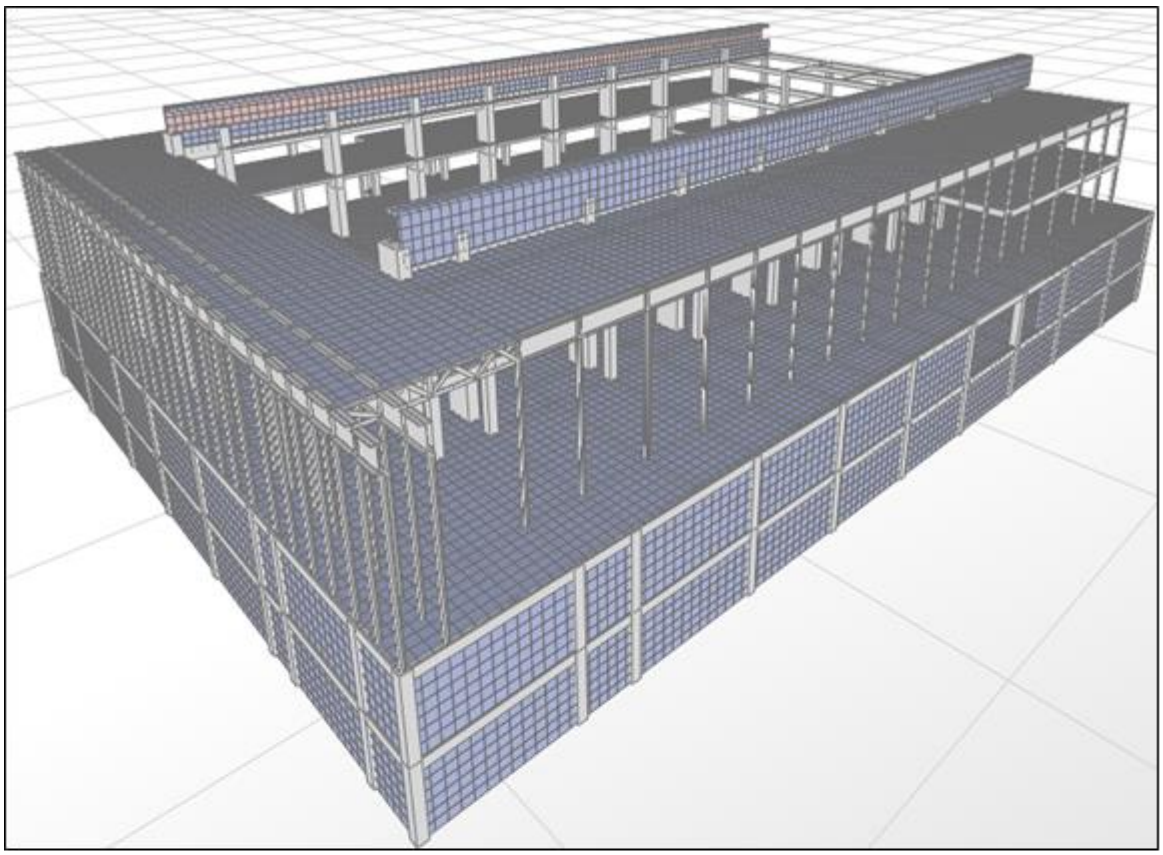
DISEÑO ESTRUCTURAL

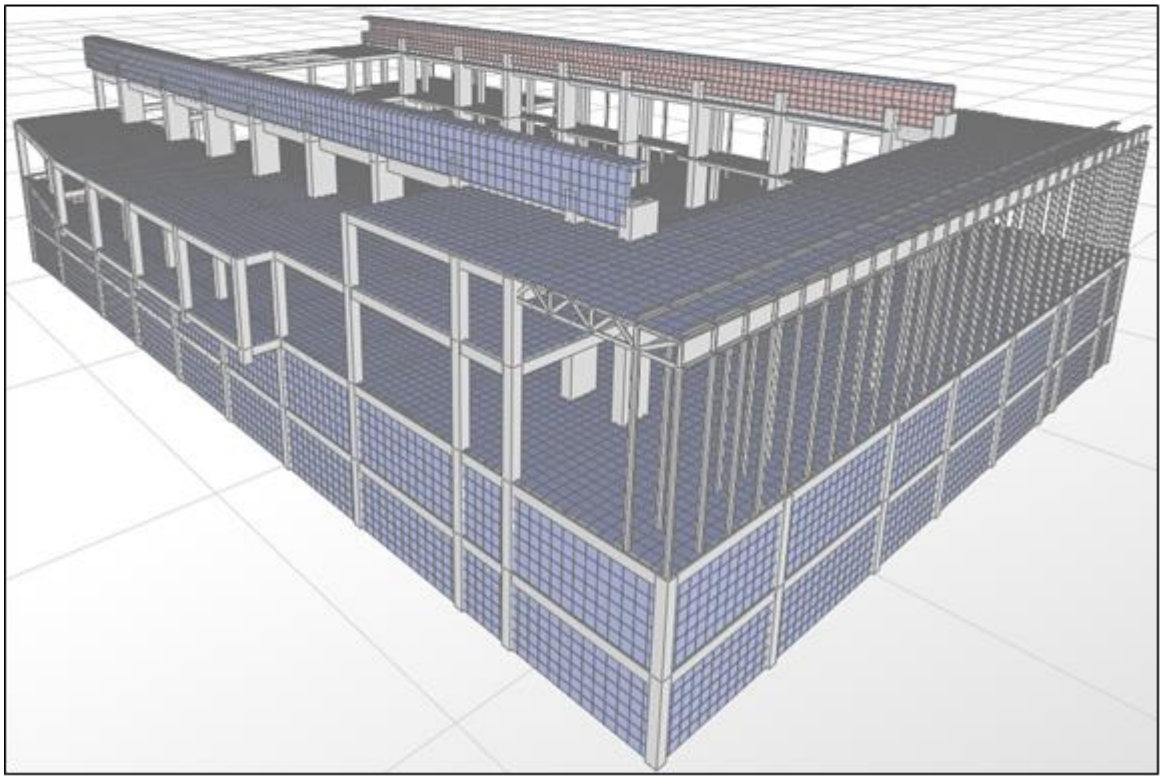
CENTRO DE CONVENCIONES NEOMUNDO

"ESTUDIOS Y DISEÑOS A FASE III DEL CENTRO DE CONVENCIONES NEOMUNDO DE BUCARAMANGA"
Grupo B: Estudios y diseños de ingeniería a fase III necesarios para la construcción del centro de convenciones Neomundo de la ciudad de Bucaramanga".

MEMORIAS DE CÁLCULO

CONSORCIO CONSULTORES NEOMUNDO 2013
Agosto de 2013





PERSPECTIVAS DEL MODELO

MEMORIAS DE DISEÑO ESTRUCTURAL ESTRUCTURAL

DATOS DEL PROYECTO:

Nombre: **DISEÑO ESTRUCTURAL CENTRO DE CONVENCIONES NEOMUNDO**

Ubicación: **Bucaramanga, Santander**

Diseñador Estructural: _____

ING. NELSON RANGEL MAT: 6820280757-STD

Norma deDiseño: **NORMAS COLOMBIANAS DE DISEÑO Y CONSTRUCCION SISMO-RESISTENTES NSR-2010**
NSR-2010 y LRFD/03

Especificaciones:

Concreto **f'c=240 kg/cm^2**

Acero De Refuerzo **fy=4200 kg/cm^2** > (acero corrugado)
> Refuerzo Longitudinal y Transversal

Sistema de Cálculo:

Análisis Sísmico — Método Modal

Herramienta de Cálculo — Elementos Finitos SAP-2000

Características:

Sistema Estructural — Portico de concreto

Materiales Estructurales — Concreto Reforzado

Capacidad de disipación de energía — Especial

Elementos Estructurales

Zapatas y vigas de amarre en los cimientos
Cimiento corrido para muros de contención
Pórtico en elementos de concreto reforzado
Entrepisos en placa maciza
Cubierta en estructura metálica y teja Hunte Douglas

PARAMETROS PARA EL ANALISIS SISMICO

Nivel de amenaza sísmica:		Alta
Coeficiente de aceleración pico efectiva:	Aa =	0.25
Coeficiente de velocidad pico efectiva:	Av =	0.25
Caracterización del suelo	Perfil del Suelo =	D
Coeficiente de amplificación zona de periodos cortos:	Fa =	1.30
Coeficiente de amplificación zona de periodos intermedios:	Fv =	1.90
Coeficiente de importancia I:	I =	1.20
Coeficiente de capacidad de disipación de energía básico:	Ro =	7.00
Coeficiente de reducción por irregularidad en planta:	ϕp =	0.90
Coeficiente de reducción por irregularidad en altura:	ϕa =	0.90

PARTE 1:

ANALISIS Y DISEÑO DE LA CUBIERTA SOBRE GRAN SALON

CARACTERISTICAS DE LA CUBIERTA

Tipo de Cubierta:

La cubierta está formada por una estructura compuesta de elementos metálicos, la cual sostiene las tejas. En esta edificación se tiene instalada una cubierta liviana metálica.

Los elementos de acero que forman las correas y las cerchas son perfiles rectangulares tipo cajón. Dichos elementos de la cubierta estarán unidos entre ellos mediante soldadura.

Tipo De Teja:

Hunter Douglas

Peso por metro cuadrado: 8.00 kg/m^2

Distancia máxima entre correas: 1.80 m.

Pendiente: variable

Procedimiento:

El desarrollo de los cálculos será el siguiente: Inicialmente se analizará el elemento correa. Las cargas de la correa se transmitirán a la cercha tipo y de esta manera se podrá modelarla. El pórtico de concreto que forma la estructura, se modelará teniendo en cuenta las cargas que transmite la cubierta sobre las vigas y columnas que la sostienen.

Para efectos de análisis sísmico, se tendrá en cuenta las recomendaciones del nuevo Reglamento Colombiano de Construcción Sismo Resistente (NSR-10).

DEFINICION DE CARGAS SOBRE PLACA EN ESTRUCTURA METALICA

Carga muerta: Peso de la teja = - 8.00 Kg./m^2

Peso promedio de los tirantes y clips de fijación = - 1.00 Kg./m^2

W_D = - 9.00 Kg./m^2

Ancho máximo aferente entre correas = 1.80 m.

$W_D \cong$ 16.20 Kg/m = → peso por metro de correa

Carga viva: W_D = 50 kg/m^2

Ancho máximo aferente entre correas = 1.80 m.

$W_L \cong$ 90 Kg/m → peso por metro de correa

Carga de Viento: **$[P_S = \lambda * K_{ZT} * I * P_{S10}]$** → (B.6.4-1) NSR-10

P_S: Presión del viento = 60 km/h → Bucaramanga

λ: Factor de ajuste por altura y exposición = 1.09

K_{ZT}: Factor topográfico = 1.0

I: Factor de importancia = 1.15

P_{S10}: Presión de viento de diseño = 13 kg/m^2

P_S = 16.30 kg/m^2 < 40 kg/m^2

⇨ **P_S = 40 kg/m^2**

Ancho máximo aferente entre correas = 1.80 m.

W_W = 72.00 Kg/m → Presión de viento por metro de corres (Sentido vertical)

Nota: Debido a que la dirección del viento más probable que incidirá sobre la estructura, será en sentido longitudinal a esta, no se asumió carga de viento sobre la cubierta.

ANALISIS DE LA CORREA

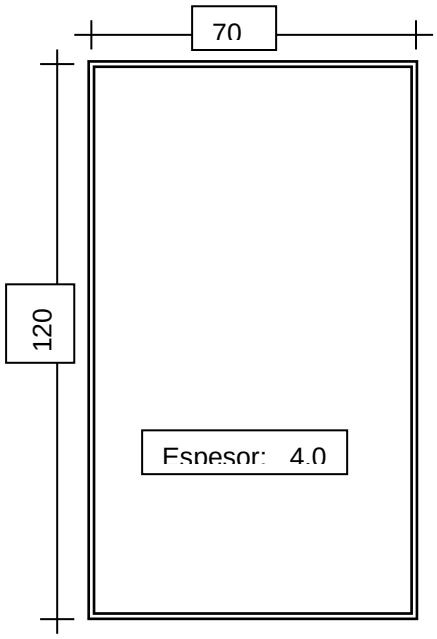
Carga Muerta: **W_D = - 16.20 Kg/m.**

Carga viva: **W_L = - 90 Kg/m.**

Carga de viento: **W_W = - 72 Kg/m.**

El análisis y modelamiento de la correa se realizó mediante el programa SAP2000 y se obtuvieron los resultados que se muestran en las páginas siguientes.

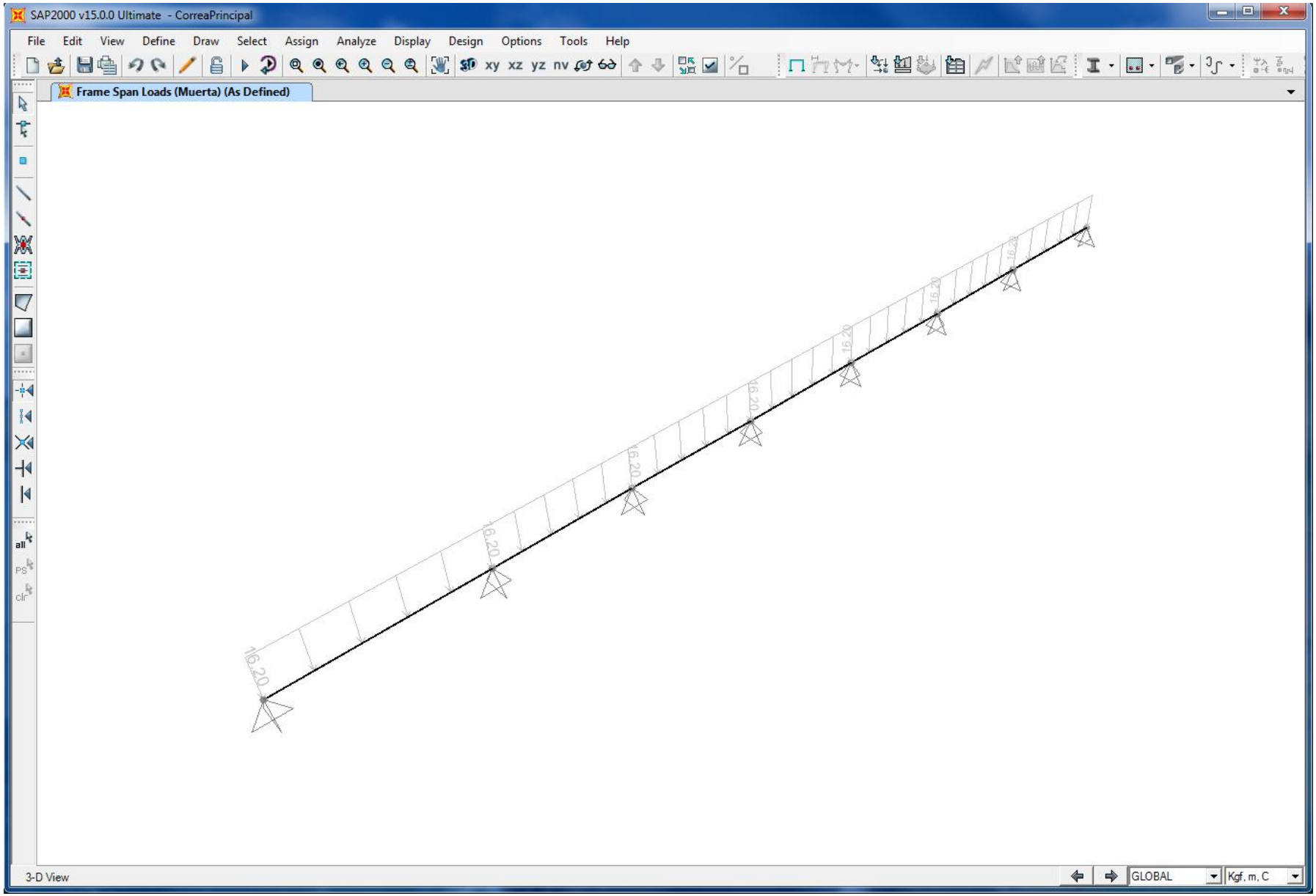
El perfil metálico que se determinó como el más adecuado es el siguiente:



