima. ò Puesta en marcha , comprobacion de todas las senales tanto fisicas como de integracion ò Verificacion del correcto funcionamiento del sistema de control de Climaò Un curso de formacion para el personal designado a la explotacion del sistema. ò Es necesaria la presencia de un representante del instalador durante la puesta en marcha. La puesta en marcha comenzara cuando la instalacion se haya ejecutado al 95% y se acordara con Schneider Electric la fecha de inicio. Antes de iniciar la puesta en marcha debera estar finalizada la red de comunicaciones. Todos los equipos deberan estar con alimentacion electrica para realizar la puesta en marcha, si por causas ajenas, la alimentacion electrica no es estable y produce retrasos en la puesta en marcha, se valorara aparte.							
						1,00	13.050,34	13.050,34
	TOTAL 03.03.01							**13.050,34**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.03.02	**Integraciones**							
03.03.02.01	**Integracion Variadores (16 Uds)**	**u**						
Int_Var_16	INTEGRACION EN EL SISTEMA DE SUPERVISION de los variadores de Velocidad del edificio comprendiendo mediante protocolo Modbus o Bacnet segun Listado de Puntos Comprende: ò Mapeo de variables, segun documentacion del sistema. ò Diseno de las pantallas graficas de supervision, con puntos de interaccion con el sistema, para el/los puesto/s central/es de control. Se excluye: ò Interface y/o software necesario para la comunicacion mediante protocolos abiertos (Lon, BacNet, Modbus) del sistema que se integra (suministrado por terceros) ò Tarjetas de entradas/salidas del sistema a integrar, cuando sean requeridas ò Documentacion tecnica completa, asi como planos as-buit en soporte informatico, del sistema que se integra. ò Cualquier material y/o trabajo que deba proporcional el suministrador del sistema que se integra.					1,00	1.133,00	1.133,00
	TOTAL 03.03.02							**1.133,00**
	TOTAL 03.03							**14.183,34**
03.04	**Instalacion sistema de control**							
03.04.01	**Instalacion**							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.04.01.01	**u Instalacion y Montaje Clima**							
INSTCLIM82700	MATERIAL Y TRABAJOS PARA CABLEADO Y CONEXIONADO DE LAS INSTALACIONES. Incluye : Instalacion de senales digital de cuadro, conexionando en cuadro electrico y en cuadro de control los estados y las ordenes, con la p.p. de su tubo, cableado y de su puesta en marcha. Instalacion de senal digital de variadores, conexionando en variador de velocidad y en cuadro de control los regulacion 0-10V, estados y las ordenes, con la p.p. de su tubo, cableado y de su puesta en marcha. Instalacion de senal digital / analogica de campo, colocando el elemento de campo (actuador valvula, sonda temperatura etc), con la p.p. de su tubo, cableado y de su puesta en marcha. Instalacion de Fancoils de clima, instalando las 2 valvulas, las tres velocidades, termostato, conexionado de los 230V, bus de comunicacion, con la p.p. de tubo Libre de Halogenos, cable Libre de halogenos, de su puesta en marcha y de su conexionado. Instalacion del Bus Bacnet de comunicaciones, con la p.p. de su tubo de PVC, cableado y de su puesta en marcha y conexionado. Instalacion de Red Ethernet con cable UTP CAT-6 por canalizaciones existentes, con la p.p. de su tubo de PVC, cableado y de su puesta en marcha. Colocacion de cuadros de control a pared, con la p.p. de sus tacos, tornillos, mecanizacion de entrada de tubos. Las salas de produccion y exteriores se realizaran en tubo de acero o bandeja metalica. Zonas vistas con tubo rigido L.H. Falsos techos y empotrados instalacion con tubo coarrugado no propagador de la llama. Se excluye : - Excluye trabajos y materiales para instalacion de elementos de campo en tuberias (instalacion de valvulas, sondas de temperatura/presion, etc). - Excluye cualquier trabajo de obra civil. - Excluye cualquier medio de elevacion y caseta de obra. - Alimentacion electrica a cuadros de control y controladores de unidades terminales - Suministro de bornero adicional en cuadros de control.					1,00	47.322,63	47.322,63
	TOTAL 03.04.01							**47.322,63**
	TOTAL 03.04							**47.322,63**
	TOTAL 03							**111.736,50**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
04	**RED DE EVACUACIÓN DE CONDENSADOS**							
04.01	**DESAGÜE APARATOS**							
04.01.01	**u DESAGÜE PVC C/SIFÓN EN CURVO 40 mm**							
E20WGI040ALM01	Desagüe de PVC individual, consistente en la colocación de un sifón de PVC curvo, fabricado según UNE-EN 1453-1:2017, con salida horizontal de 40 mm de diámetro, y con registro inferior, y conexión de éste mediante tubería de PVC de 40 mm de diámetro, hasta el punto de desagüe existente, instalado, con uniones roscadas o pegadas; y válido para equipos AA, i/p.p. de piezas especiales de PVC. Conforme a CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011							
	P.ALTA	12				12,00		
						12,00	15,34	184,08
	TOTAL 04.01							**184,08**
04.02	**TUBERÍAS**							
04.02.01	**Red de pequeña evacuación**							
04.02.01.01	**m TUBERÍA PP INSONORIZADA TRICAPA D=50 mm**							
E20WTA010	Tubería de polipropileno PP tricapa insonorizada, de 50 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA	83,50				83,50		
						83,50	16,74	1.397,79
04.02.01.02	**m TUBERÍA PP INSONORIZADA TRICAPA D=75 mm**							
E20WTA020	Tubería de polipropileno PP tricapa insonorizada, de 75 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA	71,00				71,00		
						71,00	27,59	1.958,89
04.02.01.03	**m TUBERÍA PP INSONORIZADA TRICAPA D=90 mm**							
E20WTA030	Tubería de polipropileno PP tricapa insonorizada, de 90 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA	3,85				3,85		

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
04.02.01.04	**m TUBERÍA PP INSONORIZADA TRICAPA D=40 mm**							
E20WTA005	Tubería de polipropileno PP tricapa insonorizada, de 40 mm de diámetro, unión con junta EPDM, conforme UNE-EN 1451-1:2018; con una resistencia al fuego B-s1,d0 conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA		165,00			165,00		
						165,00	14,06	2.319,90
	TOTAL 04.02.01							**5.842,71**
04.02.02	**Bajantes**							
04.02.02.01	**m BAJANTE PVC SERIE B JUNTA PEGADA D=90 mm**							
E20WBK010	Bajante de PVC insonorizada, de 90 mm de diámetro, con sistema de unión por enchufe con junta pegada, conforme UNE-EN 1453-1:2017; con una resistencia al fuego B-s1,d0, conforme UNE-EN 13501-1:2019; colocada en instalaciones interiores de evacuación de aguas residuales, con collarín con cierre incorporado. Totalmente montada, i/p.p. de piezas especiales (codos, derivaciones, etc.) y p.p de medios auxiliares. Conforme a CTE DB-HR, RD 1367/2007 y CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011							
	P.ALTA		37,00			37,00		
						37,00	32,85	1.215,45
	TOTAL 04.02.02							**1.215,45**
	TOTAL 04.02							**7.058,16**
04.03	**ARQUETAS**							
04.03.01	**u ARQUETA REGISTRABLE PREFABRICADA HM 70x70x250 cm TAPA ESTANCA**							
E03AHR090ALM01	Arqueta prefabricada registrable de hormigón en masa, estanca, con refuerzo de zuncho perimetral en la parte superior, de 70x70x2,5 cm, medidas interiores, completa: con tapa y marco de hormigón y formación de agujeros para conexiones de tubos. Colocada sobre solera de hormigón en masa HM-20/P/40/X0 de 10 cm de espesor, i/p.p. de medios auxiliares, sin incluir la excavación ni el relleno perimetral posterior, según CTE DB-HS-5. Materiales con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011.							
	P.BAJA		1			1,00		
						1,00	503,53	503,53
	TOTAL 04.03							**503,53**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
04.04	**VARIOS**							
04.04.01	**u SELLADO HUECO INSTAL. MORTERO EI-120**							
E20VFL170N04	Sistema sellado de huecos de paso de instalaciones EI-120 con compuesto de mortero preparado de cemento y áridos ligeros en un espesor de 150 mm. Medida la unidad instalada.							
		2				2,00		
						2,00	8,17	16,34
04.04.02	**u AYUDA ALBAÑILERÍA INST. SANEAMIENTO**							
E20OC010N02	Ayuda de albañilería a instalación de saneamiento incluyendo mano de obra en carga y descarga, materiales, apertura y tapado de rozas, recibidos, remates, canalizaciones y ayudas varias, i/p.p. material auxiliar, limpieza y medios auxiliares.							
		1				1,00		
						1,00	211,92	211,92
	TOTAL 04.04							**228,26**
	TOTAL 04							**7.974,03**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05	**CLIMATIZACIÓN**							
05.01	**CONDUCTOS**							
05.01.01	**Circular**							
05.01.01.01	**TUBO HELIC. CHAPA ACERO GALVANIZADA D=600 mm**	**m**						
E23DCG020ALM01	Conducto formado por tubo helicoidal de chapa de acero galvanizada de 1 mm de espesor, de diámetro 600 mm, conforme a Norma UNE-EN 1506:2007, con panel rígido de alta densidad de lana de vidrio según UNE-EN 14303 revestido por sus dos caras, la exterior con un compledo de aluminio visto + malla de fibra de vidrio y la interior con un velo de vidrio de 25mm de espesor, resistencia térmica 0,75 m"K/W y conductividad térmica 0,032W/(mK) Euroclase B-s1, d0 de reacción al fuego según UNE-EN 13501-1; fijado a paramento o forjado mediante medios mecánicos. Totalmente instalado; i/p.p. de embocaduras, derivaciones, elementos de fijación y piezas especiales, homologado, instalado según CTE DB-HS-3 y RITE (RD 1027/2007). Medido en su longitud.							
	P.ALTA		1.170,55			1.170,55		
						1.170,55	111,32	130.305,63
05.01.01.02	**TUBO HELIC. CHAPA ACERO GALVANIZADA D=750 mm**	**m**						
E23DCG020ALM02	Conducto formado por tubo helicoidal de chapa de acero galvanizada de 1 mm de espesor, de diámetro 750 mm, conforme a Norma UNE-EN 1506:2007, con panel rígido de alta densidad de lana de vidrio según UNE-EN 14303 revestido por sus dos caras, la exterior con un compledo de aluminio visto + malla de fibra de vidrio y la interior con un velo de vidrio de 25mm de espesor, resistencia térmica 0,75 m"K/W y conductividad térmica 0,032W/(mK) Euroclase B-s1, d0 de reacción al fuego según UNE-EN 13501-1; fijado a paramento o forjado mediante medios mecánicos. Totalmente instalado; i/p.p. de embocaduras, derivaciones, elementos de fijación y piezas especiales, homologado, instalado según CTE DB-HS-3 y RITE (RD 1027/2007). Medido en su longitud.							
	P.ALTA		338,33			338,33		
						338,33	135,21	45.745,60
05.01.01.03	**TUBO HELIC. CHAPA ACERO GALVANIZADA D=1250 mm**	**m**						
E23DCG020ALM03	Conducto formado por tubo helicoidal de chapa de acero galvanizada de 1 mm de espesor, de diámetro 1250 mm, conforme a Norma UNE-EN 1506:2007, con panel rígido de alta densidad de lana de vidrio según UNE-EN 14303 revestido por sus dos caras, la exterior con un compledo de aluminio visto + malla de fibra de vidrio y la interior con un velo de vidrio de 25mm de espesor, resistencia térmica 0,75 m"K/W y conductividad térmica 0,032W/(mK) Euroclase B-s1, d0 de reacción al fuego según UNE-EN 13501-1; fijado a paramento o forjado mediante medios mecánicos. Totalmente instalado; i/p.p. de embocaduras, derivaciones, elementos de fijación y piezas especiales, homologado, instalado según CTE DB-HS-3 y RITE (RD 1027/2007). Medido en su longitud.							
	P.ALTA		377,33			377,33		
						377,33	246,10	92.860,91
	TOTAL 05.01.01							**268.912,14**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.01.02	**Rectangular**							
05.01.02.01	**m2 CONDUCTO ISOVER CLIMAVER NETO**							
E23DCF010	Conducto autoportante rectangular para la distribución de aire climatizado formado por Climaver Neto de Isover o SIMILAR, 25 mm de espesor, constituido por un panel de lana mineral hidrofugada, revestido por aluminio (aluminio visto + kraft + malla de refuerzo + velo de vidrio) por el exterior y con un tejido de vidrio negro NETO de alta resistencia mecánica por el interior (tejido Neto), cumpliendo la norma UNE-EN 14303 Productos aislantes térmicos para equipos en edificación e instalaciones industriales. Productos manufacturados de lana mineral (MW), con una conductividad térmica de 0,032 W / (m·K), clase de reacción al fuego Bs1d0, valor de coeficiente de absorción acústica 0,85, clase de estanqueidad D y con marcas guía MTR exteriormente. Totalmente montado, i/p.p. de piezas especiales (codos, transformaciones, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	IMPULSIÓN - P.ALTA		268,15			268,15		
	RETORNO - P.ALTA		354,24			354,24		
						622,39	56,41	35.109,02
	TOTAL 05.01.02							**35.109,02**
	TOTAL 05.01							**304.021,16**
05.02	**REJILLAS**							
05.02.01	**EXPULSIÓN**							
05.02.01.01	**Ud Toma de aire 210-TA 2000x1000**							
210TA200X100	Suministro e instalación de toma de aire exterior o expulsión de aire con malla metállica, marca KOOLAIR, modelo 210-TA, dimensiones 2000x1000 mm o EQUIVALENTE. No permite el paso de agua de lluvia, nieve, etc, ya que está diseñada principalmente para su instalación en intemperie. Se suministra con malla antipájaros o antiinsectos. Fabricado en aluminio extruido. Acabado en aluminio natural. Incorpora en el cuello del bastidor patillas de anclaje para recibir en obra y compuerta de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.							
	P.ALTA		12			12,00		
						12,00	333,72	4.004,64
	TOTAL 05.02.01							**4.004,64**

PRESUPUESTO Y MEDICIONES

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.02.02	**TOMA**							
05.02.02.01	**Ud Toma de aire 210-TA 2000x1000**							
210TA200X100	Suministro e instalación de toma de aire exterior o expulsión de aire con malla metállica, marca KOOLAIR, modelo 210-TA, dimensiones 2000x1000 mm o EQUIVALENTE. No permite el paso de agua de lluvia, nieve, etc, ya que está diseñada principalmente para su instalación en intemperie. Se suministra con malla antipájaros o antiinsectos. Fabricado en aluminio extruido. Acabado en aluminio natural. Incorpora en el cuello del bastidor patillas de anclaje para recibir en obra y compuerta de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.							
	P.ALTA	12				12,00		
						12,00	333,72	4.004,64
	TOTAL 05.02.02							**4.004,64**
05.02.03	**RETORNO**							
05.02.03.01	**Ud Rejilla retorno 22-5-MM 1000x2000**							
RR22-5 100X200	Suministro y montaje de rejilla de retorno de retícula, marca KOOLAIR, modelo 22-5-MM o EQUIVALENTE, de dimensiones 1000x2000 mm, para retorno de aire. Acabado estándar aluminio anodizado natural mate. Incluye suministro de marco metálico de montaje y compuerta de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.							
	P.ALTA	12				12,00		
						12,00	224,46	2.693,52
	TOTAL 05.02.03							**2.693,52**
	TOTAL 05.02							**10.702,80**
05.03	**TOBERAS**							
05.03.01	**Ud Difusor de largo alcance DF-49-A-TR-12**							
DF49TR12	Suministro e instalación de tobera termorregulable de largo alcance de acoplamiento recto, marca KOOLAIR, modelo DF-49-A-TR-12 o EQUIVALENTE. La variación del ángulo de impulsión (±30º) se realiza mediante un elemento térmico autorregulado con la temperatura de impulsión. Incorpora embellecedor exterior, para impedir la visión de los tornillos de fijación. Fabricado en aluminio. Acabado en color RAL a definir por Dirección Facultativa. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material.							
	P.ALTA	420				420,00		
						420,00	399,42	167.756,40

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	TOTAL 05.03							**167.756,40**
05.04	**COMPUERTAS REGULACIÓN**							
05.04.01	**Ud Regulador caudal constante RCCK-400**							
RCCK-400	Regulador de caudal de aire constante, marca KOOLAIR o EQUIVALENTE, modelo RCCK-D, de sección circular de 400 mm de diámetro, para impulsión o retorno de aire. Automecánico, sin necesidad de energía exterior, garantizando un caudal de aire constante independientemente de las variaciones de presión que sufra el sistema. Envolventes y compuerta de chapa de acero galvanizado. Aporta el caudal requerido con una elevada exactitud, fácilmente ajustable a otros volúmenes de aire en obra. Presión de entrada mínima necesaria de 50 Pa. Puede instalarse en posición horizontal o vertical. Incorpora aislamiento termoacústico de espesor 50 mm. Los reguladores de caudal constante, modelo RCCK, cumplen con las especificaciones según normativa EN 1751 obteniendo clase “C” en el ensayo de estanquidad a través de la envolvente de la unidad de regulación. Conforme a CTE DB-HS-3, NTE-ICI-25 y RITE (RD 1027/2007). Totalmente montado, i/p.p. de piezas especiales y p.p de pequeño material y medios auxiliares							
	P.ALTA	24				24,00		
						24,00	242,16	5.811,84
	TOTAL 05.04							**5.811,84**
05.05	**TUBERÍAS POLIPROPILENO PP-R**							
05.05.01	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 50 mm**							
TNIRCL5011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 50 mm y 4,6 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL5011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011. .							
	P.ALTA (AC)	1	369,45			369,45		

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CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
						369,45	17,96	6.635,32
05.05.02	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 63 mm**							
TNIRCL6311	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 63 mm y 5,8 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL6311 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AC)	1	116,39			116,39		
						116,39	23,63	2.750,30

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.05.03	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 75 mm**							
TNIRCL7511	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 75 mm y 6,8 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL7511 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AC)	1	165,50			165,50		
						165,50	29,80	4.931,90
05.05.04	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 90 mm**							
TNIRCL9011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 90 mm y 8,2 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL9011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	P.ALTA (AF)		349,36			349,36		
	P.ALTA (AC)		168,73			168,73		
						518,09	41,11	21.298,68
05.05.05	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 110 mm**							
TNIRCL11011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 110 mm y 10,0 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL11011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AC)		8,43			8,43		
						8,43	60,23	507,74

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.05.06	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 125 mm**							
TNIRCL12511	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 125 mm y 11,4 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL12511 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AC)		51,11			51,11		
						51,11	75,15	3.840,92