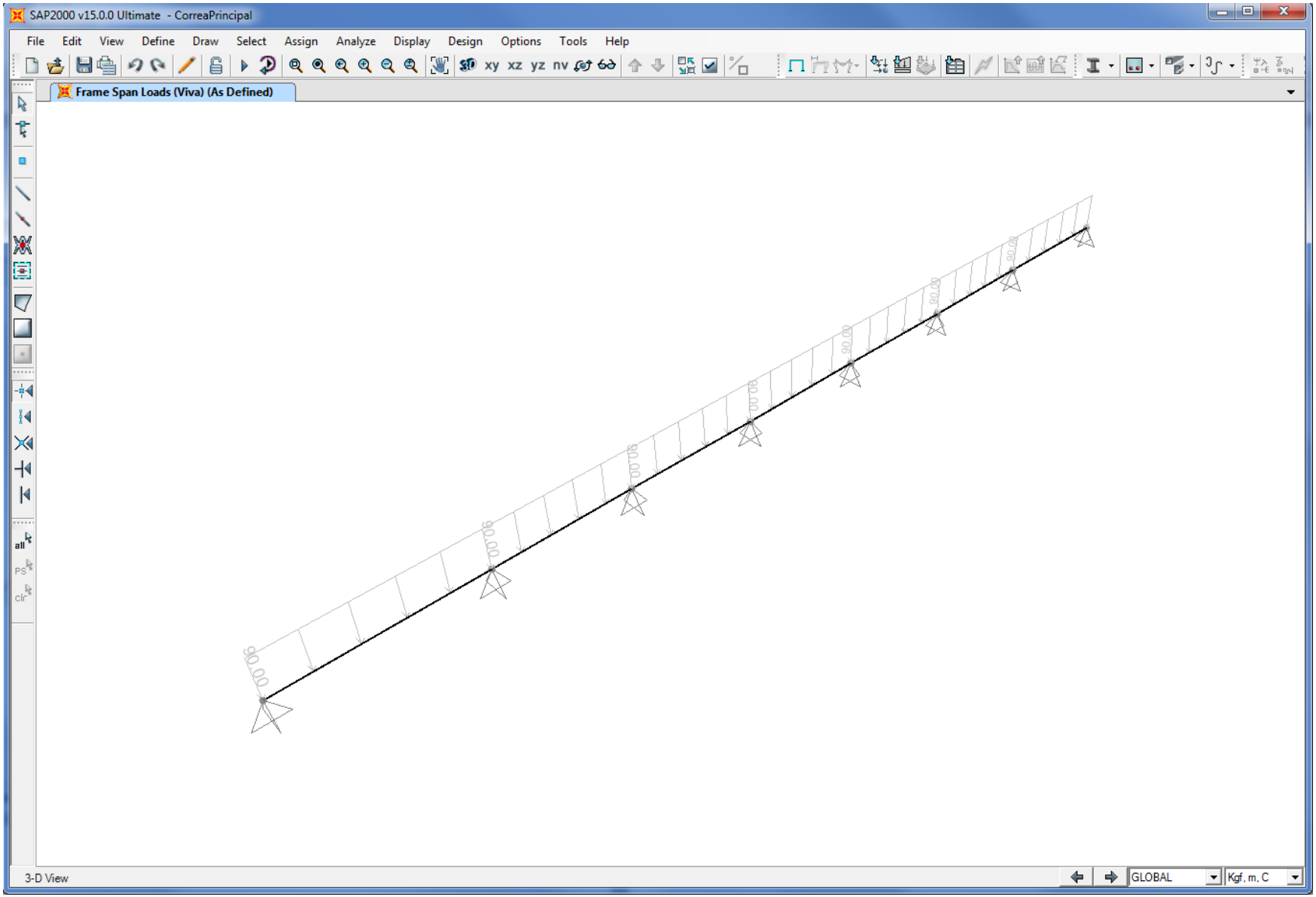
DIMENSIONES DEL PERFIL PARA CORREAS

Nota: podrá utilizarse otro tipo de perfil, siempre y cuando no se disminuya el área ni las características inerciales de la sección.

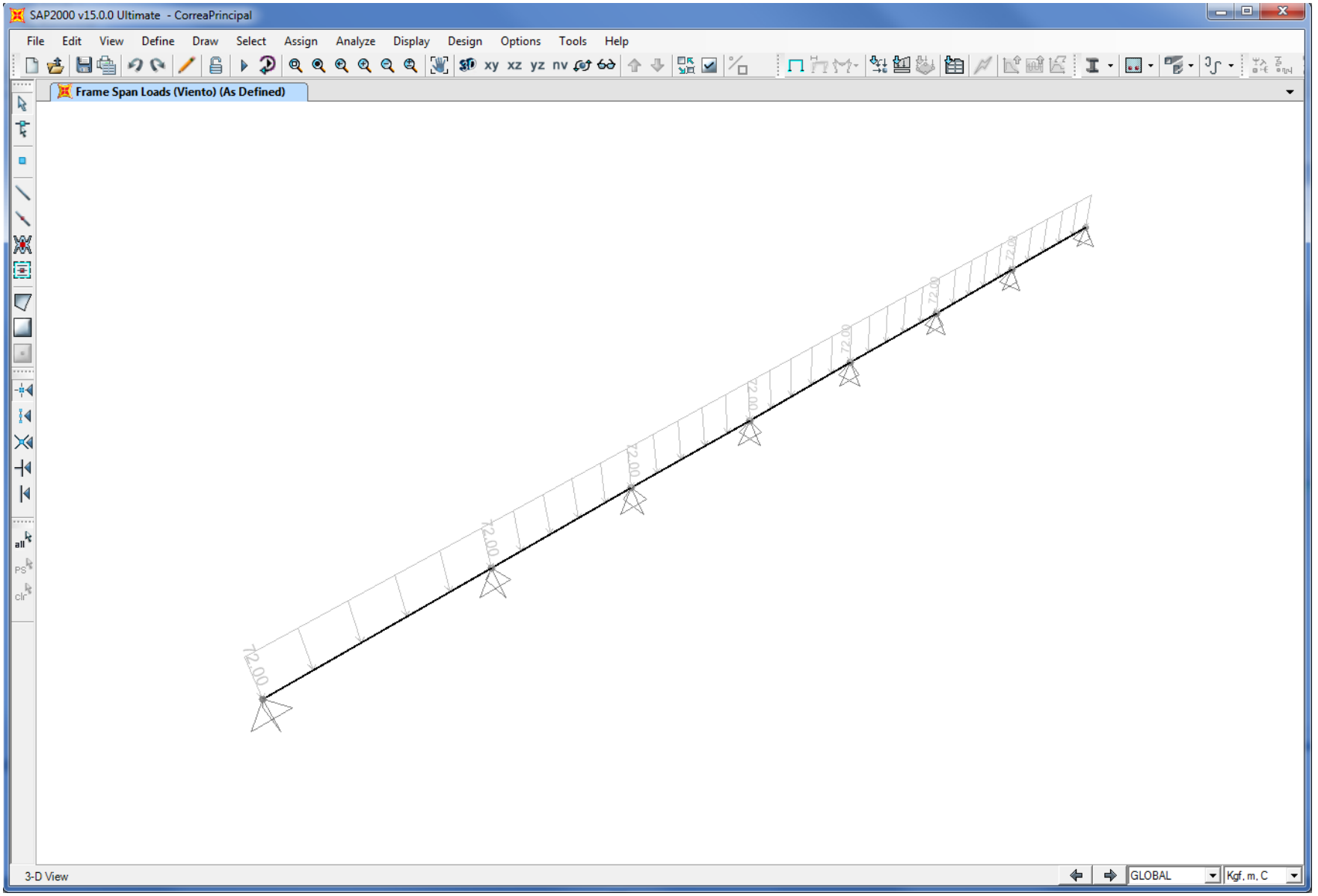
Seguidamente se muestran las gráficas obtenidas del modelamiento de la correa con sus cargas respectivas aplicadas.



APLICACIÓN DE LA CARGA MUERTA (kg/m)



APLICACIÓN DE LA CARGA VIVA (kg/m)



APLICACIÓN DE LA CARGA DE VIENTO (kg/m)

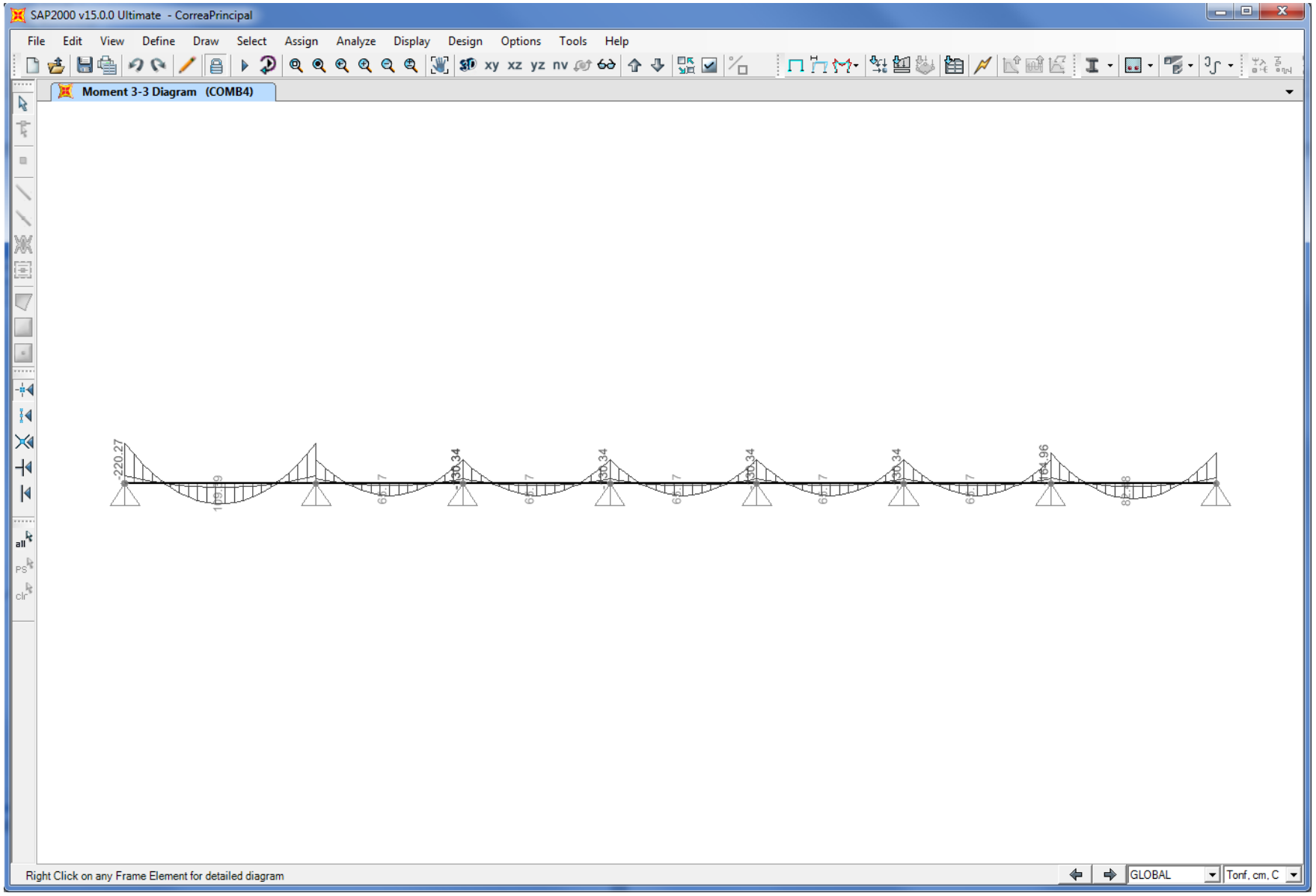
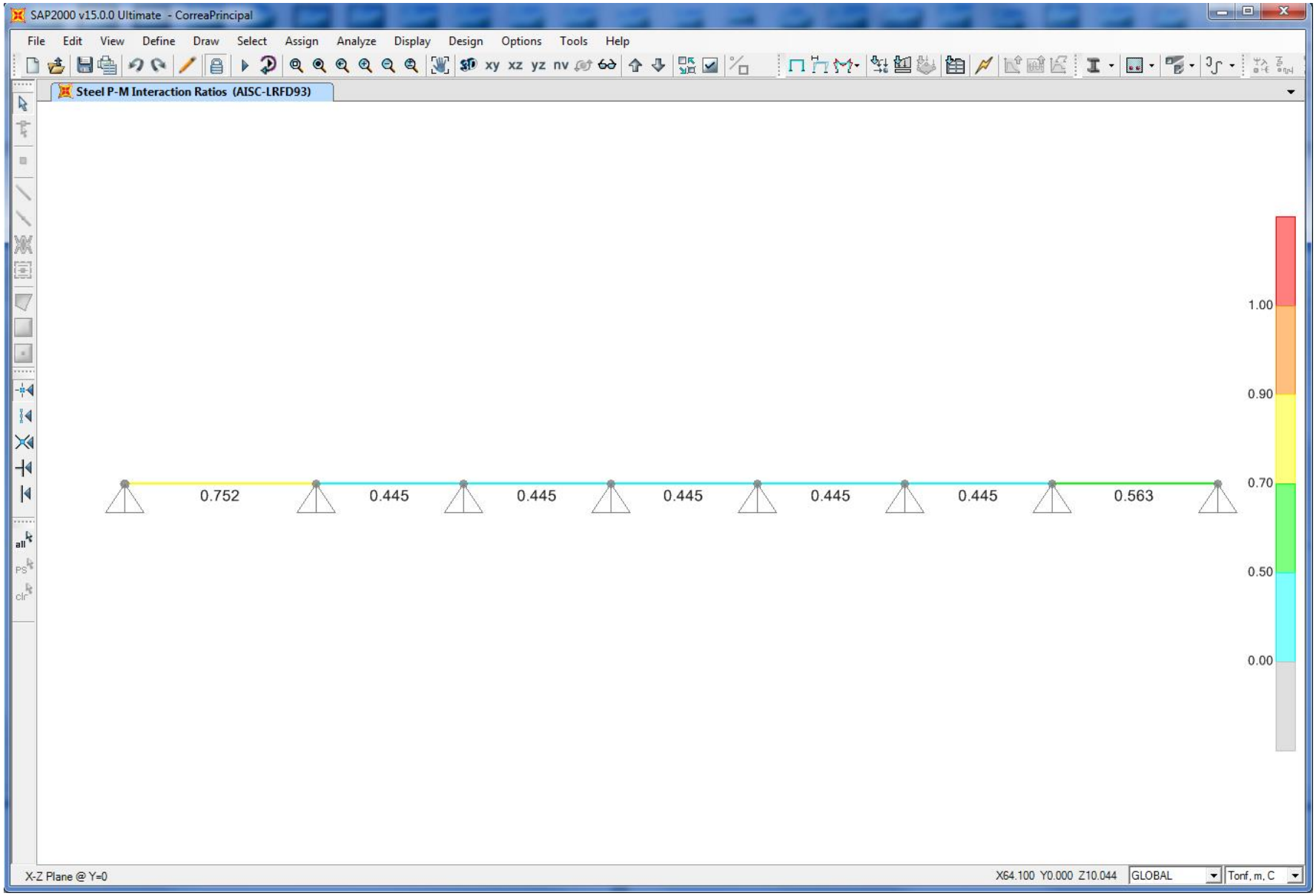
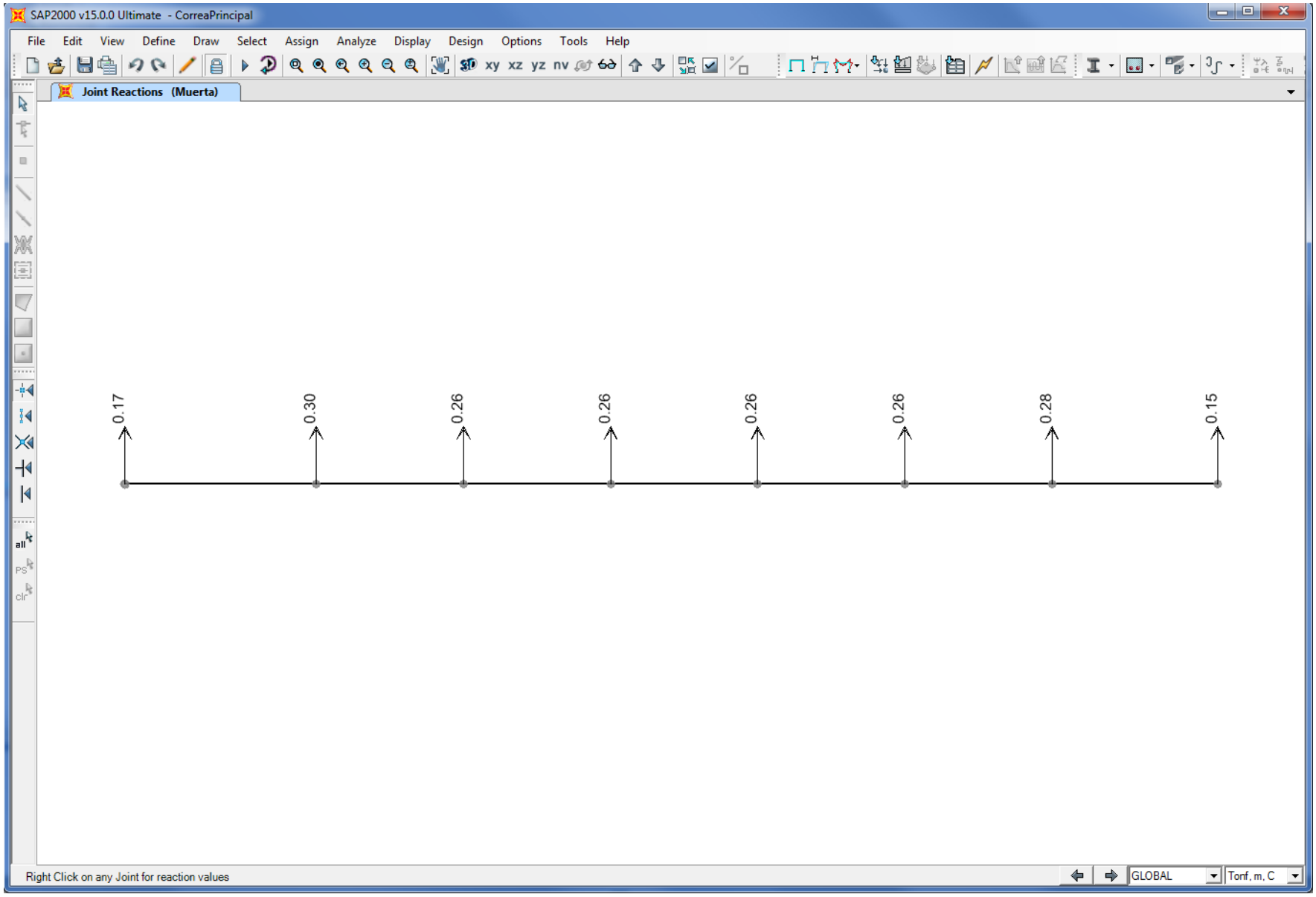