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.05.07	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 160 mm**							
TNIRCL16011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 160 mm y 14,6 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL16011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AF)		171,16			171,16		
						171,16	114,79	19.647,46

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.05.08	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 200 mm**							
TNIRCL20011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 200 mm y 18,2 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL20011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AF)		168,73			168,73		
						168,73	215,39	36.342,75

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.05.09	**m Climatización con tubería PP-R RP Compuesto con FV: NIRON CLIMA SDR 11/ Serie 5, D= 250 mm**							
TNIRCL25011	Suministro y montaje de tubo NIRON CLIMA compuesto de polipropileno copolímero random PP-R RP con fibra de vidrio (1/4)PP-R // (2/4)PP-R+FV // (1/4)PP-R, SDR 11 serie 5 de diámetro 250 mm y 22,7 mm de espesor. Tubería fabricada y certificada según Reglamento Particular de Aenor RP 01.78, accesorios fabricados y certificados según norma UNE EN 15874-3 y sistema de unión por termofusión, inserciones incorporadas y electrofusión según AENOR. Certificado de potabilidad Aimplas según RD 140/2003. Incluida p/p de accesorios y material auxiliar para montaje y sujeción para uso en instalaciones de climatización (sistemas agua/agua, agua/aire) y refrigeración industrial con agua glicolada, con temperaturas comprendidas entre -15 °C y 95 °C. Instalado con abrazaderas isofónicas Niron de goma lisa, según norma UNE EN 806-4. Espesor de aislamiento térmico conforme a RITE calculado mediante procedimiento alternativo según criterios de la norma UNE EN ISO 12241. Certificado según ISO 14001 y Declaración Ambiental de Producto (DAP). Presentación en barra de 4 m, color azul Niron con banda azul Niron Clima, ref. TNIRCL25011 de la serie Niron de ITALSAN o EQUIVALENTE. Totalmente montada, i/p.p. de piezas especiales (codos, manguitos, etc) y p.p de medios auxiliares. Conforme a CTE DB-HS-4. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
	P.ALTA (AF)	56,98				56,98		
						56,98	324,26	18.476,33
	TOTAL 05.05							**114.431,40**
05.06	**AISLAMIENTO DE COQUILLA DE ESPUMA ELASTOMÉRICA**							
05.06.01	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=50 mm SH/ARMAFLEX® - INTERIOR**							
E22OC120N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 50 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AC)	369,45				369,45		
						369,45	42,42	15.672,07

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.06.02	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=63 mm SH/ARMAFLEX® - INTERIOR**							
E22OC140N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 63 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AC)		116,39			116,39		
						116,39	46,16	5.372,56
05.06.03	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=75 mm SH/ARMAFLEX® - INTERIOR**							
E22OC150N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 75 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AC)	1	165,50			165,50		
						165,50	49,58	8.205,49
05.06.04	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=90 mm SH/ARMAFLEX® - INTERIOR**							
E22OC160N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 90 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AF)	1	349,36			349,36		
	P.ALTA (AC)	1	168,73			168,73		
						518,09	52,87	27.391,42

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.06.05	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=110 mm SH/ARMAFLEX® - INTERIOR**							
E22OC170N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 110 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AC)	1	8,43			8,43		
						8,43	61,02	514,40
05.06.06	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=125 mm SH/ARMAFLEX® - INTERIOR**							
E22OC190N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 125 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AF)	1	111,64			111,64		
	P.ALTA (AC)	1	51,11			51,11		
						162,75	64,88	10.559,22
05.06.07	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=160 mm SH/ARMAFLEX® - INTERIOR**							
E22OC200N01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 160 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AF)	1	171,16			171,16		
						171,16	84,52	14.466,44

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.06.08	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=200 mm SH/ARMAFLEX® - INTERIOR**							
E22OC200N01ALM01	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 200 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AF)	1	168,73			168,73		
						168,73	114,61	19.338,15
05.06.09	**m COQUILLA ESPUMA ELASTOMÉRICA 40 mm D=250 mm SH/ARMAFLEX® - INTERIOR**							
E22OC200N01ALM02	Aislamiento térmico flexible de célula cerrada para tuberías de diámetro exterior máximo de 250 mm a base de coquilla de espuma elastomérica flexible (FEF) SH/Armaflex® o EQUIVALENTE, para instalaciones de calefacción en interior, con protección antimicrobiana Microban® incorporada y declaración ambiental de producto tipo III (EPD), conductividad térmica (lambda) 10ºC = 0,037 W/(m·K), clasificación al fuego BL-s3,d0, de espesor 40 mm según RITE (RD 1027/2007), incluso pegado de uniones, parte proporcional de elementos singulares, soportes y accesorios. Producto con marcado CE. Totalmente instalado, i/p.p. de material de sellado y medios auxiliares.							
	P.ALTA (AF)	1	56,98			56,98		
						56,98	135,03	7.694,01
	TOTAL 05.06							**109.213,76**
05.07	**VALVULERÍA CLIMATIZACIÓN POR AGUA**							
05.07.01	**Válvulas de mariposa**							
05.07.01.01	**u VÁLVULA MARIPOSA DN 50mm C/REDUCTOR**							
E22NVM040N01ALM02	Válvula de mariposa PN-16 de 50mm DN", con reductor, con cuerpo de latón fabricada conforme UNE-EN 12165:2017. Completamente instalada, probada y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.ALTA (AC)	36				36,00		
						36,00	51,23	1.844,28
05.07.01.02	**u VÁLVULA MARIPOSA DN 80mm C/REDUCTOR**							
E22NVM040N01ALM01	Válvula de mariposa PN-16 de 80mm DN", con reductor, con cuerpo de latón fabricada conforme UNE-EN 12165:2017. Completamente instalada, probada y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.ALTA (AF)	36				36,00		
						36,00	63,86	2.298,96
	TOTAL 05.07.01							**4.143,24**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.07.02	**Válvula de equilibrado**							
05.07.02.01	**u VÁLVULA EQUILIBRADO ASIENTO DN50**							
E22MUV030ALM04	Suministro y colocación de válvula de equilibrado, tipo asiento, de 50mm de diámetro nominal, de fundición nodular IMI TA (STAD) o EQUVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.							
	P.ALTA (AC)	12				12,00		
						12,00	206,18	2.474,16
05.07.02.02	**u VÁLVULA EQUILIBRADO ASIENTO DN80**							
E22MUV030ALM02	Suministro y colocación de válvula de equilibrado, tipo asiento, de 80mm de diámetro nominal, de fundición nodular IMI TA (STAF-SG) o EQUVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.							
	P.ALTA (AF)	12				12,00		
						12,00	670,51	8.046,12
05.07.02.03	**u VÁLVULA EQUILIBRADO ASIENTO DN150**							
E22MUV030ALM03	Suministro y colocación de válvula de equilibrado, tipo asiento, de 150mm de diámetro nominal, de fundición nodular IMI TA (STAF-SG) o EQUVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.							
	P.ALTA (AC)	1				1,00		
						1,00	1.871,20	1.871,20
05.07.02.04	**u VÁLVULA EQUILIBRADO ASIENTO DN250**							
E22MUV030ALM01	Suministro y colocación de válvula de equilibrado, tipo asiento, de 250mm de diámetro nominal, de fundición nodular IMI TA (STAF-SG) o EQUVALENTE, para temperaturas comprendidas entre -10º y 120º C, con tomas de presión para determinación de caudal; colocada mediante unión roscada, totalmente instalada y funcionando. Conforme a RITE (RD 1027/2007) y CTE DB-HE-4.							
	P.ALTA (AF)	1				1,00		
						1,00	4.419,02	4.419,02
	TOTAL 05.07.02							**16.810,50**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.07.03	**Vaso de Expansión**							
05.07.03.01	**u VASO EXPANSIÓN CALEFACCIÓN 1.000 litros**							
E22NEC140	Vaso de expansión para circuito de calefacción cerrado, de 1.000 litros de capacidad; para una temperatura del agua de entre -10 y 130 ºC, presión máxima 6 bar. Con membrana fija no recambiable según UNE-EN 13831:2008. Conexión a 1". Conexión a 3/4". Incluso válvula de seguridad con grifo de vaciado. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.BAJA (AC)	1				1,00		
						1,00	2.706,18	2.706,18
05.07.03.02	**u VASO EXPANSIÓN CALEFACCIÓN 800 litros**							
E22NEC130	Vaso de expansión para circuito de calefacción cerrado, de 800 litros de capacidad; para una temperatura del agua de entre -10 y 130 ºC, presión máxima 6 bar. Con membrana fija no recambiable según UNE-EN 13831:2008. Conexión a 1". Conexión a 3/4". Incluso válvula de seguridad con grifo de vaciado. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.BAJA (AF)	1				1,00		
						1,00	2.300,94	2.300,94
	TOTAL 05.07.03							**5.007,12**
05.07.04	**Colectores**							
05.07.04.01	**u COLECTOR ACERO NEGRO SIN SOLDADURA 1 ENTRADA 3 SALIDAS 3m DN250**							
E22NC310ALM01	(Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 250 mm de diámetro y 6,3 mm de espesor, de 3 m de longitud, con 1 conexión de entrada (DN160) y 3 conexiones de salida (2 de DN125 y 1 de DN90), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.BAJA (AF)	1				1,00		
						1,00	946,10	946,10

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.07.04.02	**u COLECTOR ACERO NEGRO SIN SOLDADURA 1 ENTRADA 3 SALIDAS 3m DN550**							
E22NC310ALM04	(Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 550 mm de diámetro y 11 mm de espesor, de 3 m de longitud, con 1 conexión de entrada (DN314) y 3 conexiones de salida (2 de DN250 y 1 de DN160), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.BAJA (AC)	1				1,00		
						1,00	2.460,68	2.460,68
05.07.04.03	**u COLECTOR ACERO NEGRO SIN SOLDADURA 2 ENTRADA 2 SALIDAS 3m DN600**							
E22NC310ALM02	Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 600 mm de diámetro y 12 mm de espesor, de 3 m de longitud, con 2 conexión de entrada (DN 160) y 2 conexiones de salida (DN 160), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.BAJA (AF)	1				1,00		
						1,00	2.748,17	2.748,17
05.07.04.04	**u COLECTOR ACERO NEGRO SIN SOLDADURA 2 ENTRADA 2 SALIDAS 4.6m DN1000**							
E22NC310ALM03	Suministro y colocación de colector de distribución de agua formado por tubo de acero negro estirado sin soldadura, de DN 1000 mm de diámetro y 18 mm de espesor, de 4.6 m de longitud, con 2 conexión de entrada (DN 315) y 2 conexiones de salida (DN 315), con plancha flexible de espuma elastomérica, a base de caucho sintético flexible, de estructura celular cerrada, con un elevado factor de resistencia a la difusión del vapor de agua, de 50 mm de espesor. Incluso manómetro, termómetros, anclajes, soportes de tubería aislados, accesorios y piezas especiales para conexiones.. Completamente instalado, probado y funcionando; i/p.p. de pequeño material y medios auxiliares, conforme RITE (RD 1027/2007) y CTE DB-HE-2. Materiales con marcado CE y DdP (declaración de prestaciones) según Reglamento UE 305/2011.							
	P.BAJA (AC)	1				1,00		
						1,00	5.660,49	5.660,49
	TOTAL 05.07.04							**11.815,44**
	TOTAL 05.07							**37.776,30**

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.08	**UTAS**							
05.08.01	**u CLIMATIZADOR 30.514 M3/H 39YA- 8.6 MARCA CARRIER O EQUIVALENTE**							
UTA1 PA	SUMINISTRO E INSTALACIÓN DE CLIMATIZADOR DE 30.514 m³/h MARCA CARRIER MODELO 39YA- 8.6 O EQUIVALENTE, CERTIFICADO EUROVENT (EN 1886) D1/L1/F9/T2/TB2. INCLUYE: BATERÍA DE FRÍO Y CALOR, VENTILADORES, RECUPERADOR ROTATIVO, HUMECTADOR, COMPUERTAS, PRE-FILTRO Y FILTRO DE IMPULSIÓN/RETORNO, CUADRO DE FUERZA Y CONTROL CON LAS PROTECCIONES INDIVIDUALES Y CONTACTORES DE MOTORES, INTERFACE DE CONTROL CON PANTALLA DIGITAL, CON LAS SIGUIENTES CARACTERÍSTICAS: - CAUDAL AIRE: 30.514 m³/h - CAPACIDAD REFRIGERACIÓN: 95,12 kW - TEMPERATURA FLUIDO ENTRADA: 7,0 ºC - TEMPERATURA FLUIDO SALIDA: 12,0 ºC - CAUDAL AGUA FRÍA: 6,13 l/s - CAPACIDAD CALEFACCIÓN: 20,46 kW - TEMPERATURA FLUIDO ENTRADA: 45,0 ºC - TEMPERATURA FLUIDO SALIDA: 40,0 ºC - CAUDAL AGUA CALIENTE: 0,99 l/s - PESO MÁX: 3.325 kg - DIMENSIONES MÁX: 5410 X 2727 X 3614 mm - TENSIÓN: 400V INCLUYE ADEMÁS LO SIGUIENTE: - CONTROL E INSTRUMENTACIÓN INSTALADO EN EL INTERIOR DEL CLIMATIZADOR. CON COMUNICACIÓN CON BMS EN BACNET IP. - KIT VÁLVULAS Y ACTUADORES DEL CLIMATIZADOR. SE INCLUYE PEQUEÑO MATERIAL Y MEDIOS AUXILIARES PARA LA CORRECTA INSTALACIÓN Y PUESTA EN MARCHA. ADEMÁS, SE INCLUYE MONTAJE 'IN SITU' DE LA UTA EN EL CUARTO TÉCNICO CORRESPONDIENTE. INCLUYE MALLAS ANTIPÁJAROS EN LA ADMISIÓN Y EXPULSIÓN DE AIRE, APOYOS SILENBLOC DE MUELLE DE HASTA 350 KG Y PERFILERÍAS METÁLICAS PARA SOPORTACIÓN ADECUADA ENTRE LA ESTRUCTURA EXISTENTE. TOTALMENTE INSTALADO Y FUNCIONANDO							
	Alta	12				12,00		
						12,00	59.840,97	718.091,64
05.08.02	**u INTEGRACIÓN CONTROLES UTAS**							
INTEGRA	Colaboración en la integración del control de la UTA en un BMS del cliente cuando se contemplen entre 16 y 25 puntos de control (sin contar GENERALES). Se incluye configuración y prueba de la tarjeta de comunicación UTA-BMS y verificación del mapa de variables para integración. Totalmente funcionando.							
	Actuación	12				12,00		
						12,00	698,46	8.381,52

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.08.03	**u PUESTA EN MARCHA**							
PUESTAMARCHA	Trabajos de puesta en marcha para Unidad de Tratamiento de Aire de 16 a 25 puntos de control (sin contar GENERALES). Se incluye configuración y prueba de tarjeta de comunicación UTA-BMS, si la hubiera. No incluye soporte al integrador en la integración del mapa de variables a supervisar. Totalmente terminada y funcionando.							
	Actuación	12				12,00		
						12,00	754,73	9.056,76
	TOTAL 05.08							**735.529,92**
05.09	**BOMBAS**							
05.09.01	**BOMBA WILO PLANTA ALTA CALOR**							
EALTACALOR	Bomba centrífuga de rotor seco de una etapa en diseño monobloc para el montaje sobre bancada, de la marca Wilo o equivalente, modelo BL-E100/190-5,5/4 PG3, con convertidor de frecuencia integrado para la regulación electrónica de, entre otros, una presión diferencial constante o variable (Äp-c/Äp-v). Diseño - Bomba centrífuga de baja presión de una etapa - Carcasa espiral en diseño monobloc con dimensiones de brida y cárter de conformidad con la norma DIN EN 733 y bridas PN 16 de conformidad con la norma EN 1092-2 - Construcción monobloc silenciosa y sin vibraciones con linterna, pie en la carcasa de la bomba y motor estándar unido de forma rígida (motor normalizado) - Todos los componentes de fundición gris de serie con revestimiento por cataforesis - Cierre mecánico de fuelle de inundación forzada e independiente del sentido de giro y rodete reductor de la cavitación - Cierre mecánico para el bombeo de agua hasta Tmax. = +140 °C. Hasta T . +40 °C está permitido un aditivo de glicol de un 20 %…40 % de proporción en volumen. Se debe prever un cierre mecánico alternativo en mezclas agua-glicol con una proporción de glicol > 40 % hasta como máx. un 50 % de proporción en volumen y una temperatura del fluido > +40 °C hasta como máx. +120 °C u otros fluidos distintos al agua. En caso de utilizarse mezclas agua-glicol, se recomienda de forma general usar una variante S1 con el cierre mecánico correspondiente. Equipo de serie Pantalla de la bomba para indicar: - Modo de regulación Äp-c (presión diferencial constante), Äp-v (presión diferencial variable), regulador PID, n-constant (modo de control) - Valor de consigna (p. ej., presión diferencial o velocidad). - Mensajes de fallo y de advertencia - Valores reales (p. ej., el consumo de potencia, el valor real del sensor). - Datos de funcionamiento (p.ej., las horas de funcionamiento, el consumo							

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE

de energía).
- Datos de estado (p. ej., el estado del relé SSM y SBM).
- Datos del aparato (p. ej., el nombre de la bomba).
- Modo de funcionamiento (únicamente en caso de utilizar pieza de unión: funcionamiento
principal/reserva, funcionamiento en paralelo)
Nivel de mando manual mediante un botón para:
- Bomba ON/OFF
- Ajuste del valor de consigna y de la velocidad
- Selección del modo de funcionamiento y regulación
- Configuración de los parámetros de funcionamiento
- Confirmación de fallo
Funciones adicionales
- Interfaces: Entrada de control "Prioridad OFF", entrada analógica 0-10 V, 2–10 V, 0-20 mA, 4-20
mA para modo manual (DDC) o para la regulación a distancia del valor de consigna, interfaz de
infrarrojos para la comunicación inalámbrica con el dispositivo de mando y servicio del IRStick/
monitor IR de Wilo, punto de conexión para módulos IF de Wilo para conectar a la Gestión
Técnica Centralizada, indicación de disposición/de funcionamiento y avería configurable y libre de
tensión
- Motor trifásico con convertidor de frecuencia.
- Gestión de bombas dobles integrada
- Protección total del motor integrada (termistor) con sistema electrónico de disparo
- Orificios de serie para salida de condensado en la carcasa del motor (cerrados en el momento de
la entrega)
- Modos de funcionamiento distintos para aplicaciones de calefacción (HV) o aplicaciones de
climatización (AC)
- Bloqueo de acceso a la bomba
- Distintos niveles de mando: Estándar/Servicio