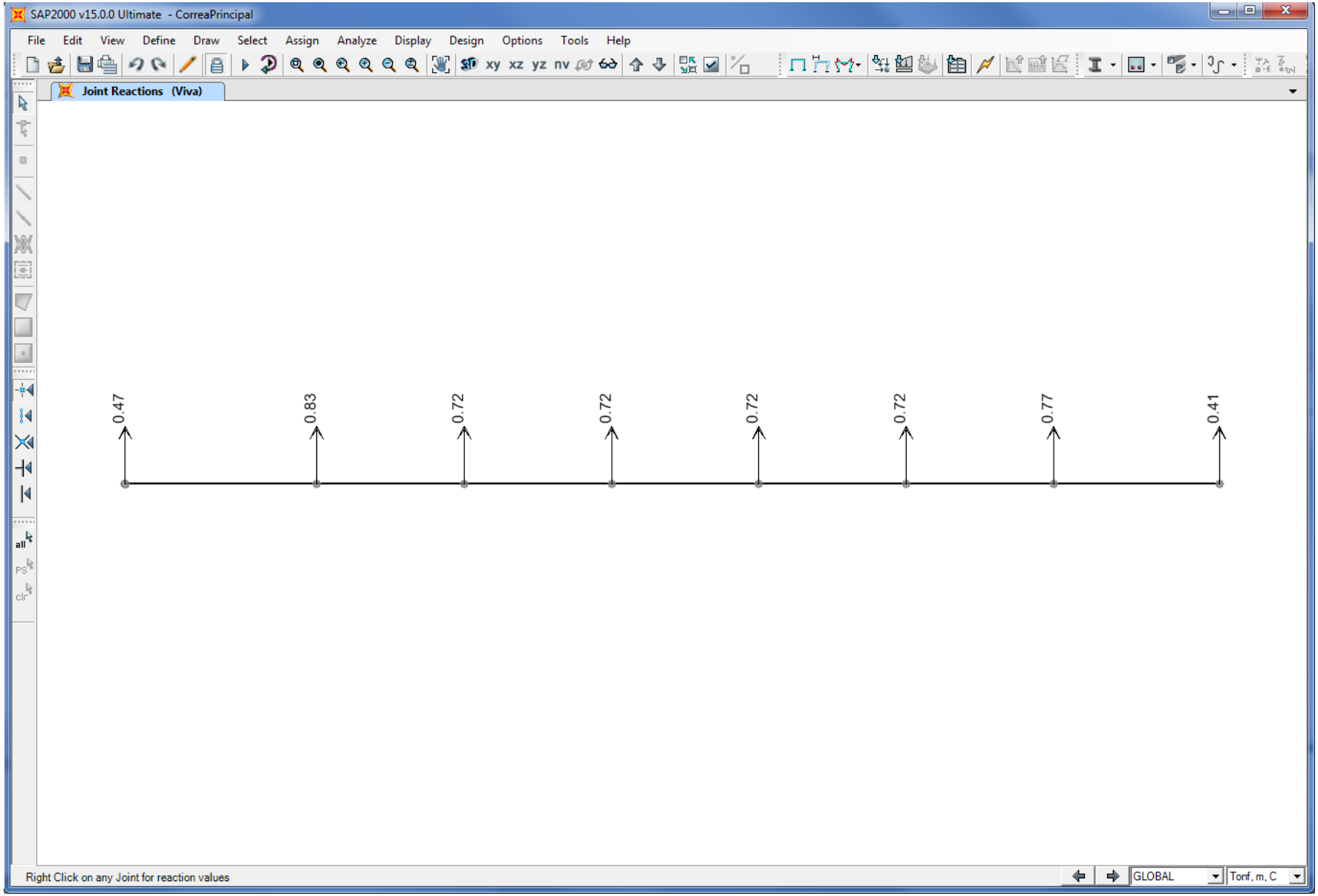
DIAGRAMA DE MOMENTOS (ton-cm)



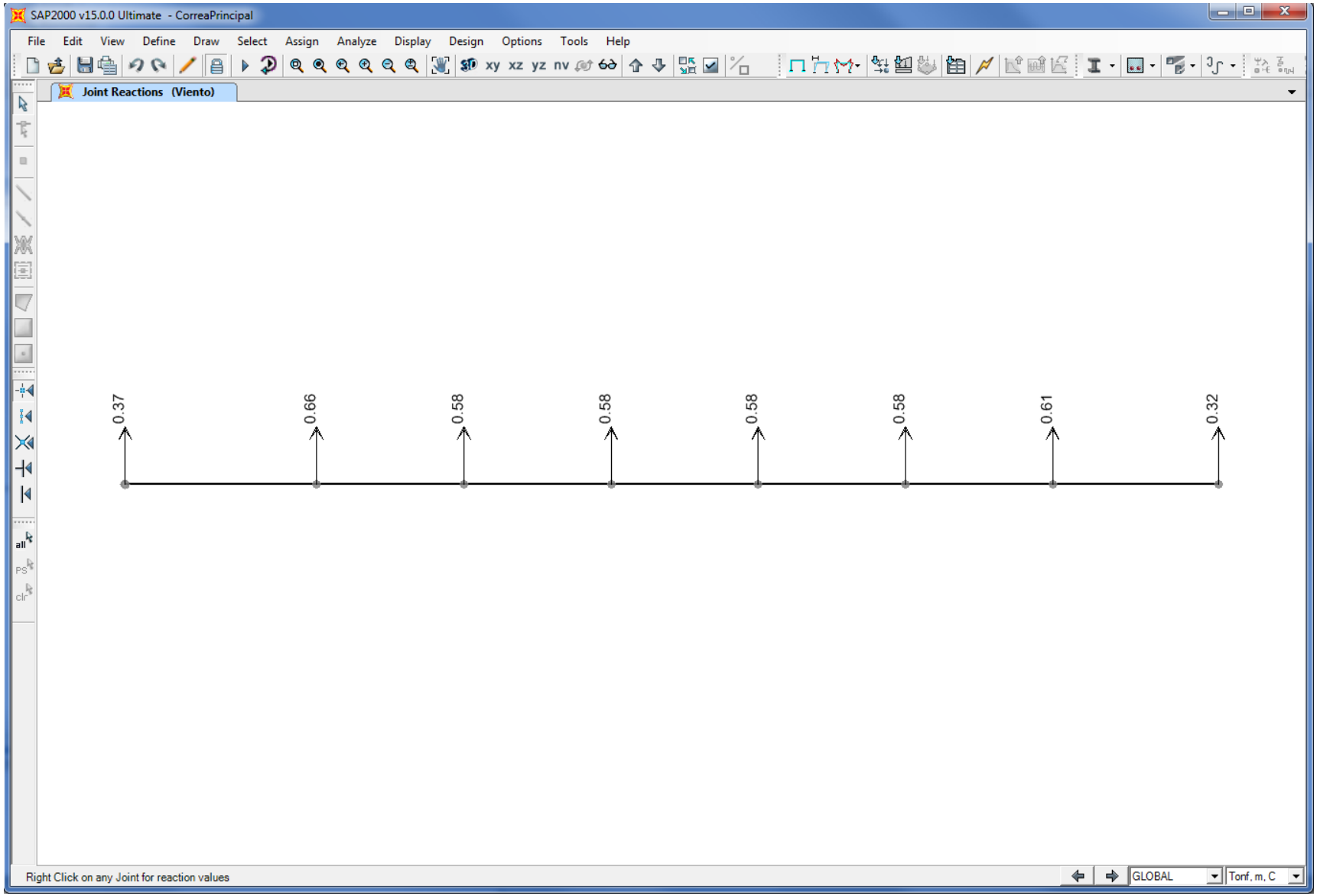
CHEQUEO DE DISEÑO



REACCIONES EN APOYOS POR CARGA MUERTA (ton)



REACCIONES EN APOYOS POR CARGA VIVA (ton)



REACCIONES EN APOYOS POR CARGA DE VIENTO (ton)

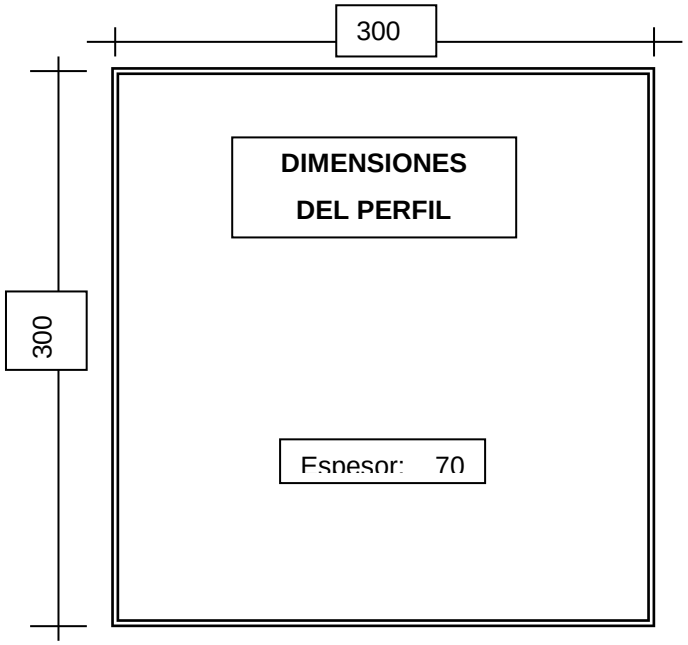
ANALISIS DE LA CERCHA

A partir del análisis de la correa, en los diagramas de las páginas anteriores, se puede observar las cargas que las correas le transfieren a la cercha.
Con estas cargas aplicadas se analizó y se diseñó las cerchas de la cubierta:

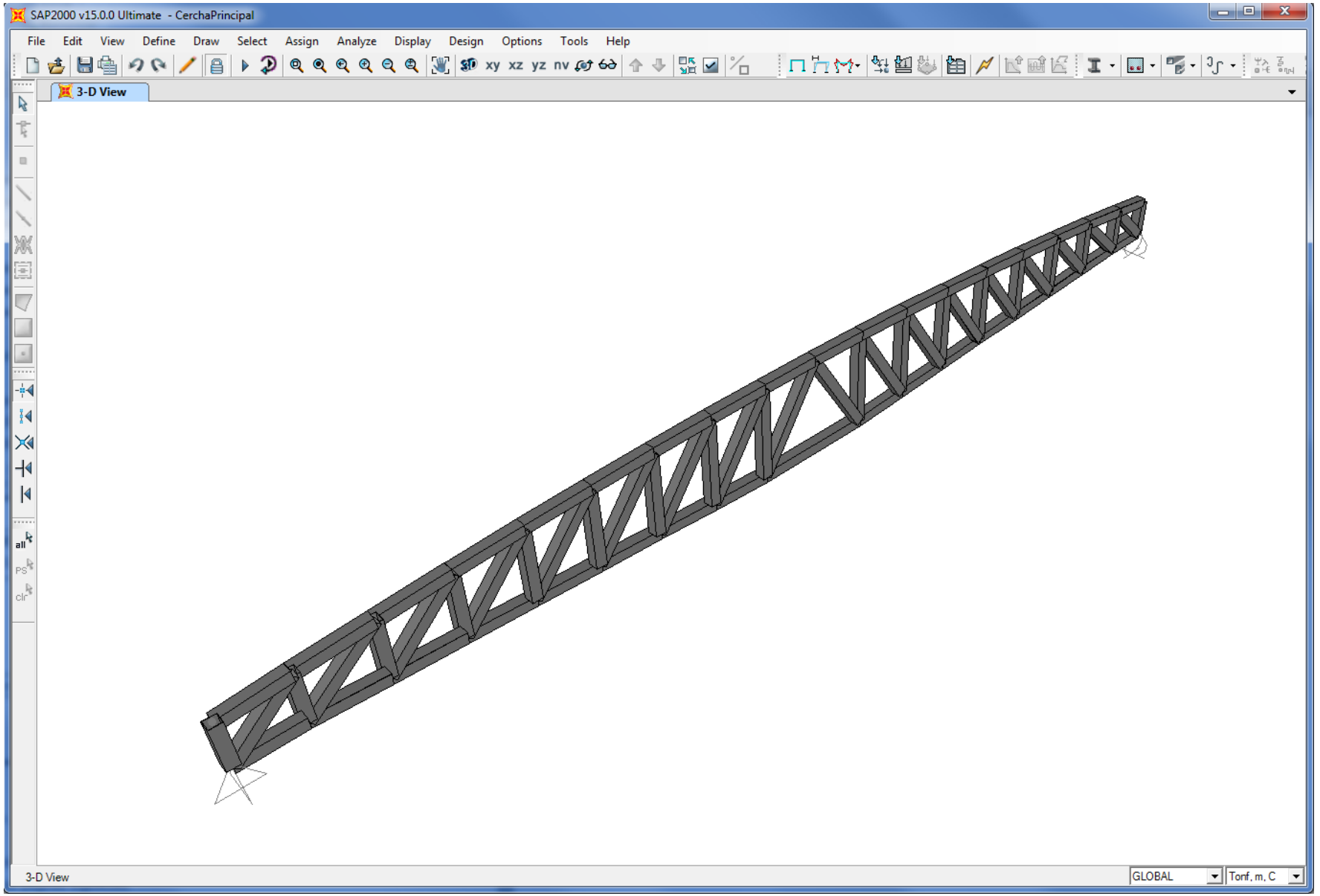
Carga Muerta: **P_D = (-z) 0.30 ton.**
Carga viva: **P_L = (-z) 0.83 ton.**
Carga de viento: **P_W = (-z) 0.66 ton.**

Nota: *las cargas de las correas aplicadas en extremos se redujo en un 50%*

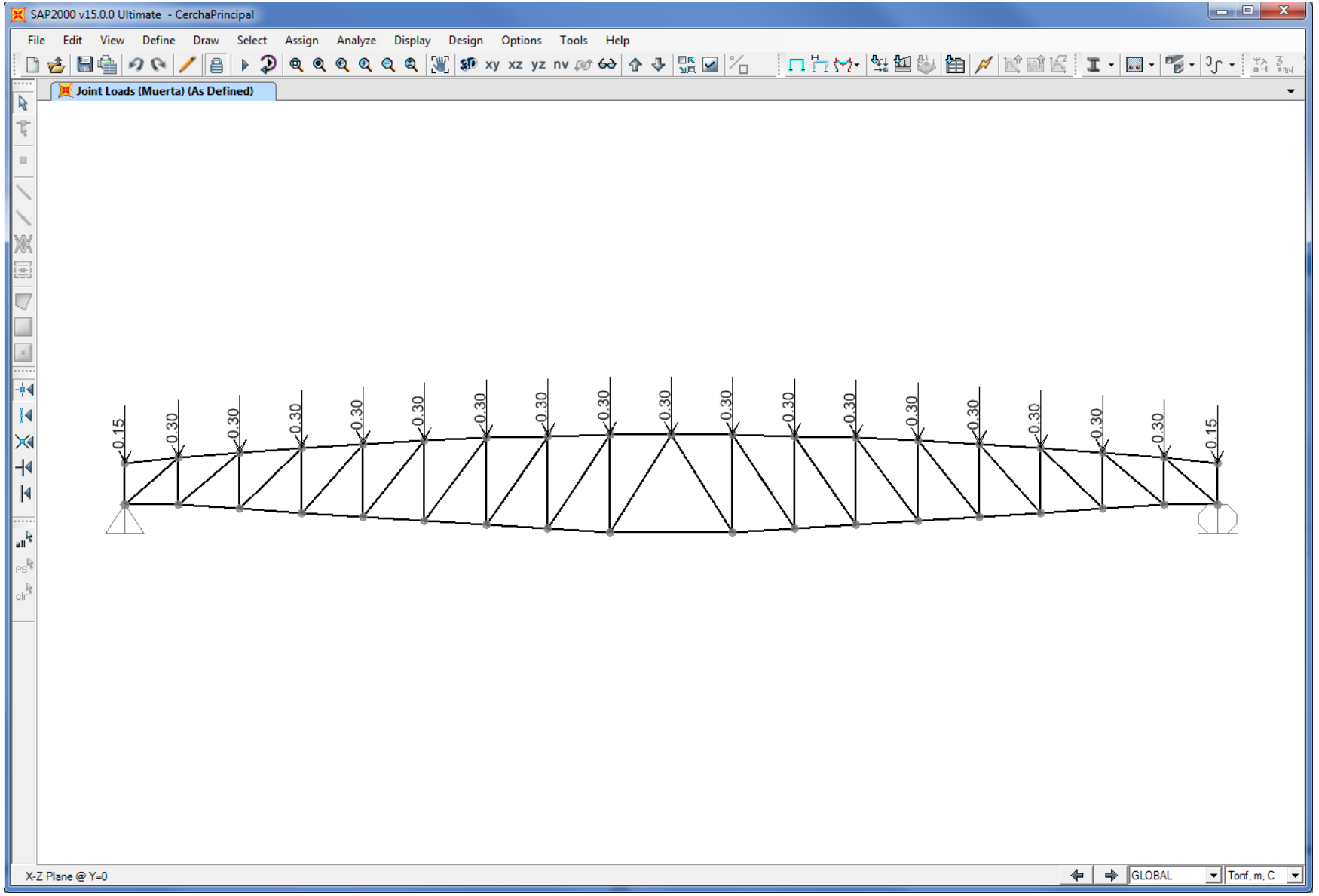
La cercha está formada por dos tipos de elementos con sección transversal rectangular. 250x85-2 mm.
Elementos principales: Cajón 300x300x70mm
Eleentos de celosías: Cajón 300x300x70mm



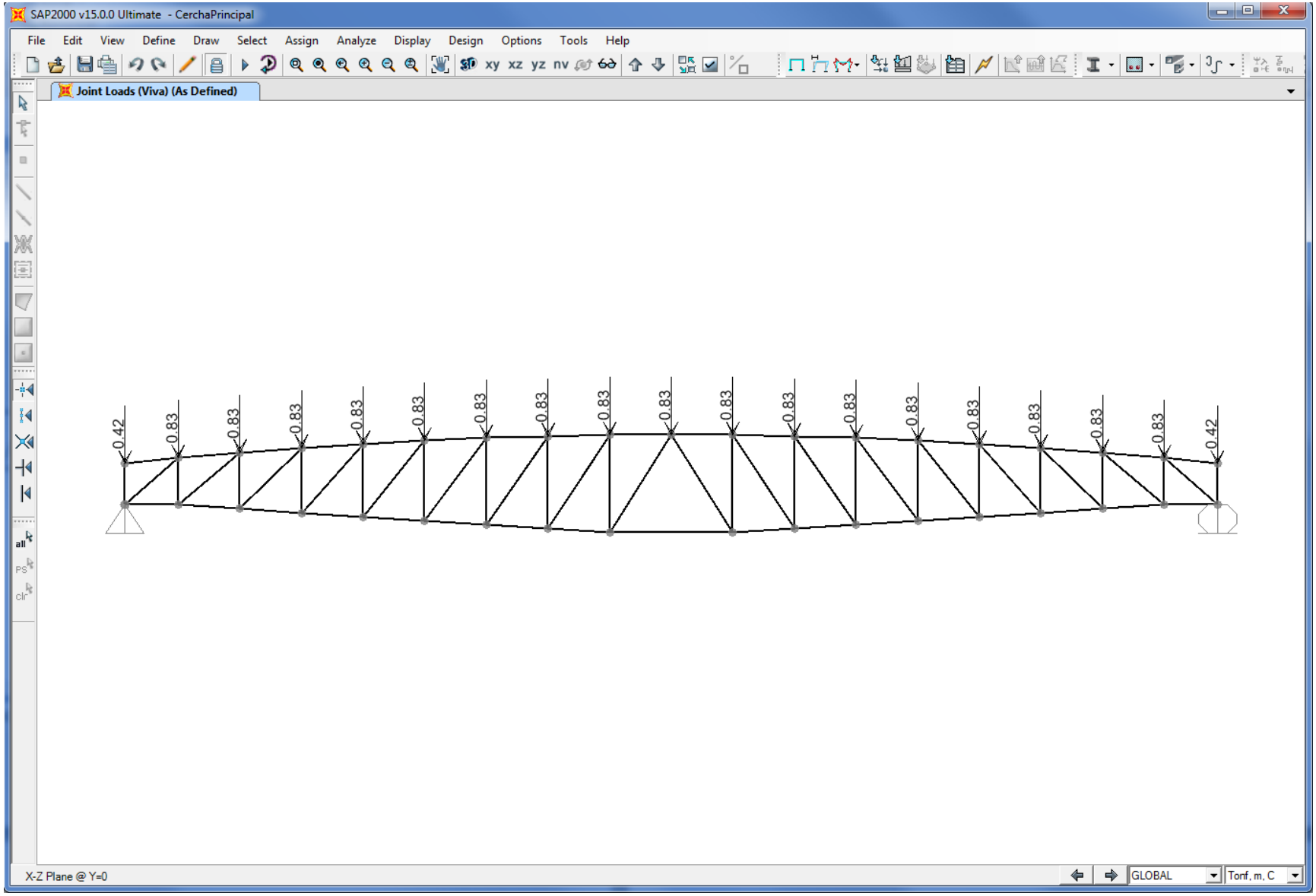
Nota: *podrá utilizarse otro tipo de perfil, siempre y cuando no se disminuya el área ni las características inerciales de la sección.*
Todo el análisis y chequeo de diseño se realizó mediante el programa SAP2000, cuyos datos y resultados se pueden observar gráficamente en las páginas siguientes.



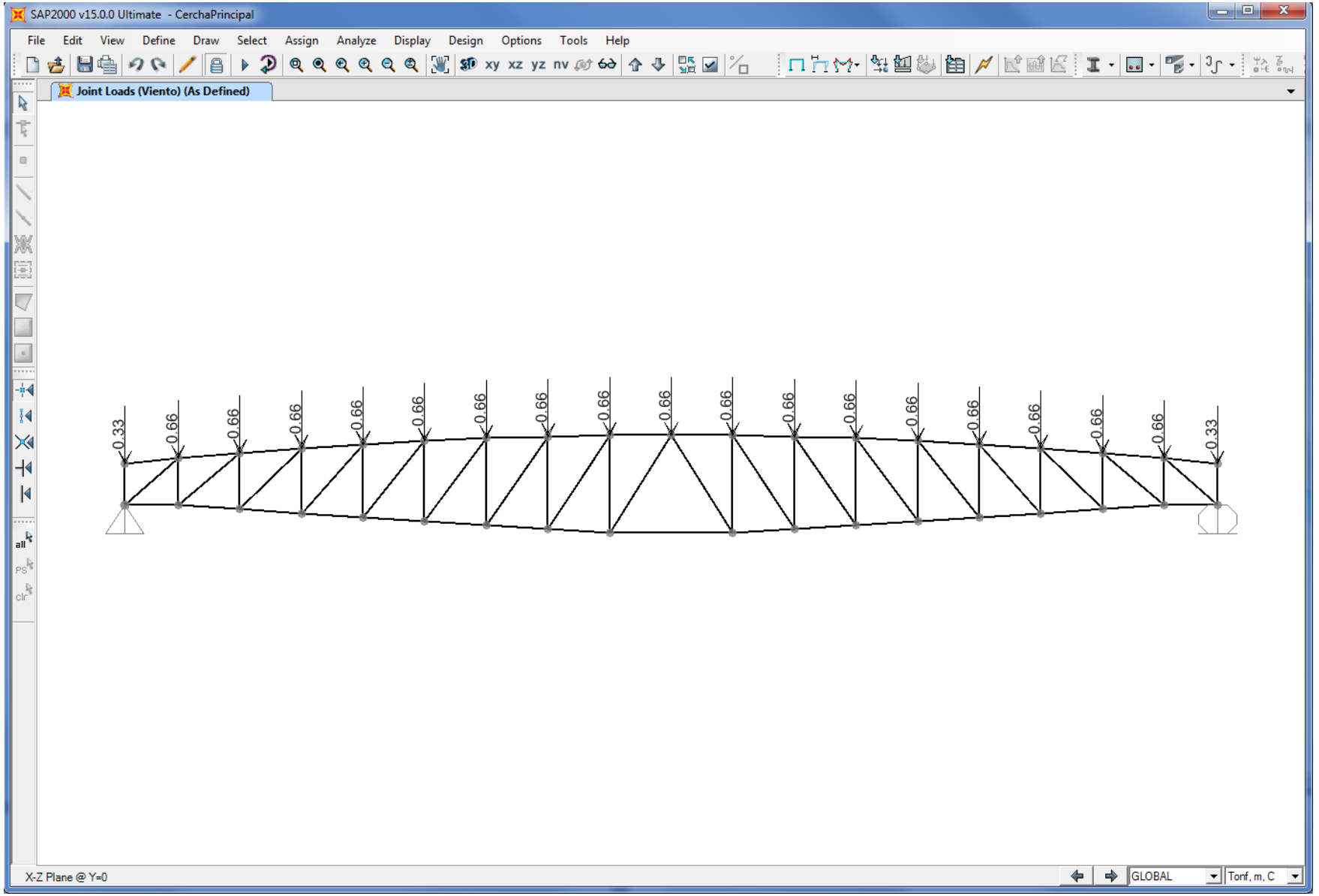
VISUALIZACIÓN DE LA CERCHA EN FORMA ESTRUIDA