Datos de funcionamiento
Fluido: Agua 100 %
Temperatura del fluido: 50.00 °C
Caudal: 9.21 l/s
Altura de impulsión: 9.13 m
Temperatura mínima del fluido: -20 °C
Temperatura máxima del fluido: 140 °C
Temperatura ambiente mínima: 0 °C
Temperatura ambiente máxima: 40 °C
Presión máxima de trabajo: 16 bar
Indicación para el dimensionamiento:
Índice de eficiencia mínima (MEI): . 0.4
Accionamiento
Alimentación eléctrica: 3~400V/50 Hz
Clase de eficiencia energética del motor: IE4

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MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	Consumo de potencia: 6300 W Potencia nominal del motor: 5.5 kW Intensidad nominal: 10.3 A Velocidad máxima: 1460 1/min Emisión de interferencias: EN 61800-3 Resistencia a interferencias: EN 61800-3 Clase de aislamiento: F Tipo de protección del motor: IP55 Protección de motor: Sensor PTC integrado Materiales Carcasa de la bomba: 5.1301, EN-GJL-250 con revestimiento por catafore-sis Rodete: EN-GJL-200 Eje: 1.4122 Junta del eje: AQ1EGG Linterna: Dimensiones de instalación Conexión de tubería del lado de aspiración: DN 125, PN 16 Conexión de tubería del lado de impulsión: DN 100, PN 16 Incluye Módulo de comunicación Modbus RTU PG14. Incluye apoyos si-lenbloc de nepreno de hasta 200 kg. Totalmente instalada y funcionando.							
	Baja	2				2,00		
						2,00	7.582,09	15.164,18
05.09.02	**BOMBA WILO PLANTA ALTA FRÍO**							
EALTAFRIO	Bomba centrífuga de rotor seco de una etapa en diseño monobloc para el montaje sobre bancada, de la marca Wilo o equivalente, modelo BL-E100/200-7,5/4 PG3, con convertidor de frecuencia integrado para la regulación electrónica de, entre otros, una presión diferencial constante o variable (Äp-c/Äp-v). Diseño - Bomba centrífuga de baja presión de una etapa - Carcasa espiral en diseño monobloc con dimensiones de brida y cárter de conformidad con la norma DIN EN 733 y bridas PN 16 de conformidad con la norma EN 1092-2 - Construcción monobloc silenciosa y sin vibraciones con linterna, pie en la carcasa de la bomba y motor estándar unido de forma rígida (motor normalizado) - Todos los componentes de fundición gris de serie con revestimiento por cataforesis - Cierre mecánico de fuelle de inundación forzada e independiente del sen-tido de giro y rodete reductor de la cavitación - Cierre mecánico para el bombeo de agua hasta Tmax. = +140 °C. Hasta T . +40 °C está permitido un aditivo de glicol de un 20 %…40 % de proporción en volu-men. Se debe prever un cierre mecánico alternativo en mezclas agua-glicol con una proporción de glicol > 40 % hasta como máx. un 50 % de proporción en volumen y una temperatura del flui-							

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE

do > +40 °C hasta como
máx. +120 °C u otros fluidos distintos al agua. En caso de utilizarse mezclas agua-glicol, se
recomienda de forma general usar una variante S1 con el cierre mecánico correspondiente.
Equipo de serie
Pantalla de la bomba para indicar:
- Modo de regulación Äp-c (presión diferencial constante), Äp-v (presión diferencial variable),
regulador PID, n-constant (modo de control)
- Valor de consigna (p. ej., presión diferencial o velocidad).
- Mensajes de fallo y de advertencia
- Valores reales (p. ej., el consumo de potencia, el valor real del sensor).
- Datos de funcionamiento (p.ej., las horas de funcionamiento, el consumo de energía).
- Datos de estado (p. ej., el estado del relé SSM y SBM).
- Datos del aparato (p. ej., el nombre de la bomba).
- Modo de funcionamiento (únicamente en caso de utilizar pieza de unión: funcionamiento
principal/reserva, funcionamiento en paralelo)
Nivel de mando manual mediante un botón para:
- Bomba ON/OFF
- Ajuste del valor de consigna y de la velocidad
- Selección del modo de funcionamiento y regulación
- Configuración de los parámetros de funcionamiento
- Confirmación de fallo
Funciones adicionales
- Interfaces: Entrada de control "Prioridad OFF", entrada analógica 0-10 V, 2–10 V, 0-20 mA, 4-20
mA para modo manual (DDC) o para la regulación a distancia del valor de consigna, interfaz de
infrarrojos para la comunicación inalámbrica con el dispositivo de mando y servicio del IRStick/
monitor IR de Wilo, punto de conexión para módulos IF de Wilo para conectar a la Gestión
Técnica Centralizada, indicación de disposición/de funcionamiento y avería configurable y libre de
tensión
- Motor trifásico con convertidor de frecuencia.
- Gestión de bombas dobles integrada
- Protección total del motor integrada (termistor) con sistema electrónico de disparo
- Orificios de serie para salida de condensado en la carcasa del motor (cerrados en el momento de
la entrega)
- Modos de funcionamiento distintos para aplicaciones de calefacción (HV) o aplicaciones de
climatización (AC)
- Bloqueo de acceso a la bomba
- Distintos niveles de mando: Estándar/Servicio

Datos de funcionamiento

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	Fluido: Agua 100 % Temperatura del fluido: 7.00 °C Caudal: 55.40 l/s Altura de impulsión: 7.88 m Temperatura mínima del fluido: -20 °C Temperatura máxima del fluido: 140 °C Temperatura ambiente mínima: 0 °C Temperatura ambiente máxima: 40 °C Presión máxima de trabajo: 16 bar Indicación para el dimensionamiento: Índice de eficiencia mínima (MEI): . 0.4 Accionamiento Alimentación eléctrica: 3~400V/50 Hz Clase de eficiencia energética del motor: IE4 Consumo de potencia: 6300 W Potencia nominal del motor: 5.5 kW Intensidad nominal: 10.3 A Velocidad máxima: 1460 1/min Emisión de interferencias: EN 61800-3 Resistencia a interferencias: EN 61800-3 Clase de aislamiento: F Tipo de protección del motor: IP55 Protección de motor: Sensor PTC integrado Materiales Carcasa de la bomba: 5.1301, EN-GJL-250 con revestimiento por catafore-sis Rodete: EN-GJL-200 Eje: 1.4122 Junta del eje: AQ1EGG Linterna: Dimensiones de instalación Conexión de tubería del lado de aspiración: DN 125, PN 16 Conexión de tubería del lado de impulsión: DN 100, PN 16 Incluye Módulo de comunicación Modbus RTU PG14. Incluye apoyos si-lenbloc de nepreno de hasta 200 kg. Totalmente instalada y funcionando.							
	Baja	2				2,00		
						2,00	8.379,31	16.758,62
	TOTAL 05.09							**31.922,80**
05.10	**BANCADAS PARA BOMBAS UTAS DE P.BAJA Y EXTRACTORES**							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.10.01	**m2 BANCADA DE EQUIPOS DE CLIMATIZACIÓN**							
E23PAC010N01ALM01	Bancada de planta baja para soporte de equipos de climatización, bombas y extractores de incendios. Formada por: - Cubículo de tabicón de ladrillo cerámico hueco doble 24x11,5x7 cm, recibido con mortero de cemento CEM II/B-M 32,5 N y arena de río, tipo M-5, preparado en central y suministrado a pie de obra, para revestir. - Recrecido del soporte de pavimentos con mortero CT-C5 F-2 de cemento CEM II/B-P 32,5 N y arena de río (M-5) de 5 cm de espesor. - Aislamiento acústico al ruido de impacto de forjados mediante lámina antiimpacto de 4 mm compuesto por lámina de nopreno. - Recrecido del soporte de pavimentos con mortero CT-C2,5 F-2 de cemento CEM II/B-P 32,5 N y arena de río (M-2,5) de 4 cm de espesor. - Aislamiento con paneles de lana mineral no hidrófila y sin recubrimiento de 100 mm de espesor. - Se incluyen soportes anivibratorios tipo Silentblock de resorte. Incluso replanteo, nivelación y aplomado, rejuntado, limpieza y medios auxiliares. Según UNE-EN 998-2:2018, RC-16, NTE-PTL y CTE DB-SE-F. Materiales con marcado CE y DdP (Declaración de prestaciones) según Reglamento (UE) 305/2011.							
	BOMBAS (AF)		6,41			6,41		
	BOMBAS (AC)		6,41			6,41		
						12,82	67,56	866,12
	TOTAL 05.10							**866,12**
05.11	**VARIOS**							
05.11.01	**u AYUDA ALBAÑILERÍA INST. CLIMATIZACIÓN**							
E23C100N02	Ayuda de albañilería a instalación de climatización incluyendo mano de obra en carga y descarga, materiales, apertura y tapado de rozas, recibidos, remates, canalizaciones y ayudas varias, i/p.p. material auxiliar, limpieza y medios auxiliares.							
			1			1,00		
						1,00	320,52	320,52
05.11.02	**u SELLADO HUECO INSTAL. MORTERO EI-120**							
E20VFL170N04	Sistema sellado de huecos de paso de instalaciones EI-120 con compuesto de mortero preparado de cemento y áridos ligeros en un espesor de 150 mm. Medida la unidad instalada.							
			7			7,00		
						7,00	8,17	57,19