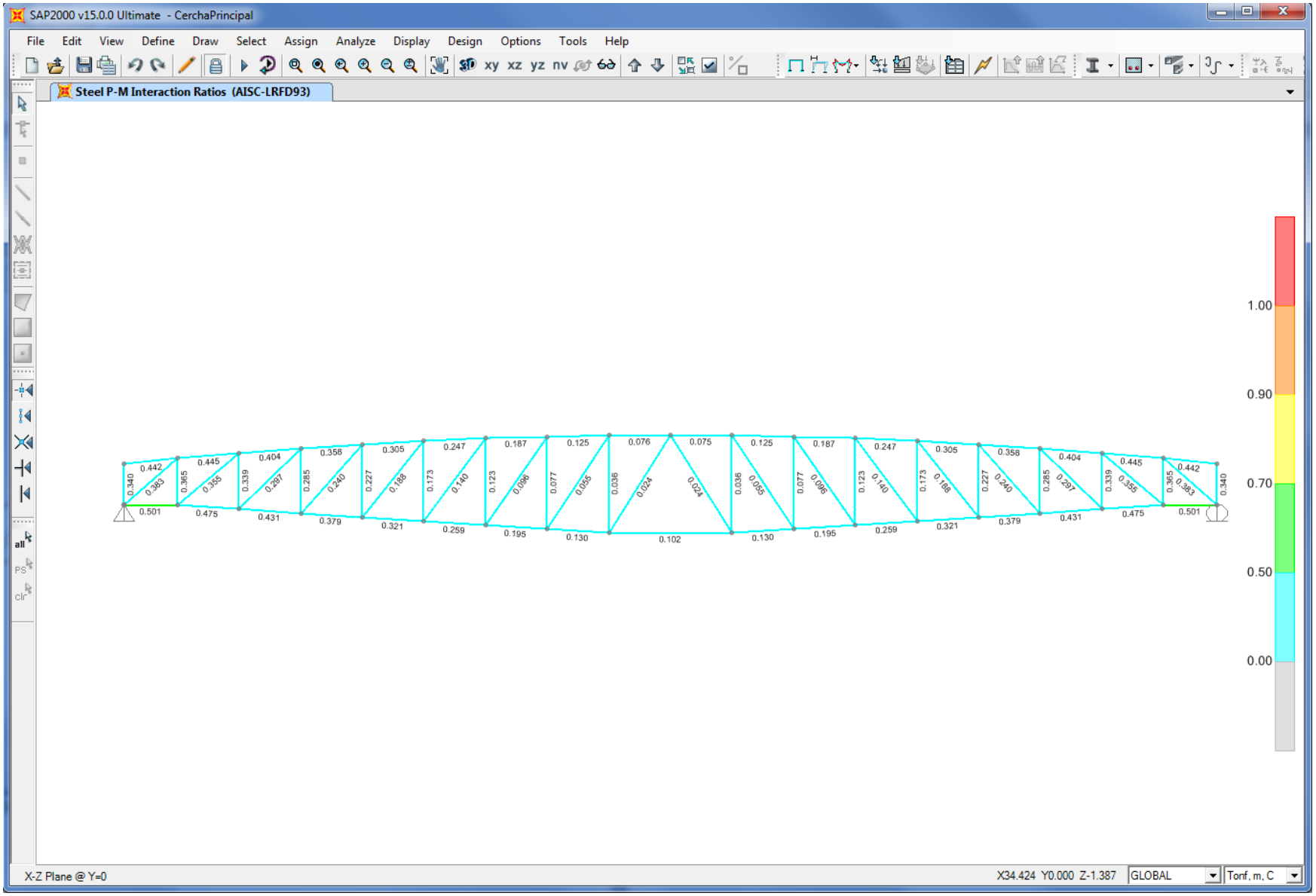
APLICACIÓN DE LA CARGA MUERTA (ton)



APLICACIÓN DE LA CARGA VIVA (ton)



APLICACIÓN DE LA CARGA DE VIENTO (ton)

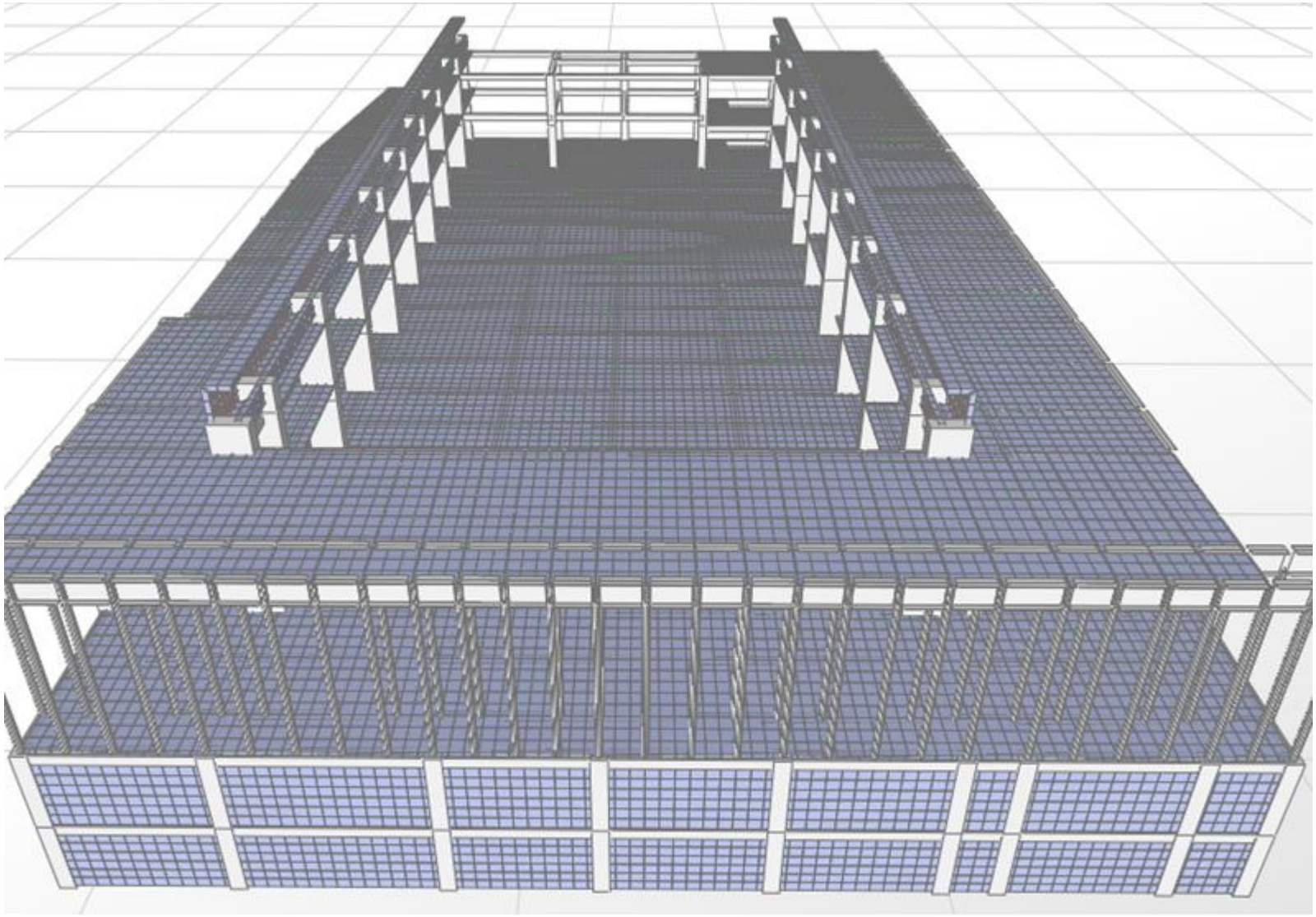


CHEQUEO DE DISEÑO

PARTE 2:

ANALISIS Y DISEÑO DEL

PORTICO ESPACIAL GRAN SALON



PERSPECTIVA GENERAL DEL MODELO

DESCRIPCION ESTRUCTURAL DE LA EDIFICACIÓN

El salón principal consiste en una edificación cuya estructura se define como Sistema de Pórtico, el cual esta compuesto por elementos tipo columnas y vigas (pórtico espacial), resistente a momentos, esencialmente completo y sin diagonales, que resiste todas las cargas verticales y fuerzas horizontales.

Los entrepisos y cubiertas se diseñaron utilizando diferentes opciones según la necesidad y la arquitectura.

La cubierta del salón está conformada por una estructura metálica convencional de cerchas, correas, contravientos y teja liviana, la cubierta de los parqueaderos, del primer piso donde se proyecta la cocina y de los pasillos y sala de prensa del segundo piso están conformados por placas reforzadas de concreto de 15 cm de espesor, la cubierta de los pasillos externos es *steeldeck*, y sobre esta se instala una cubierta verde.

EVALUACIÓN DE CARGAS

CARGAS SOTANOS NIVEL -4.70 Y -7.90:

Carga Muerta:

Espesor de placa en concreto: 15 cm.

Peso propio: El programa SAP2000 calcula automáticamente el peso propio

Peso muerto área espectadores:

Afinado (25mm) sobre concreto de agregado petreo = 150 kg/m^2

Acabados (e=4 cm. de espesor) = 80 kg/cm^2

Divisiones en mampostería = 50 kg/m^2

Ductos mecánicos = 20 kg/m^2

Total peso sobrepuesto = **W_D = 300 kg/m^2**

Carga Viva:

Garajes Para Automóviles de pasajeros: **W_L = 500 kg/m^2**

CARGAS GRAN SALON NIVEL 0.00:

Carga Muerta:

Espesor de placa en concreto: 15 cm.

Peso propio: El programa SAP2000 calcula automáticamente el peso propio

Peso muerto área espectadores:

Afinado (25mm) sobre concreto de agregado petreo = 150 kg/m^2

Acabados (e=4 cm. de espesor) = 80 kg/cm^2

Divisiones en mampostería = 100 kg/m^2

Ductos mecánicos = 20 kg/m^2

Total peso sobrepuesto = **W_D = 350 kg/m^2**

Carga Viva:

Reunión (silletería móvil): **W_L = 500 kg/m^2**

CARGAS CUBIERTA PLANA NIVEL + 4.60:

Carga Muerta:

Espesor de placa en concreto: 15 cm.

Peso propio: El programa SAP2000 calcula automáticamente el peso propio

Peso muerto área espectadores:

Afinado (25mm) sobre concreto de agregado petreo = 150 kg/m^2

Acabados (e=4 cm. de espesor) = 80 kg/cm^2

Divisiones en mampostería = 100 kg/m^2

Ductos mecánicos = 20 kg/m^2

Entramado metalico suspendido afinado en yeso = 50 kg/m^2

Total peso sobrepuesto = **W_D = 400 kg/m^2**

Carga Viva:

Reunión (silletería móvil): **W_L = 500 kg/m^2**

CARGAS CUBIERTA PLANA NIVEL + 5.70:

Carga Muerta:

Espesor de placa en concreto: 15 cm.

Peso propio: El programa SAP2000 calcula automáticamente el peso propio

Peso muerto área espectadores:

Afinado (25mm) sobre concreto de agregado petreo = 150 kg/m^2

Acabados (e=4 cm. de espesor) = 80 kg/cm^2

Ductos mecánicos = 20 kg/m^2

Entramado metalico suspendido afinado en yeso = 50 kg/m^2

Total peso sobrepuesto = **W_D = 300 kg/m^2**

Carga Viva:

Reunión (silletería móvil): **W_L = 250 kg/m^2**

CARGAS CUBIERTA PLANA NIVEL + 9.20:

Carga Muerta:

Espesor de placa en concreto: 10 cm. Steel Deck

Peso propio: El programa SAP2000 calcula automáticamente el peso propio

Peso muerto área espectadores:

Afinado (25mm) sobre concreto de agregado petreo = 150 kg/m^2

Acabados (e=4 cm. de espesor) = 80 kg/cm^2

Ductos mecánicos = 20 kg/m^2

Entramado metálico suspendido = 50 kg/m^2

Total peso sobrepuesto = **W_D = 300 kg/m^2**

Carga Viva:

Cubierta usada para jardín de cubierta: **W_L = 500 kg/m^2**

CARGAS MINIMAS GENERALES DE CUBIERTA PRINCIPAL METALICA (NSR-10)

Carga Muerta: Peso de teja: $W_D = 5.00$ kg/m^2 → incluye pernos de fijación
Peso de contravientos y tensores: $W_D = 4.00$ kg/m^2 → incluye pernos de fijación
Peso estructura metálica: El programa SAP2000 calcula automáticamente el peso propio

Carga Viva: $W_D = 50$ kg/m^2

Carga de Viento*:* $W_V = 40$ kg/m^2

CARGAS ESPECIALES

Peso estructura metálica liviana: $W_D = 50$ kg/m^2

COMBINACIONES DE CARGAS

1.4D+1.4F [Linear Add]

1.2(D+F) + 1.6(H+L) + 0.5Lr → [Linear Add]

1.2D + 1.6Lr + 0.8W → [Linear Add]

1.2D + 1.6Lr + L → [Linear Add]

1.2D + 1.6W + 1L + 0.5Lr → [Linear Add]

1.2D + 1L + 1EX → [Linear Add]

1.2D + 1L + 1EY → [Linear Add]

0.9D + 1.6W + 1.6H → [Linear Add]

0.9D + 1.0EX + 1.6H → [Linear Add]

0.9D + 1.0EY + 1.6H → [Linear Add]

COMBO [Envelope]

Donde:

D: carga muerta

L: carga viva

Lr: carga viva sobre la cubierta

H: cargas debidas al empuje lateral del suelo

F: cargas debida al peso y presión del fluido

E: Fuerzas sísmicas reducidas de diseño

W: Carga de viento:

ESPECTRO SISMICO DE DISEÑO [NSR-10]

PERIODO DE INICIO DEL ESPECTRO To: $T_o = 0.1 * \frac{A_v * F_v}{A_a * F_a}$

To =	0.15
Tc =	0.70
TL =	4.56

PERIODO DE TRANSICION Tc: $T_c = 0.48 * \frac{A_v * F_v}{A_a * F_a}$

VALORES DE ACELERACION PARA PERIODOS MENORES DE Tc: $S_a = 2.5 * A_a * F_a * I$

PERIODO DE TRANSICION TL: $T_L = 2.4 * F_v$

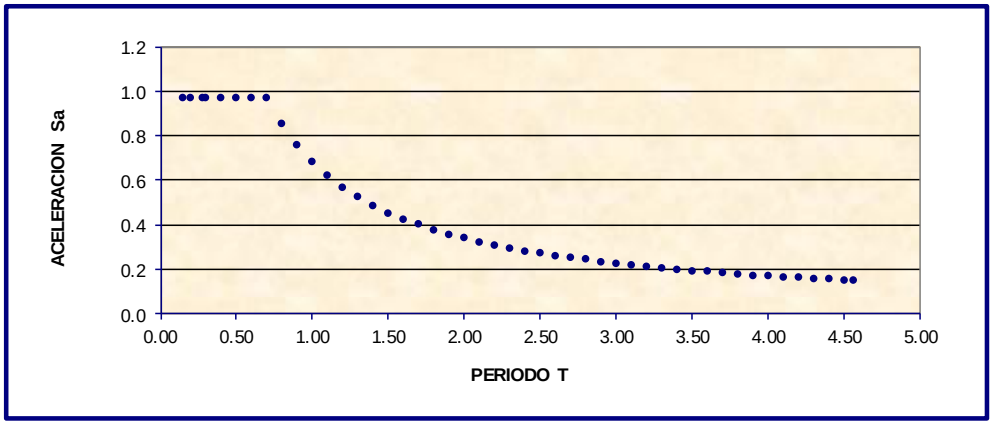
VALORES DE ACELERACION PARA PERIODOS ENTRE Tc Y TL: $S_a = \frac{1.2 * A_v * F_v * I}{T}$

VALORES DE ACELERACION PARA PERIODOS MAYORES DE TL: $S_a = \frac{1.2 * A_v * F_v * T_L * I}{T}$

T	Sa
0.15	0.975
0.20	0.975
0.30	0.975
0.40	0.975
0.50	0.975
0.60	0.975
0.70	0.975
0.80	0.855
0.90	0.760
1.00	0.684
1.10	0.622
1.20	0.570
1.30	0.526
1.40	0.489
1.50	0.456
1.60	0.428
1.70	0.402
1.80	0.380
1.90	0.360

T	Sa
2.00	0.342
2.10	0.326
2.20	0.311
2.30	0.297
2.40	0.285
2.50	0.274
2.60	0.263
2.70	0.253
2.80	0.244
2.90	0.236
3.00	0.228
3.10	0.221
3.20	0.214
3.30	0.207
3.40	0.201
3.50	0.195
3.60	0.190
3.70	0.185
3.80	0.180

T	Sa
3.90	0.175
4.00	0.171
4.10	0.167
4.20	0.163
4.30	0.159
4.40	0.155
4.50	0.152
4.56	0.150



ARCHIVO DE ENTRADA DE DATOS

TABLE: Load Pattern Definitions					
LoadPat	DesignType	SelfWtMult	AutoLoad	GUID	Notes
Text	Text	Unitless	Text	Text	Text
VIVA	LIVE	0			
MUERTA	DEAD	1			
EMPUJE SUELO	OTHER	0			
PRESION FLUIDO	OTHER	0			
VIENTO	WIND	0	None		
VIVA-TECHO	ROOF LIVE	0			

TABLE: Material Properties 01 - General						
Material	Type	SymType	TempDepend	Color	GUID	Notes
Text	Text	Text	Yes/No	Text	Text	Text
4000Psi	Concrete	Isotropic	No	Blue		Normalweight f'c = 4 ksi added 23/05/2010 08:19:09 p.m.
A36	Steel	Isotropic	No	Cyan		ASTM A36 added 27/10/2008 7:25:52
A416Gr270	Tendon	Uniaxial	No	Blue		ASTM A416 Grade 270 added 27/10/2008 7:25:53
A615Gr60	Rebar	Uniaxial	No	Green		ASTM A615 Grade 60 added 27/10/2008 7:25:52
ALUM	Aluminum	Isotropic	No	Magenta		Aluminum Alloy 6061 T6 added 27/10/2008 7:25:52
CLDFRM	ColdFormed	Isotropic	No	Yellow		ASTM A653 SQ Grade 50 added 27/10/2008 7:25:52
CONC	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
Concreto Placa I	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
Concreto Placa II	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
Concreto Placa III	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
Concreto Placa IV	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
Concreto Placa V	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
Concreto Placa VI	Concrete	Isotropic	No	Red		Normalweight f'c = 4 ksi added 27/10/2008 7:25:52
grado50	Steel	Isotropic	No	Cyan		ASTM A36 added 27/10/2008 7:25:52
OTHER	Other	Isotropic	No	White		Material added 27/10/2008 7:25:52
REBAR	Rebar	Uniaxial	No	Green		ASTM A615 Grade 60 added 27/10/2008 7:25:52
STEEL	Steel	Isotropic	No	Cyan		ASTM A36 added 27/10/2008 7:25:52

TABLE: Case - Static 1 - Load Assignments			
Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
VIVA	Load pattern	VIVA	1
MUERTA	Load pattern	MUERTA	1
EMPUJE SUELO	Load pattern	EMPUJE SUELO	1
PRESION FLUIDO	Load pattern	PRESION FLUIDO	1
VIENTO	Load pattern	VIENTO	1
VIVA-TECHO	Load pattern	VIVA-TECHO	1

TABLE: Load Case Definitions									
Case	Type	InitialCond	ModalCase	BaseCase	DesTypeOpt	DesignType	AutoType	RunCase	CaseStatus
Text	Text	Text	Text	Text	Text	Text	Text	Yes/No	Text
VIVA	LinStatic	Zero			Prog Det	LIVE	None	Yes	Finished
EIGENMODES	LinModal	Zero			Prog Det	OTHER	None	Yes	Finished
SISMO X	LinRespSpec		EIGENMODES		Prog Det	QUAKE	None	Yes	Finished
SISMO Y	LinRespSpec		EIGENMODES		Prog Det	QUAKE	None	Yes	Finished
DERIVAS	LinRespSpec		EIGENMODES		Prog Det	QUAKE	None	Yes	Finished
MUERTA	LinStatic	Zero			Prog Det	DEAD	None	Yes	Finished
EMPUJE SUELO	LinStatic	Zero			Prog Det	OTHER	None	Yes	Finished
PRESION FLUIDO	LinStatic	Zero			Prog Det	OTHER	None	Yes	Finished
VIENTO	LinStatic	Zero			Prog Det	WIND	None	Yes	Finished
VIVA-TECHO	LinStatic	Zero			Prog Det	ROOF LIVE	None	Yes	Finished

TABLE: Function - Response Spectrum - User			
Name	Period	Accel	FuncDamp
Text	Sec	Unitless	Unitless
BLA	0.13	0.9	0.05
BLA	0.2	0.9	
BLA	0.4	0.9	
BLA	0.5	0.9	
BLA	0.6	0.9	
BLA	0.65	0.9	
BLA	0.8	0.73	
BLA	0.9	0.65	
BLA	1.1	0.53	
BLA	1.2	0.48	
BLA	1.4	0.42	
BLA	1.6	0.36	
BLA	1.8	0.32	
BLA	2	0.29	
BLA	2.2	0.26	
BLA	2.4	0.24	
BLA	2.6	0.22	
BLA	2.8	0.21	
BLA	3	0.19	
BLA	3.2	0.18	
BLA	3.4	0.17	
BLA	3.6	0.16	
BLA	3.72	0.16	
BLA	3.8	0.15	
BLA	4.3	0.12	
BLA	5.5	0.07	
BLA	8	0.03	
BLA	9	0.03	

ARCHIVO DE SALIDA [REFUERZO DE DISEÑO DE ELEMENTOS COLUMNAS]

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
2	COL50X50	Column	Design	No Messages	0	1M + 1L	25
3	COL50X50	Column	Design	No Messages	35	1M + 1L	25
3	COL50X50	Column	Design	No Messages	435	1M + 1L	25
4	COL50X50	Column	Design	No Messages	435	1M + 1L	25
5	COL50X50	Column	Design	No Messages	350	1M + 1L	25
7	COL50X50	Column	Design	No Messages	435	1M + 1L	25
8	COL50X50	Column	Design	No Messages	400	1M + 1L	25
11	COL50X50	Column	Design	No Messages	365	1M + 1L	25
12	COL50X50	Column	Design	No Messages	435	1M + 1L	25
13	COL50X50	Column	Design	No Messages	435	1M + 1L	25
14	COL50X50	Column	Design	No Messages	400	1M + 1L	25
16	COL50X50	Column	Design	No Messages	435	1M + 1L	25
17	COL50X50	Column	Design	No Messages	400	1M + 1L	25
19	COL50X50	Column	Design	No Messages	435	1M + 1L	25
20	COL50X50	Column	Design	No Messages	400	1M + 1L	25
22	COL50X50	Column	Design	No Messages	435	1M + 1L	25
23	COL50X50	Column	Design	No Messages	400	1M + 1L	25
25	COL50X50	Column	Design	No Messages	435	1M + 1L	25
26	COL50X50	Column	Design	No Messages	400	1M + 1L	25
28	COL50X50	Column	Design	No Messages	435	1M + 1L	25
29	COL50X50	Column	Design	No Messages	400	1M + 1L	25
33	COL50X50	Column	Design	No Messages	365	1M + 1L	25
34	COL50X50	Column	Design	No Messages	435	1M + 1L	25
36	COL50X50	Column	Design	No Messages	365	1M + 1L	25
37	COL50X50	Column	Design	No Messages	423	1.2D+1.6L	39.5299
39	COL75x200	Column	Design	No Messages	365	1M + 1L	150
40	COL75x200	Column	Design	No Messages	435	1M + 1L	150
45	COL75x200	Column	Design	No Messages	435	1M + 1L	150
46	COL75x200	Column	Design	No Messages	400	1M + 1L	150
50	COL75x200	Column	Design	No Messages	435	1M + 1L	150
51	COL75x200	Column	Design	No Messages	400	1M + 1L	150
55	COL75x200	Column	Design	No Messages	435	1M + 1L	150
56	COL75x200	Column	Design	No Messages	400	1M + 1L	150
60	COL75x200	Column	Design	No Messages	35	1M + 1L	150

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
61	COL75x200	Column	Design	No Messages	400	1M + 1L	150
65	COL75x200	Column	Design	No Messages	435	1M + 1L	150
66	COL75x200	Column	Design	No Messages	400	1M + 1L	150
70	COL75x200	Column	Design	No Messages	435	1M + 1L	150
71	COL75x200	Column	Design	No Messages	400	1M + 1L	150
75	COL75x200	Column	Design	No Messages	435	1M + 1L	150
76	COL75x200	Column	Design	No Messages	400	1M + 1L	150
79	COL50X50	Column	Design	No Messages	365	1M + 1L	25
80	COL50X50	Column	Design	No Messages	435	1.2(D+F)+1.6(H+L)	26.1822
82	COL50X50	Column	Design	No Messages	0	1.2D+1.6L	58.0617
82	COL50X50	Column	Design	No Messages	182.5	1.2D+1.6L	55.9851
82	COL50X50	Column	Design	No Messages	365	1.2D+1.6L	56.1658
83	COL50X50	Column	Design	No Messages	435	1.2(D+F)+1.6(H+L)	42.971
85	COL50X50	Column	Design	No Messages	365	1M + 1L	25
86	COL50X50	Column	Design	No Messages	435	1.2D+1.6L	37.8933
88	COL50X50	Column	Design	No Messages	365	1M + 1L	25
89	COL50X50	Column	Design	No Messages	35	1M + 1L	25
91	COL50X50	Column	Design	No Messages	365	1M + 1L	25
92	COL50X50	Column	Design	No Messages	435	1M + 1L	25
94	COL50X50	Column	Design	No Messages	365	1M + 1L	25
95	COL50X50	Column	Design	No Messages	435	1M + 1L	25
97	COL50X50	Column	Design	No Messages	365	1M + 1L	25
98	COL50X50	Column	Design	No Messages	435	1M + 1L	25
100	COL50X50	Column	Design	No Messages	365	1M + 1L	25
101	COL50X50	Column	Design	No Messages	435	1M + 1L	25
103	COL50X50	Column	Design	No Messages	365	1M + 1L	25
104	COL50X50	Column	Design	No Messages	435	1M + 1L	25
106	COL50X50	Column	Design	No Messages	365	1M + 1L	25
107	COL50X50	Column	Design	See ErrMsg	435	1.2D+1.6L	55.0773
109	COL50X50	Column	Design	No Messages	365	1M + 1L	25
110	COL50X50	Column	Design	No Messages	435	1.2(D+F)+1.6(H+L)	25.9486
112	COL50X50	Column	Design	No Messages	365	1M + 1L	25
113	COL50X50	Column	Design	No Messages	35	1M + 1L	25
113	COL50X50	Column	Design	No Messages	435	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
115	COL50X50	Column	Design	No Messages	365	1M + 1L	25
116	COL50X50	Column	Design	No Messages	435	1M + 1L	25
118	COL50X50	Column	Design	No Messages	365	1M + 1L	25
119	COL50X50	Column	Design	No Messages	435	1M + 1L	25
121	COL50X50	Column	Design	No Messages	365	1M + 1L	25
122	COL50X50	Column	Design	No Messages	435	1M + 1L	25
124	COL50X50	Column	Design	No Messages	365	1M + 1L	25
125	COL50X50	Column	Design	No Messages	435	1M + 1L	25
127	COL50X50	Column	Design	No Messages	365	1M + 1L	25
128	COL50X50	Column	Design	No Messages	435	1M + 1L	25
130	COL50X50	Column	Design	No Messages	365	1M + 1L	25
131	COL50X50	Column	Design	No Messages	435	1M + 1L	25
133	COL50X50	Column	Design	No Messages	365	1M + 1L	25
134	COL50X50	Column	Design	No Messages	435	1M + 1L	25
136	COL50X50	Column	Design	No Messages	365	1M + 1L	25
137	COL50X50	Column	Design	No Messages	435	1.2D+1.6L	45.1218
139	COL50X50	Column	Design	No Messages	365	1M + 1L	25
140	COL50X50	Column	Design	No Messages	35	1M + 1L	25
142	COL50X50	Column	Design	No Messages	0	1.2D+1.6L	49.8032
143	COL50X50	Column	Design	No Messages	35	1M + 1L	25
145	COL50X50	Column	Design	No Messages	365	1M + 1L	25
146	COL50X50	Column	Design	No Messages	435	1M + 1L	25
148	COL50X50	Column	Design	No Messages	365	1M + 1L	25
149	COL50X50	Column	Design	No Messages	35	1M + 1L	25
151	COL50X50	Column	Design	No Messages	365	1M + 1L	25
152	COL50X50	Column	Design	No Messages	435	1M + 1L	25
154	COL50X50	Column	Design	No Messages	365	1M + 1L	25
155	COL50X50	Column	Design	No Messages	435	1M + 1L	25
157	COL50X50	Column	Design	No Messages	365	1M + 1L	25
158	COL50X50	Column	Design	No Messages	435	1M + 1L	25
160	COL50X50	Column	Design	No Messages	365	1M + 1L	25
161	COL50X50	Column	Design	No Messages	35	1M + 1L	25
163	COL50X50	Column	Design	No Messages	0	1M + 1L	25
164	COL50X50	Column	Design	No Messages	35	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
166	COL50X50	Column	Design	No Messages	0	1M + 1L	25
167	COL50X50	Column	Design	No Messages	435	1.2D+1.6L	45.7098
169	COL50X50	Column	Design	No Messages	365	1M + 1L	25
170	COL50X50	Column	Design	No Messages	435	1M + 1L	25
172	COL75x200	Column	Design	No Messages	365	1M + 1L	150
173	COL75x200	Column	Design	No Messages	435	1M + 1L	150
178	COL75x200	Column	Design	No Messages	435	1M + 1L	150
179	COL75x200	Column	Design	No Messages	35	1M + 1L	150
183	COL75x200	Column	Design	No Messages	35	1M + 1L	150
184	COL75x200	Column	Design	No Messages	35	1M + 1L	150
188	COL75x200	Column	Design	No Messages	35	1M + 1L	150
189	COL75x200	Column	Design	No Messages	35	1M + 1L	150
193	COL75x200	Column	Design	No Messages	35	1M + 1L	150
194	COL75x200	Column	Design	No Messages	35	1M + 1L	150
198	COL75x200	Column	Design	No Messages	35	1M + 1L	150
199	COL75x200	Column	Design	No Messages	35	1M + 1L	150
203	COL75x200	Column	Design	No Messages	35	1M + 1L	150
204	COL75x200	Column	Design	No Messages	35	1M + 1L	150
208	COL75x200	Column	Design	No Messages	35	1M + 1L	150
209	COL75x200	Column	Design	No Messages	35	1M + 1L	150
211	COL50X50	Column	Design	No Messages	35	1.2D+1.6L	36.8788
212	COL50X50	Column	Design	No Messages	400	1M + 1L	25
218	COL50X50	Column	Design	No Messages	365	1.2D+1.6L	38.3516
219	COL50X50	Column	Design	No Messages	435	1.2(D+F)+1.6(H+L)	38.1735
221	COL50X50	Column	Design	No Messages	0	1M + 1L	25
222	COL50X50	Column	Design	No Messages	35	1M + 1L	25
224	COL50X50	Column	Design	No Messages	365	1.2D+1.6L	32.0507
225	COL50X50	Column	Design	No Messages	435	1.2(D+F)+1.6(H+L)	38.9193
227	COL50X50	Column	Design	No Messages	365	1M + 1L	25
228	COL50X50	Column	Design	No Messages	435	1M + 1L	25
230	COL50X50	Column	Design	No Messages	365	1M + 1L	25
231	COL50X50	Column	Design	No Messages	35	1M + 1L	25
233	COL50X50	Column	Design	No Messages	365	1M + 1L	25
234	COL50X50	Column	Design	No Messages	435	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
236	COL50X50	Column	Design	No Messages	365	1M + 1L	25
237	COL50X50	Column	Design	No Messages	435	1M + 1L	25
239	COL50X50	Column	Design	No Messages	365	1M + 1L	25
240	COL50X50	Column	Design	No Messages	435	1M + 1L	25
242	COL50X50	Column	Design	No Messages	365	1M + 1L	25
243	COL50X50	Column	Design	No Messages	435	1M + 1L	25
245	COL50X50	Column	Design	No Messages	365	1M + 1L	25
246	COL50X50	Column	Design	No Messages	435	1.2D+1L+1EX	31.2465
733	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	43.2256
734	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	43.0677
735	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	28.9494
736	COL50X50	Column	Design	No Messages	430	1M + 1L	25
737	COL50X50	Column	Design	No Messages	430	1M + 1L	25
738	COL50X50	Column	Design	No Messages	430	1M + 1L	25
739	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	32.7124
740	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	31.1307
741	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	34.7971
743	COL75x200	Column	Design	No Messages	430	1M + 1L	150
745	COL75x200	Column	Design	No Messages	430	1M + 1L	150
747	COL75x200	Column	Design	No Messages	430	1M + 1L	150
749	COL75x200	Column	Design	No Messages	430	1M + 1L	150
751	COL75x200	Column	Design	No Messages	430	1M + 1L	150
753	COL75x200	Column	Design	No Messages	430	1M + 1L	150
755	COL75x200	Column	Design	No Messages	430	1M + 1L	150
757	COL75x200	Column	Design	No Messages	430	1M + 1L	150
759	COL50X50	Column	Design	No Messages	430	1M + 1L	25
761	COL50X50	Column	Design	No Messages	430	1M + 1L	25
762	COL50X50	Column	Design	No Messages	35	1M + 1L	25
765	COL50X50	Column	Design	No Messages	430	1M + 1L	25
767	COL50X50	Column	Design	No Messages	430	1M + 1L	25
769	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	35.7613
771	COL50X50	Column	Design	No Messages	430	1M + 1L	25
773	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	39.5175
776	COL75x200	Column	Design	No Messages	430	1M + 1L	150