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05.11.03	**u DOCUMENTACIÓN DE OBRA, PRUEBAS, ENSAYOS Y LEGALIZACIÓN**							
E17SGA010N03	Documentación de obra, prueba, ensayos y legalización de la instalación..							
	Comprobación de la instalación comprendiendo la totalidad de pruebas y ensayos de acuerdo con la Normativa vigente y las contempladas en el Pliego de Condiciones de este proyecto.							
	Identificación y etiquetado de todas las tomas, tanto en armarios como en puestos de trabajo, de acuerdo con las especificaciones contempladas en el Pliego de Condiciones e instrucciones de la Dirección Facultativa.							
	Elaboración y entrega de la documentación de obra de la instalación de cableado estructurado según Pliego de Condiciones e instrucciones de la Dirección Facultativa a la propia Dirección Facultativa, comprendiendo:							
	- Dos ejemplares completos del Proyecto de Ejecución de la Instalación, en papel, puesto al día con Memoria, Medición y Planos, en exacta correspondencia con las instalaciones realizadas.							
	- Una colección de dicho proyecto en soporte informático.							
	- Dos ejemplares del Esquema de Principio de la Instalación en tamaño DIN A-1 como mínimo, debidamente coloreados, plastificados y enmarcados.							
	- Fotocopias de todos los certificados y resguardos de presentación en los Organismos Oficiales necesarios para dejar en total y perfecta legalidad la instalación realizada.							
	- Libro de Mantenimiento de acuerdo con la normativa vigente.							
	- Ejemplares de la documentación de las partidas que conforman la instalación que incluya documentos de origen, hoja de suministro y etiquetado, certificados de garantía del fabricante, documentos de conformidad o autorizaciones administrativas exigidas reglamentariamente, incluida en su caso el marcado CE de los productos de construcción. Esta documentación comprenderá además los manuales de instrucciones y normas de seguridad de toda la maquinaria que conforme la instalación. Toda esta documentación se entregará en papel y en formato digital.							
	- Un ejemplar en papel y otro en formato digital con los resultados obtenidos de todas las pruebas realizadas, con especificación de todos los valores obtenidos.							
	Legalización de la instalación, incluyendo la preparación y visados de proyectos en el Colegio Profesional correspondiente y la presentación y seguimiento hasta buen fin de los expedientes ante Servicios Territoriales de Industria y Entidades Colaboradoras, incluso el abono de las tasas correspondientes. Se incluyen todos los trámites administrativos que haya que realizar con cualquier organismo oficial para llevar a buen término las instalaciones de este capítulo.							
		2				2,00		
						2,00	257,50	515,00

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	TOTAL 05.11							**892,71**
	TOTAL 05							**1.518.925,21**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
06	**TELECOMUNICACIONES**							
06.01	**CABLEADO**							
06.01.01	**Cableado fibra óptica**							
06.01.01.01	**CABLEADO VERTICAL MONOMODO DE 8 FIBRAS**	**m**						
E19IF020N01	Cableado vertical (backbone) de fibra monomodo, formado por cable de 8 fibras ópticas monomodo con refuerzo de aramida y cubierta de LSZH Cca-a1-d0-a1, no propagador de la llama y baja emisión de humos, en montaje en canal o bandeja. Estándar 100 BASE-FX y 1000 BASE FX. Instalado y conexionado. Conforme ANSI/TIA/EIA 568-C.3, ISO/IEC 11801:2017 y UNE-EN 50173-1:2018. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011.							
			200,00			200,00		
						200,00	6,00	1.200,00
	TOTAL 06.01.01							**1.200,00**
	TOTAL 06.01							**1.200,00**
	TOTAL 06							**1.200,00**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
07	**GESTIÓN DE RESIDUOS**							
07.01	**Ud GESTIÓN DE RESIDUOS GENERADOS DURANTE LA OBRA**							
G03BA071PN	Gestión de los residuos generados durante el trascurso de las obras incluyendo clasificación, carga y transporte a gestores autorizados. Incluso costes de gestión y medios auxiliares.							
		1				1,00		
						1,00	12.284,26	12.284,26
	TOTAL 07							**12.284,26**

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08	**SEGURIDAD Y SALUD**							
08.01	**INSTALACIONES DE BIENESTAR**							
08.01.01	**mes ALQUILER CASETA ALMACÉN**							
S01B080	Mes de alquiler de caseta prefabricada para almacén de 12 m2. Estructura de acero galvanizado. Cubierta y cerramiento lateral de chapa galvanizada trapezoidal de 0,6 mm reforzada con perfiles de acero, interior prelacado. Suelo de aglomerado hidrófugo de 19 mm puerta de acero de 1 mm, de 0,80x2,00 m pintada con cerradura y punto de luz. Ventana fija de cristal de 6 mm, recercado con perfil de goma. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	120,70	724,20

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.01.02	**mes ALQUILER CASETA VESTUARIOS-ASEOS**							
S01B190	Mes de alquiler de caseta prefabricada para vestuarios, 2 duchas y un aseo con inodoro y 2 lavabos. Dimensiones mínimas 30 m2 en vestuario. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. 2 Puertas de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. 2 ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Mobiliario completo para su uso. Instalación eléctrica a 220 V, toma de tierra, automático, 4 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	215,34	1.292,04

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.01.03	**mes ALQUILER CASETA COMEDOR**							
S01B191PN	Mes de alquiler de caseta prefabricada para comedor de obra de mínimo 15 m2. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	215,34	1.292,04

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.01.04	**mes** ALQUILER CASETA OFICINA REUNIONES							
S01B180PN	Mes de alquiler de caseta prefabricada para oficina y reuniones. Estructura y cerramiento de chapa galvanizada pintada, aislamiento de poliestireno expandido autoextinguible, interior con tablero melaminado en color. Cubierta de chapa galvanizada reforzada con perfil de acero; fibra de vidrio de 60 mm, interior con tablex lacado. Divisiones en tablero de melamina. Suelo de aglomerado revestido con PVC continuo de 2 mm, y poliestireno de 50 mm con apoyo en base de chapa galvanizada de sección trapezoidal. Puerta de 0,80x2,00 m, de chapa galvanizada de 1 mm, reforzada y con poliestireno de 20 mm, picaporte y cerradura. Dos ventanas aluminio anodizado corredera, contraventana de acero galvanizado. Instalación eléctrica a 220 V, toma de tierra, automático, 2 fluorescentes de 40 W, enchufes para 1500 W y punto luz exterior de 60 W. Con transporte a 150 km (ida y vuelta). Entrega y recogida del módulo con camión grúa. Según R.D. 486/97 y R.D. 1627/97. Incluye el equipamiento necesario. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Duración de la obra	6				6,00		
						6,00	310,64	1.863,84

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.01.05	**m ACOMETIDA AÉREA MONOFÁSICA COBRE 2x16 mm2**							
E17AAM010PN	Acometida aérea monofásica instalada sobre fachada, formada por conductores de cobre aislados con polietileno reticulado (XLPE), en cable rígido multiconductor trenzado en haz 0,6/1kV RZ Fca, de sección 2x16 mm2, fabricado conforme a UNE 21030-2; fijado a fachada mediante abrazadera de acero con tornillo autorroscante plastificada resistente a la intemperie. Totalmente realizada; i/p.p. de conexiones y medios auxiliares (excepto elevación y/o transporte). Conforme a REBT: ITC-BT-06 e ITC-BT-11, NTE-IER, UNE-HD 60364-1:2009 y UNE-HD 60364-1:2009/A11:2018. Materiales con marcado CE y DdP (Declaración de Prestaciones) según Reglamento (UE) 305/2011. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		200				200,00		
						200,00	17,17	3.434,00
08.01.06	**u ACOMETIDA PROVISIONAL FONTANERÍA 25 mm**							
S01A030PN	Acometida provisional de fontanería para obra de la red general municipal de agua potable hasta una longitud máxima de 8 m, realizada con tubo de polietileno de 25 mm de diámetro, de alta densidad y para 10 atmósferas de presión máxima con collarín de toma de fundición, p.p. de piezas especiales de polietileno y tapón roscado, incluso derechos y permisos para la conexión, terminada y funcionando, y sin incluir la rotura del pavimento. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		1				1,00		
						1,00	133,53	133,53

08.01.07 **u** **ACOMETIDA PROVISIONAL SANEAMIENTO EN SUPERFICIE**

S01A050PN

Acometida provisional de saneamiento de caseta de obra a la red general municipal (pozo o imbornal), hasta una distancia máxima de 8 m, formada por tubería en superficie de PVC de 110 mm de diámetro interior, tapado posterior de la acometida con hormigón en masa HM-20/P/20/I, y con p.p. de medios auxiliares. Incluso p.p de limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

		1				1,00		
						1,00	177,08	177,08

08.01.08 **u** **CUADRO DE OBRA 80 A MODELO 8**

S02DC100PN

Cuadro de obra trifásico 80 A, compuesto por armario metálico con revestimiento de poliéster de 600x500 cm con salida lateral por toma de corriente y salida interior por bornes fijos, soportes, manecilla de sujeción y/o anillos de elevación, con cerradura, MT General de 4x80 A, 3 diferenciales de 4x25 A 30 mA, 4x63 A 30 mA y 4x40 A 300 mA, respectivamente, 7 MT por base, tres de 2x16 A, tres de 4x16 A y uno de 4x32 A, incluyendo cableado, rótulos de identificación, 7 bases de salida y p.p. de conexión a tierra, instalado (amortizable en 4 obras), según ITC-BT-33 del REBT (R.D. 842/2002), R.D. 614/2001 y UNE-EN 61439-4:2013. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		1				1,00		
						1,00	598,04	598,04

08.01.09 **u** **TOMA DE TIERRA R80 Ohm R=100 Ohm**

S02DT010PN

Toma de tierra para una resistencia de tierra R<=80 Ohmios y una resistividad R=100 Ohm formada por arqueta de ladrillo macizo de 24x11,5x7 cm, tapa de hormigón armado, tubo de PVC de D=75 mm, electrodo de acero cobrizado 14,3 mm y 100 cm, de profundidad hincado en el terreno, línea de t.t. de cobre desnudo de 35 mm2, con abrazadera a la pica, instalado. Según ITC-BT-18 y MIE-BT-039 del REBT (R.D. 842/2002) y R.D. 614/2001. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.
Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.
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		1				1,00		
						1,00	153,76	153,76

TOTAL 08.01 ..... 9.668,53

08.02 PROTECCIONES COLECTIVAS

08.02.01 **u** **EXTINTOR POLVO ABC 6 kg PROTECCIÓN INCENDIOS**

S02E010PN

Extintor de polvo químico ABC polivalente antibrasa de eficacia 21A/113B, de 6 kg de agente extintor, con soporte, manómetro comprobable y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.

Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos.

Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		2				2,00		
						2,00	49,42	98,84
08.02.02	**u EXTINTOR CO2 5 kg ACERO**							
S02E030PN	Extintor de nieve carbónica CO2, de eficacia 89B, con 5 kg de agente extintor, construido en acero, con soporte y boquilla con difusor. Medida la unidad instalada, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		2				2,00		
						2,00	123,60	247,20
08.02.03	**m VALLA ENREJADO GALVANIZADO/PLIEGUES**							
S02BV020PN	Valla metálica móvil de módulos prefabricados de 3,50x2,00 m de altura, enrejados de malla de D=5 mm de espesor con cuatro pliegues de refuerzo, bastidores verticales de D=40 mm y 1,50 mm de espesor, todo ello galvanizado en caliente, sobre soporte de hormigón prefabricado de 230x600x150 mm, separados cada 3,50 m, accesorios de fijación, considerando 5 usos, incluso montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
	Vallado perimetral	1	165,00			165,00		

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
						165,00	7,47	1.232,55
08.02.04	**u VALLA CONTENCIÓN DE PEATONES**							
S02BV040	Valla de contención de peatones, metálica, prolongable de 2,50 m de largo y 1,00 m de altura, color amarillo, amortizable en 5 usos, incluso colocación y desmontaje, según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		1	50,00			50,00		
						50,00	8,49	424,50
08.02.05	**u PUERTA PEATONAL CHAPA 1,00x2,00 m**							
S02BV080PN	Puerta de acceso peatonal de chapa galvanizada de 1,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento.							
		2				2,00		
						2,00	51,17	102,34

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.02.06	**u PUERTA CAMIÓN CHAPA 4,00x2,00 m**							
S02BV090	Puerta de acceso de vehículos de chapa galvanizada de 4,00x2,00 m para colocación en valla de cerramiento de las mismas características, considerando 5 usos, montaje y desmontaje, según R.D. 486/97 y R.D. 1627/97. Partida totalmente terminada y rematada según normas de diseño y condiciones de protección del patrimonio, con especial atención al mantenimiento y conservación de los valores preexistentes. Se realizarán las operaciones de protección necesarias a los elementos singulares, ejecutando los trabajos siguiendo las normas de buena construcción y manteniendo el buen aspecto de las obras y para la correcta realización de los trabajos. Todos los trabajos se ejecutarán esmeradamente, con arreglo a las buenas prácticas de la construcción, de acuerdo con las especificaciones recogidas en la normativa aplicable y, cuando no entren en contradicción con ella, atendiendo a las especificaciones de ejecución que indican la normativa específica en vigor y que sea de aplicación incluyendo todas las disposiciones, normas y reglamentos de obligado cumplimiento provenientes de la Presidencia del Gobierno y demás Ministerios							
		2				2,00		
						2,00	181,17	362,34
08.02.07	**m2 PROTECCIÓN HORIZONTAL CUAJADO TABLONES**							
S02F110	Protección horizontal de huecos con cuajado de tablones de madera de pino de 20x7 cm unidos a clavazón, incluso instalación y desmontaje (amortizable en 2 usos), según R.D. 486/97 y R.D. 1627/97.							
		20				20,00		
						20,00	26,08	521,60
08.02.08	**m2 PROTECCIÓN HUECO CON RED HORIZONTAL**							
S02F100	Red horizontal de seguridad en cubrición de huecos formada por malla de poliamida de 10x10 cm anudada con cuerda de D=3 mm y cuerda perimetral de D=10 mm para amarre de la red a los anclajes de acero de D=10 mm conectados a las armaduras perimetrales del hueco cada 50 cm y cinta perimetral de señalización fijada a pies derechos (amortizable en 4 usos), según R.D. 486/97 y R.D. 1627/97.							
		20				20,00		
						20,00	7,98	159,60
	TOTAL 08.02							**3.148,97**
08.03	**EQUIPOS DE PROTECCION INDIVIDUAL**							
08.03.01	**u PAR DE RODILLERAS**							
S03D150PN	Par de rodilleras ajustables de protección ergonómica (amortizables en 3 usos). Según UNE-EN 340, UNE-EN 14404, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	4,99	29,94

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.03.02	**u PANTALLA DE CABEZA SOLDADOR**							
S03A040PN	Pantalla de seguridad de cabeza, para soldador, de fibra vulcanizada, con cristal de 110x55 mm (amortizable en 5 usos). Según UNE-EN 175, UNE-EN 379, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	EPI soldador	1				1,00		
						1,00	2,78	2,78
08.03.03	**u MANDIL CUERO PARA SOLDADOR**							
S03B140PN	Mandil de cuero para soldador (amortizable en 3 usos). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	EPI soldador	1				1,00		
						1,00	3,32	3,32
08.03.04	**u PAR GUANTES SOLDADOR**							
S03C100PN	Par de guantes para soldador (amortizables en 2 usos). Según UNE-EN 12477, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	EPI soldador	1				1,00		
						1,00	1,51	1,51
08.03.05	**u PAR DE BOTAS AISLANTES**							
S03D080PN	Par de botas aislantes para electricista hasta 5000 V de tensión (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		9				9,00		
						9,00	24,22	217,98
08.03.06	**u CUBREGRAFAS DE SEGURIDAD**							
S03A065PN	Cubregafas de seguridad con ocular transparente diseñado para poder llevar gafas graduadas. Según UNE-EN 166, R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	0,58	3,48
08.03.07	**u PROTECCIÓN LUMBAR CON TIRANTES**							
S03B020PN	Protector lumbar con tirantes (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	10,94	65,64

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.03.08	**u CINTURÓN PORTAHERRAMIENTAS**							
S03B030PN	Cinturón portaherramientas (amortizable en 4 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	4,34	26,04
08.03.09	**u TRAJE IMPERMEABLE**							
S03B090PN	Traje impermeable de trabajo, 2 piezas de PVC (amortizable en un uso). Según UNE-EN 340, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		3				3,00		
						3,00	9,75	29,25
08.03.10	**u ABRIGO PARA EL FRÍO**							
S03B125PN	Abrigo para el frío (amortizable en 3 usos). Según UNE-EN 342, UNE-EN 14058, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	11,71	70,26
08.03.11	**u CHALECO DE OBRAS REFLECTANTE**							
S03B180PN	Chaleco de obras con bandas reflectante (amortizable en 1 usos). Según UNE-EN 471 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	3,10	18,60
08.03.12	**u CHUBASQUERO ALTA VISIBILIDAD**							
S03B230PN	Chubasquero de lluvia impregnado exterior de PVC, capucha fija con cordón de apriete. Alta visibilidad, con tiras retroreflejantes microburbujas termoselladas, color plata, 50 mm, montaje paralelo (amortizable en 3 usos). Según UNE-EN 471, UNE-EN 343 y R.D. 773/97. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		3				3,00		
						3,00	3,65	10,95
08.03.13	**u PAR GUANTES LONA REFORZADOS**							
S03C020PN	Par de guantes de lona reforzados. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		5				5,00		
						5,00	3,29	16,45