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
778	COL75x200	Column	Design	No Messages	430	1M + 1L	150
782	COL75x200	Column	Design	No Messages	430	1M + 1L	150
784	COL75x200	Column	Design	No Messages	430	1M + 1L	150
786	COL75x200	Column	Design	No Messages	430	1M + 1L	150
788	COL75x200	Column	Design	No Messages	430	1M + 1L	150
790	COL75x200	Column	Design	No Messages	430	1M + 1L	150
792	COL75x200	Column	Design	No Messages	430	1M + 1L	150
798	CIRCULARx50	Column	Design	No Messages	35	1.2D+1L+1EX	44.0127
798	CIRCULARx50	Column	Design	No Messages	430	1.2D+1L+1EX	40.3648
800	CIRCULARx50	Column	Design	No Messages	35	1.2D+1L+1EY	34.2589
805	CIRCULARx50	Column	Design	No Messages	35	1M + 1L	19.635
806	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
809	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
811	CIRCULARx50	Column	Design	No Messages	0	1.2D+1L+1EY	22.3277
812	CIRCULARx50	Column	Design	No Messages	0	1.2D+1L+1EY	21.5153
814	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
815	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
817	CIRCULARx50	Column	Design	No Messages	35	1M + 1L	19.635
818	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
820	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
821	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EX	21.2012
823	CIRCULARx50	Column	Design	No Messages	35	1.2D+1L+1EX	25.9185
824	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
826	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
827	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
829	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
830	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EX	23.0239
865	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
866	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
867	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
868	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
869	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
870	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
871	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
872	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
873	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
874	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
875	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
876	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
877	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
878	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
879	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
880	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
881	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
882	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
883	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
884	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
885	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
886	CIRCULARx50	Column	Design	No Messages	0	1M + 1L	19.635
887	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
888	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
889	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
890	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
912	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
913	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
914	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
916	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
918	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
919	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
1080	CIRCULARx50	Column	Design	No Messages	425	1.2D+1L+1EX	43.5705
1081	CIRCULARx50	Column	Design	No Messages	425	1.2D+1L+1EX	46.0765
1082	CIRCULARx50	Column	Design	No Messages	425	1.2D+1L+1EY	53.7745
1084	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1085	COL75x200	Column	Design	No Messages	35	1M + 1L	150
1086	COL75x200	Column	Design	No Messages	35	1M + 1L	150
1087	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1088	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1089	COL75x200	Column	Design	No Messages	183	1M + 1L	150

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
1090	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1091	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1092	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1093	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1095	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1096	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1097	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1098	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1099	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1102	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1103	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1168	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1169	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1170	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	71.9735
1172	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	80.0667
1221	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1222	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1240	COL75x200	Column	Design	No Messages	35	1M + 1L	150
1241	COL75x200	Column	Design	No Messages	35	1M + 1L	150
1242	COL75x200	Column	Design	No Messages	35	1M + 1L	150
1243	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1244	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1245	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1246	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1247	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1248	COL75x200	Column	Design	No Messages	425	1M + 1L	150
1249	COL75x200	Column	Design	No Messages	183	1M + 1L	150
1	COL50X50	Column	Design	No Messages	435	1M + 1L	25
6	COL50X50	Column	Design	No Messages	400	1M + 1L	25
9	COL50X50	Column	Design	No Messages	435	1M + 1L	25
10	COL50X50	Column	Design	No Messages	400	1M + 1L	25
15	COL50X50	Column	Design	No Messages	365	1M + 1L	25
18	COL50X50	Column	Design	No Messages	435	1M + 1L	25
21	COL50X50	Column	Design	No Messages	365	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
24	COL50X50	Column	Design	No Messages	435	1M + 1L	25
27	COL50X50	Column	Design	No Messages	365	1M + 1L	25
30	COL50X50	Column	Design	No Messages	435	1M + 1L	25
31	COL50X50	Column	Design	No Messages	435	1M + 1L	25
32	COL50X50	Column	Design	No Messages	400	1M + 1L	25
35	COL50X50	Column	Design	No Messages	365	1M + 1L	25
38	COL50X50	Column	Design	No Messages	435	1M + 1L	25
59	COL50X50	Column	Design	No Messages	430	1M + 1L	25
62	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EY	40.5897
63	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EY	42.5747
67	COL50X50	Column	Design	No Messages	430	1M + 1L	25
69	COL50X50	Column	Design	No Messages	430	1M + 1L	25
73	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EX	43.5967
96	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EX	54.162
102	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	41.8194
111	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	42.8565
190	COL50X50	Column	Design	No Messages	430	1M + 1L	25
192	COL50X50	Column	Design	No Messages	430	1M + 1L	25
195	COL50X50	Column	Design	No Messages	425	1M + 1L	25
197	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EX	44.3027
315	COL50X50	Column	Design	No Messages	430	1M + 1L	25
316	COL50X50	Column	Design	No Messages	430	1M + 1L	25
317	COL50X50	Column	Design	No Messages	430	1M + 1L	25
318	COL50X50	Column	Design	No Messages	430	1M + 1L	25
319	COL50X50	Column	Design	No Messages	430	1M + 1L	25
320	COL50X50	Column	Design	No Messages	70	1M + 1L	25
321	COL50X50	Column	Design	No Messages	70	1M + 1L	25
322	COL50X50	Column	Design	No Messages	70	1M + 1L	25
323	COL50X50	Column	Design	No Messages	70	1M + 1L	25
324	COL50X50	Column	Design	No Messages	70	1M + 1L	25
387	COL50X50	Column	Design	No Messages	168	1M + 1L	25
388	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EX	37.5767
390	COL50X50	Column	Design	No Messages	425	1M + 1L	25
391	COL50X50	Column	Design	No Messages	0	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
392	COL50X50	Column	Design	No Messages	35	1M + 1L	25
393	COL50X50	Column	Design	No Messages	168	1M + 1L	25
394	COL50X50	Column	Design	No Messages	425	1M + 1L	25
395	COL50X50	Column	Design	No Messages	168	1M + 1L	25
396	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EX	29.9454
399	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	40.31
401	COL50X50	Column	Design	No Messages	425	1M + 1L	25
403	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	33.4903
405	COL50X50	Column	Design	No Messages	168	1M + 1L	25
406	COL50X50	Column	Design	No Messages	168	1M + 1L	25
810	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
891	COL50X50	Column	Design	No Messages	425	1M + 1L	25
892	COL50X50	Column	Design	No Messages	203	1M + 1L	25
893	COL50X50	Column	Design	No Messages	35	1M + 1L	25
894	COL50X50	Column	Design	No Messages	35	1M + 1L	25
895	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	34.8812
896	COL50X50	Column	Design	No Messages	203	1M + 1L	25
2405	CIRCULARx50	Column	Design	No Messages	890	1M + 1L	19.635
572	COL50X50	Column	Design	No Messages	365	1.2(D+F)+1.6(H+L)	30.5874
638	COL50X50	Column	Design	No Messages	435	1.2D+1.6L	34.1095
639	COL50X50	Column	Design	No Messages	365	1M + 1L	25
641	COL50X50	Column	Design	No Messages	435	1M + 1L	25
642	COL50X50	Column	Design	No Messages	365	1M + 1L	25
644	COL50X50	Column	Design	No Messages	435	1.2D+1L+1EY	25.7407
645	COL50X50	Column	Design	No Messages	365	1M + 1L	25
647	COL50X50	Column	Design	No Messages	435	1M + 1L	25
648	COL50X50	Column	Design	No Messages	365	1M + 1L	25
650	COL50X50	Column	Design	No Messages	435	1M + 1L	25
651	COL50X50	Column	Design	No Messages	0	1M + 1L	25
653	COL50X50	Column	Design	No Messages	435	1.2D+1L+1EY	30.5941
654	COL50X50	Column	Design	No Messages	365	1M + 1L	25
656	COL50X50	Column	Design	No Messages	435	1M + 1L	25
657	COL50X50	Column	Design	No Messages	0	1M + 1L	25
659	COL50X50	Column	Design	No Messages	35	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
660	COL50X50	Column	Design	No Messages	35	1M + 1L	25
661	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	32.1224
662	COL50X50	Column	Design	No Messages	430	1M + 1L	25
664	COL50X50	Column	Design	No Messages	430	1M + 1L	25
665	COL50X50	Column	Design	No Messages	430	1M + 1L	25
666	COL50X50	Column	Design	No Messages	430	1M + 1L	25
667	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EX	34.9124
668	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EX	59.5828
669	COL50X50	Column	Design	No Messages	35	1M + 1L	25
120	COL50X50	Column	Design	No Messages	365	1M + 1L	25
302	COL50X50	Column	Design	No Messages	435	1.2(D+F)+1.6(H+L)	25.9729
310	COL50X50	Column	Design	No Messages	365	1M + 1L	25
335	COL50X50	Column	Design	No Messages	35	1M + 1L	25
336	COL50X50	Column	Design	No Messages	35	1.2D+1L+1EX	51.4555
348	COL50X50	Column	Design	No Messages	430	1.2D+1L+1EY	35.2547
349	COL50X50	Column	Design	No Messages	400	1M + 1L	25
362	COL50X50	Column	Design	No Messages	435	1.2D+1.6L	42.2134
369	COL50X50	Column	Design	No Messages	365	1M + 1L	25
402	COL50X50	Column	Design	No Messages	435	1M + 1L	25
404	COL50X50	Column	Design	No Messages	365	1M + 1L	25
447	COL50X50	Column	Design	No Messages	435	1M + 1L	25
460	COL50X50	Column	Design	No Messages	365	1M + 1L	25
506	COL50X50	Column	Design	No Messages	435	1M + 1L	25
514	COL50X50	Column	Design	No Messages	365	1M + 1L	25
663	COL50X50	Column	Design	No Messages	435	1M + 1L	25
670	COL50X50	Column	Design	No Messages	365	1M + 1L	25
672	COL50X50	Column	Design	No Messages	435	1M + 1L	25
673	COL50X50	Column	Design	No Messages	365	1M + 1L	25
675	COL50X50	Column	Design	No Messages	365	1M + 1L	25
677	COL50X50	Column	Design	No Messages	435	1M + 1L	25
678	COL50X50	Column	Design	No Messages	365	1M + 1L	25
680	COL50X50	Column	Design	No Messages	435	1M + 1L	25
681	COL50X50	Column	Design	No Messages	365	1M + 1L	25
683	COL50X50	Column	Design	No Messages	435	1M + 1L	25