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.03.14	**u PAR GUANTES LÁTEX ANTICORTE**							
S03C040PN	Par de guantes de goma látex anticorte. Según UNE-EN 420, UNE-EN 388, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		5				5,00		
						5,00	2,14	10,70
08.03.15	**u PAR GUANTES AISLANTES 5000 V**							
S03C110PN	Par de guantes aislantes para protección de contacto eléctrico en tensión hasta 5000 V (amortizables en 3 usos). Según UNE-EN 60903, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		9				9,00		
						9,00	10,01	90,09
08.03.16	**u PAR DE BOTAS DE SEGURIDAD**							
S03D070PN	Par de botas de seguridad con plantilla y puntera de acero (amortizables en 1 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	28,39	170,34
08.03.17	**u CASCO DE SEGURIDAD AJUSTABLE RUEDA**							
S03A010PN	Casco de seguridad con arnés de cabeza ajustable por medio de rueda dentada, para uso normal y eléctrico hasta 440 V. Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	8,63	51,78
08.03.18	**u CASCO SEGURIDAD DIELÉCTRICO**							
S03A030PN	Casco de seguridad dieléctrico con pantalla para protección de descargas eléctricas (amortizable en 5 usos). Según R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		4				4,00		
						4,00	4,01	16,04
08.03.19	**u PANTALLA CONTRA PARTÍCULAS**							
S03A060PN	Pantalla para protección contra partículas, con sujeción en cabeza (amortizable en 5 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
						6,00	1,88	11,28
08.03.20	**u GAFAS CONTRA IMPACTOS**							
S03A070PN	Gafas protectoras contra impactos, incoloras (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	3,02	18,12
08.03.21	**u GAFAS ANTIPOLVO**							
S03A090PN	Gafas antipolvo antiempañables, panorámicas (amortizables en 3 usos). Según UNE-EN 172, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	2,95	17,70
08.03.22	**u SEMI MÁSCARA ANTIPOLVO 1 FILTRO**							
S03A100PN	Semi-mascarilla antipolvo un filtro (amortizable en 3 usos). Según UNE-EN 140, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	6,15	36,90
08.03.23	**u FILTRO RECAMBIO MASCARILLA**							
S03A110PN	Filtro de recambio de mascarilla para polvo y humos. Según UNE-EN 136, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		144				144,00		
						144,00	1,82	262,08
08.03.24	**u CASCOS PROTECTORES AUDITIVOS**							
S03A120PN	Protectores auditivos con arnés a la nuca (amortizables en 3 usos). Según UNE-EN 458, UNE-EN 352, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		6				6,00		
						6,00	4,11	24,66
08.03.25	**u BARBUQUEJO CON MENTONERA PARA CASCO**							
S03A032	Cinta o correa elástica de sujeción con mentonera para casco de seguridad.							
		6				6,00		
						6,00	5,02	30,12
08.03.26	**u PAR DE POLAINAS SOLDADURA**							
S03D090	Par de polainas para soldador (amortizables en 3 usos). Según UNE-EN ISO 20345, UNE-EN ISO 20346, UNE-EN ISO 20347, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.							

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
		1				1,00		
						1,00	1,75	1,75
08.03.27	**u ARNÉS AMARRE DORSAL Y TORÁCICO**							
S03EA030	Arnés básico de seguridad amarre dorsal con anilla y torácico con cintas, regulación en piernas, fabricado con cinta de nailon de 45 mm y elementos metálicos de acero inoxidable (amortizable en 5 obras). Según UNE-EN 361, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.							
		5				5,00		
						5,00	9,16	45,80
08.03.28	**u CUERDA CON REDUCTOR 2,00 m MOSQUETONES+GANCHO**							
S03ED040	Eslinga anticaída regulable con absorbedor de energía compuesta por cuerda de poliamida de 12 mm de diámetro y 2,00 m de longitud, con reductor, con un mosquetón de 17 mm de apertura y un gancho de 60 mm de apertura (amortizable en 4 usos). Según UNE-EN 355, R.D. 773/97 y R.D. 1407/92. Equipo de Protección Individual (EPI) con marcado de conformidad CE.							
		5				5,00		
						5,00	20,32	101,60
08.03.29	**u ANCLAJE DE CINTA L=250 cm**							
S03EE080PN	Dispositivo de anclaje para sistemas anticaídas, instalado con taco metálico en estructuras de hormigón armado y estructura metálica. Se instala a techo o pared y dispone en uno de los extremos de la cinta de una anilla de acero para el enganche del elemento de amarre del arnés anticaídas. Tiene una longitud de 250 cm, siendo adecuado su aplicación para todos aquellos puntos en los que se de el riesgo de caída a distinto nivel, bordes de forjados, etc. Su uso está limitado a un solo trabajador. Certificado según UNE-EN 795:2012.							
		30				30,00		
						30,00	32,01	960,30
	TOTAL 08.03							**2.345,46**
08.04	**SEÑALIZACION**							
08.04.01	**u PLACA SEÑALIZACIÓN RIESGO**							
S05C080PN	Placa señalización-información en PVC serigrafiado de 50x30 cm, fijada mecánicamente (amortizable en 2 usos), incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		40				40,00		
						40,00	6,43	257,20
08.04.02	**u PANEL COMPLETO PVC 700x1000 mm**							
S05B030PN	Panel completo serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Tamaño 700x1000 mm. Válido para incluir hasta 15 símbolos de señales, incluso textos "Prohibido el paso a toda persona ajena a la obra", incluido colocación, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		3				3,00		
						3,00	16,92	50,76

PRESUPUESTO Y MEDICIONES

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
08.04.03	**u BALIZA LUMINOSA INTERMITENTE**							
S05A050PN	Foco de balizamiento intermitente (amortizable en 4 usos), según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
		13				13,00		
						13,00	7,51	97,63
08.04.04	**m CINTA BALIZAMIENTO BICOLOR 8 cm**							
S05A010PN	Cinta de balizamiento bicolor rojo/blanco de material plástico, incluso colocación y desmontaje, según R.D. 485/97 y R.D. 1627/97. Incluso p.p de medios auxiliares y limpieza. Medido según documentación gráfica del proyecto.							
	ESTIMADA	1	500,00			500,00		
						500,00	0,94	470,00
08.04.05	**u CARTEL PVC SEÑALIZACIÓN EXTINTOR BOCA INCENDIO**							
S05B020	Cartel serigrafiado sobre planchas de PVC blanco de 0,6 mm de espesor nominal. Para señales de lucha contra incendios (extintor, boca de incendio), incluido colocación, según R.D. 485/97 y R.D. 1627/97.							
		4				4,00		
						4,00	11,26	45,04
08.04.06	**u PANEL DIRECCIONAL CON SOPORTE**							
S05C070	Panel direccional reflectante de 165x45 cm, con soporte metálico (amortizable en cinco usos), incluido p.p. de apertura de pozo, hormigonado H-100/40, colocación y montaje, según R.D. 485/97 y R.D. 1627/97.							
		10				10,00		
						10,00	48,72	487,20
	TOTAL 08.04							**1.407,83**
	TOTAL 08							**16.570,79**
	TOTAL							**1.836.767,15**

5. RESUMEN DE PRESUPUESTO

RESUMEN DE PRESUPUESTO

MEJORA DE LA EFICIENCIA ENERGÉTICA EN EL PABELLÓN DE CRISTAL DE LA CASA DE CAMPO

CAPÍTULO	RESUMEN		IMPORTE	%
01	DEMOLICIONES Y DESMONTAJES		22.119,28	1,20
02	INSTALACIÓN ELECTRICIDAD		145.957,08	7,95
02.01	*CUADROS ELÉCTRICOS*	*56.068,24*		
02.02	*LÍNEAS ELÉCTRICAS*	*64.595,73*		
02.03	*BANDEJAS-CANALIZACIONES*	*23.816,55*		
02.04	*VARIOS*	*1.476,56*		
03	BMS		111.736,50	6,08
03.01	*Subestaciones de Control*	*43.096,90*		
03.02	*Puesto central*	*7.133,63*		
03.03	*Ingenieria sistema de control*	*14.183,34*		
03.04	*Instalacion sistema de control*	*47.322,63*		
04	RED DE EVACUACIÓN DE CONDENSADOS		7.974,03	0,43
04.01	*DESAGÜE APARATOS*	*184,08*		
04.02	*TUBERÍAS*	*7.058,16*		
04.03	*ARQUETAS*	*503,53*		
04.04	*VARIOS*	*228,26*		
05	CLIMATIZACIÓN		1.518.925,21	82,70
05.01	*CONDUCTOS*	*304.021,16*		
05.02	*REJILLAS*	*10.702,80*		
05.03	*TOBERAS*	*167.756,40*		
05.04	*COMPUERTAS REGULACIÓN*	*5.811,84*		
05.05	*TUBERÍAS POLIPROPILENO PP-R*	*114.431,40*		
05.06	*AISLAMIENTO DE COQUILLA DE ESPUMA ELASTOMÉRICA*	*109.213,76*		
05.07	*VALVULERÍA CLIMATIZACIÓN POR AGUA*	*37.776,30*		
05.08	*UTAS*	*735.529,92*		
05.09	*BOMBAS*	*31.922,80*		
05.10	*BANCADAS PARA BOMBAS UTAS DE P.BAJA Y EXTRACTORES*	*866,12*		
05.11	*VARIOS*	*892,71*		
06	TELECOMUNICACIONES		1.200,00	0,07
06.01	*CABLEADO*	*1.200,00*		
07	GESTIÓN DE RESIDUOS		12.284,26	0,67
08	SEGURIDAD Y SALUD		16.570,79	0,90
08.01	*INSTALACIONES DE BIENESTAR*	*9.668,53*		
08.02	*PROTECCIONES COLECTIVAS*	*3.148,97*		
08.03	*EQUIPOS DE PROTECCION INDIVIDUAL*	*2.345,46*		
08.04	*SEÑALIZACION*	*1.407,83*		

PRESUPUESTO DE EJECUCIÓN MATERIAL		**1.836.767,15**
13,00 % Gastos generales	238.779,73	
6,00 % Beneficio industrial	110.206,03	
Suma		348.985,76
PRESUPUESTO BASE DE LICITACIÓN SIN IVA		**2.185.752,91**
21% IVA		459.008,11
PRESUPUESTO BASE DE LICITACIÓN		**2.644.761,02**

Asciende el presupuesto a la expresada cantidad de DOS MILLONES SEISCIENTOS CUARENTA Y CUATRO MIL SETECIENTOS SESENTA Y UN con DOS CÉNTIMOS

Madrid, noviembre de 2024.