Frame	DesignSect	DesignType	DesignOpt	Status	Location	PMMCombo	PMMArea
Text	Text	Text	Text	Text	cm	Text	cm2
684	COL50X50	Column	Design	No Messages	365	1M + 1L	25
686	COL50X50	Column	Design	No Messages	435	1M + 1L	25
690	COL50X50	Column	Design	No Messages	365	1M + 1L	25
692	COL50X50	Column	Design	No Messages	423	1M + 1L	25
694	CIRCULARx50	Column	Design	No Messages	925	1M + 1L	19.635
695	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EX	44.1827
696	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	54.1632
697	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	45.4035
808	COL50X50	Column	Design	No Messages	425	1M + 1L	25
816	COL50X50	Column	Design	No Messages	425	1M + 1L	25
819	COL50X50	Column	Design	No Messages	425	1M + 1L	25
822	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	25.3105
825	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	40.398
828	COL50X50	Column	Design	No Messages	425	1.2D+1L+1EY	55.6997
831	COL50X50	Column	Design	No Messages	425	1M + 1L	25
833	COL50X50	Column	Design	No Messages	435	1M + 1L	25
259	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EY	26.8123
276	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EY	27.3718
277	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EY	27.6722
278	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EY	28.0742
279	CIRCULARx50	Column	Design	No Messages	890	1.2D+1L+1EY	30.1516
340	CIRCULARx50	Column	Design	No Messages	430	1.2D+1L+1EX	34.9966
341	CIRCULARx50	Column	Design	No Messages	425	1.2D+1L+1EY	43.8912
342	CIRCULARx50	Column	Design	No Messages	430	1.2D+1L+1EX	32.8012
343	CIRCULARx50	Column	Design	No Messages	425	1.2D+1L+1EX	35.6809

ARCHIVO DE SALIDA [REFUERZO DE DISEÑO DE ELEMENTOS VIGAS]

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
41	VIGA50X70	Beam	No Mes	41.258	1.2D+1.6L	61.6057	28.9089	12.5397	0.0669
41	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	61.5413	13.744	12.5397	0.0669
41	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	60.9247	13.744	12.4185	0.0687
2168	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	56.3127	25.9647	12.9961	0.0664
2168	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	56.2555	12.4147	12.9961	0.0664
2168	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	55.6859	12.4147	12.9961	0.0683
2198	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	53.3813	24.3614	12.9961	0.0382
2198	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	53.3267	11.6835	12.9961	0.0382
2198	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	52.7742	11.6835	12.9961	0.0394
2180	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	51.4208	23.2995	0	0
2180	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	51.3652	11.1965	0	0
2186	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	51.3377	23.2585	0	0
2186	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	51.2668	11.1777	0	0
2180	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	50.6545	11.1965	0	0
2192	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	50.6266	22.9748	0	0
2192	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	50.5567	11.0472	0	0
2186	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	50.5535	11.1777	0	0
2174	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	50.1722	22.7928	0	0
2174	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	50.1031	10.9634	0	0
2192	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	49.8548	11.0472	0	0
2174	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	49.4093	10.9634	0	0
41	VIGA50X70	Beam	No Mes	82.917	1.2D+1.6L	47.7011	13.744	12.4185	0.0687
2204	VIGA50X70	Beam	No Mes	290.408	1.2(D+F)+1.6(H+L)	47.582	21.7458	12.9961	0.0686
2204	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	47.5143	10.8333	12.9961	0.0686
41	VIGA50X70	Beam	No Mes	82.917	1.2D+1.6L	47.0021	13.744	12.3904	0.0695
2204	VIGA50X70	Beam	No Mes	290.208	1.2(D+F)+1.6(H+L)	46.8891	10.8333	12.9961	0.0711
621	VIGA50X70	Beam	No Mes	1002.5	1.2D+1.6L	46.1044	21.1414	12.9961	0.025
621	VIGA50X70	Beam	No Mes	37.5	1.2(D+F)+1.6(H+L)	45.9969	21.0972	12.9961	0.0237
621	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	42.8266	10.8333	12.9961	0.025
621	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	42.7317	10.8333	12.9961	0.0237
2168	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	42.67	12.4147	12.9961	0.0683
621	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	42.4715	10.8333	12.9961	0.025
621	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	42.3759	10.8333	12.9961	0.0236
2168	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	42.0545	12.4147	12.9961	0.0692

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
43	VIGA50X70	Beam	No Mes	306.667	1.2D+1.6L	40.5069	18.8052	12.9961	0.0431
307	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	40.0747	18.6218	12.9961	0.0453
307	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	40.0223	10.8333	12.9961	0.0453
2198	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	39.7555	11.6835	12.9961	0.0394
307	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	39.5199	10.8333	12.9961	0.0467
2198	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	39.1692	11.6835	12.9961	0.0398
333	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	38.8818	18.1135	12.9961	0.0461
333	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	38.8308	10.8333	12.9961	0.0461
333	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	38.3323	10.8333	12.9961	0.0475
2180	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	37.9454	11.1965	0	0
2186	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	37.8684	11.1777	0	0
2180	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	37.3929	11.1965	0	0
2192	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	37.3392	11.0472	0	0
2186	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	37.3169	11.1777	0	0
2174	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	37.0288	10.9634	0	0
2192	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	36.7945	11.0472	0	0
444	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	36.6988	17.1753	12.9961	0.0199
444	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	36.6507	10.8333	12.9961	0.0199
588	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	36.5182	17.0972	12.7694	0.0712
2174	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	36.4896	10.9634	0	0
2437	VIGA50X70	Beam	No Mes	40.55	1.2D+1L+1EY	36.4062	17.0487	14.1174	0.1036
2437	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	36.3562	10.8333	14.1174	0.1036
444	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	36.1719	10.8333	12.9961	0.0205
2437	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	36.1137	10.8333	13.5406	0.0993
2166	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	35.8753	16.8186	12.9961	0.0297
957	VIGA50X70	Beam	No Mes	37.5	1.2D+1L+1EX	35.7887	16.781	12.9961	0.067
43	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	35.371	10.8333	12.9961	0.0431
2437	VIGA50X70	Beam	No Mes	45.278	1.2D+1L+1EY	35.0349	10.8333	13.5406	0.0993
43	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	35.0203	10.8333	12.9961	0.0435
2437	VIGA50X70	Beam	No Mes	45.278	1.2D+1L+1EY	34.8659	10.8333	14.4329	0.1059
2204	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	34.796	10.8333	12.9961	0.0711
2451	VIGA50X70	Beam	No Mes	40.55	1.2D+1L+1EY	34.7254	16.3182	12.9961	0.0362
2231	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	34.6859	16.3009	12.9961	0.0416
2451	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	34.6763	10.5889	12.9961	0.0362

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
2231	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	34.634	10.578	12.9961	0.0416
957	VIGA50X70	Beam	No Mes	42.75	1.2D+1L+1EX	34.5822	10.8333	12.9961	0.067
356	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	34.5298	16.2327	0	0
367	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	34.5001	16.2198	0	0
356	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	34.4845	10.535	0	0
367	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	34.4549	10.5269	0	0
2196	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	34.4321	16.19	0	0
957	VIGA50X70	Beam	No Mes	42.75	1.2D+1L+1EX	34.4044	10.8333	12.9961	0.0716
2204	VIGA50X70	Beam	No Mes	248.75	1.2(D+F)+1.6(H+L)	34.3014	10.8333	12.9961	0.073
2451	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	34.239	10.5889	12.9961	0.0368
398	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	34.2388	16.1055	0	0
2231	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	34.2075	10.578	12.9961	0.0431
398	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	34.1939	10.4548	0	0
356	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	34.0371	10.535	0	0
367	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	34.0079	10.5269	0	0
344	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	33.9208	15.9663	0	0
344	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	33.8764	10.367	0	0
398	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	33.7506	10.4548	0	0
344	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	33.4376	10.367	0	0
957	VIGA50X70	Beam	No Mes	47.5	1.2D+1L+1EX	33.3805	10.8333	12.9961	0.0716
957	VIGA50X70	Beam	No Mes	47.5	1.2D+1L+1EX	33.2365	10.8333	12.9961	0.0659
41	VIGA50X70	Beam	No Mes	124.375	1.2(D+F)+1.6(H+L)	33.0164	13.744	12.3904	0.0695
2216	VIGA50X70	Beam	No Mes	306.667	1.2D+1.6L	32.9316	15.5318	12.9961	0.0491
41	VIGA50X70	Beam	No Mes	124.375	1.2(D+F)+1.6(H+L)	32.4349	13.744	12.4378	0.0694
575	VIGA50X70	Beam	No Mes	495	1.2D+1.6L	32.4055	15.2999	12.9961	0.0463
2202	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	32.3147	15.2599	12.9961	0.0506
2178	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	32.1198	15.1737	0	0
2184	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	32.0929	15.1619	0	0
2237	VIGA50X70	Beam	No Mes	40.55	1.2D+1.6L	31.9692	15.1072	12.9961	0.0243
2237	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	31.921	9.8239	12.9961	0.0243
627	VIGA50X70	Beam	No Mes	37.5	1.2(D+F)+1.6(H+L)	31.9162	15.0837	0	0
2190	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	31.8655	15.0613	0	0
2439	VIGA50X70	Beam	No Mes	40.55	1.2D+1L+1EY	31.807	15.0354	12.9961	0.0651
2439	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	31.7636	9.7785	12.9961	0.0651

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
2214	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	31.7545	15.0122	12.9961	0.0444
594	VIGA50X70	Beam	No Mes	1015	1.2D+1.6L	31.5031	14.9008	0	0
2237	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	31.4885	9.8239	12.9961	0.0253
2166	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	31.4856	10.8333	12.9961	0.0297
2172	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	31.4631	14.8831	0	0
2439	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	31.3496	9.7785	12.9961	0.0661
2166	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	31.1755	10.8333	12.9961	0.03
603	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	31.0631	14.7056	0	0
588	VIGA50X70	Beam	No Mes	45	1.2(D+F)+1.6(H+L)	30.7968	10.8333	12.7694	0.0712
587	VIGA50X70	Beam	No Mes	375	1.2D+1.6L	30.5694	14.4861	12.9961	0.0476
588	VIGA50X70	Beam	No Mes	45	1.2(D+F)+1.6(H+L)	30.5157	10.8333	12.7998	0.0712
612	VIGA50X70	Beam	No Mes	1015	1.2D+1.6L	30.4662	14.4401	0	0
2544	VIGA50X70	Beam	No Mes	366.95	1.2D+1L+1EY	30.298	14.3652	11.4028	0.0744
2544	VIGA50X70	Beam	No Mes	366.75	1.2D+1L+1EY	30.2597	9.3535	11.4028	0.0744
594	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	30.2479	14.3428	0	0
2196	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	30.2412	10.5081	0	0
397	VIGA50X70	Beam	No Mes	482.5	1.2D+1L+1EX	30.18	14.3125	0	0
2196	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	29.9387	10.5081	0	0
574	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	29.9122	14.1931	12.9961	0.0513
307	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	29.9117	10.8333	12.9961	0.0467
2544	VIGA50X70	Beam	No Mes	366.75	1.2D+1L+1EY	29.9026	9.3535	11.3677	0.0751
2168	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	29.8872	12.4147	12.9961	0.0692
976	VIGA50X70	Beam	No Mes	495	1.2D+1L+1EX	29.8539	14.167	12.9961	0.0504
612	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	29.8271	14.155	12.9961	0.0198
386	VIGA50X70	Beam	No Mes	37.5	1.2(D+F)+1.6(H+L)	29.7637	14.1267	0	0
603	VIGA50X70	Beam	No Mes	1015	1.2D+1.6L	29.5786	14.044	0	0
307	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	29.5091	10.8333	12.9961	0.0476
2168	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	29.3603	12.4147	12.9961	0.069
207	VIGA50X70	Beam	No Mes	37.5	1.2D+1L+1EX	29.2832	13.9118	12.9961	0.0485
313	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	29.2816	13.9111	12.9961	0.031
450	VIGA50X70	Beam	No Mes	290.408	1.2D+1.6L	29.2742	13.9077	12.9961	0.0584
450	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	29.2363	9.0629	12.9961	0.0584
2216	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	29.1805	10.0926	12.9961	0.0491
621	VIGA50X70	Beam	No Mes	945.455	1.2D+1.6L	29.1569	10.8333	12.9961	0.025

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
589	VIGA50X70	Beam	No Mes	425	1.2D+1L+1EX	29.1181	13.8378	11.9353	0.0876
397	VIGA50X70	Beam	No Mes	476.667	1.2D+1L+1EX	29.1127	9.3201	0	0
621	VIGA50X70	Beam	No Mes	94.545	1.2(D+F)+1.6(H+L)	29.0521	10.8333	12.9961	0.0236
333	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	28.9754	10.8333	12.9961	0.0475
397	VIGA50X70	Beam	No Mes	476.667	1.2D+1L+1EX	28.9717	9.3201	12.9961	0.0214
2216	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	28.9345	10.0926	12.9961	0.0488
627	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	28.8982	9.8091	0	0
450	VIGA50X70	Beam	No Mes	290.208	1.2D+1.6L	28.8843	9.0629	12.9206	0.0605
627	VIGA50X70	Beam	No Mes	862.5	1.2D+1.6L	28.8097	13.6995	0	0
621	VIGA50X70	Beam	No Mes	945.455	1.2D+1.6L	28.7946	10.8333	12.9961	0.0233
575	VIGA50X70	Beam	No Mes	476.667	1.2D+1.6L	28.7075	9.9459	12.9961	0.0463
576	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	28.7006	13.6506	12.9961	0.0534
621	VIGA50X70	Beam	No Mes	94.545	1.2(D+F)+1.6(H+L)	28.6897	10.8333	12.9961	0.0216
1048	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	28.6697	13.6367	12.9961	0.0287
627	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	28.6693	9.8091	0	0
386	VIGA50X70	Beam	No Mes	43.333	1.2(D+F)+1.6(H+L)	28.6256	9.2021	0	0
333	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	28.5721	10.8333	12.9961	0.0481
283	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	28.5427	13.5796	12.8665	0.0669
575	VIGA50X70	Beam	No Mes	476.667	1.2D+1.6L	28.5007	9.9459	12.9961	0.0452
386	VIGA50X70	Beam	No Mes	43.333	1.2(D+F)+1.6(H+L)	28.4789	9.2021	12.9961	0.0187
2239	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	28.3773	13.5053	12.9961	0.057
2202	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	28.3549	9.9206	12.9961	0.0506
578	VIGA50X70	Beam	No Mes	375	1.2D+1L+1EX	28.3402	13.4886	12.9961	0.0564
2239	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	28.3362	8.8067	12.9961	0.057
397	VIGA50X70	Beam	No Mes	472.727	1.2D+1L+1EX	28.291	9.3201	12.9961	0.0214
304	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	28.2545	13.4501	12.9961	0.0332
2287	VIGA50X70	Beam	No Mes	49.8	1.2D+1L+1EY	28.2281	13.4382	12.9961	0.0571
2234	VIGA50X70	Beam	No Mes	375	1.2D+1.6L	28.2208	13.4349	12.9961	0.0235
2178	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	28.1947	9.8661	0	0
2287	VIGA50X70	Beam	No Mes	50	1.2D+1L+1EY	28.1888	8.764	12.9961	0.0571
2184	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	28.1716	9.8586	0	0
397	VIGA50X70	Beam	No Mes	472.727	1.2D+1L+1EX	28.1713	9.3201	0	0
2202	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	28.0881	9.9206	12.9961	0.0514
584	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	28.049	13.3576	12.9961	0.0528

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
581	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	28.0341	13.3509	12.9961	0.0526
997	VIGA50X70	Beam	No Mes	1002.5	1.2D+1L+1EX	28.0095	13.3398	14.0016	0.1027
2214	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	28.0064	9.7638	12.9961	0.0444
413	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	28.0019	13.3364	0	0
2239	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	27.9865	8.8067	12.9961	0.0586
2190	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.9734	9.7949	0	0
286	VIGA50X70	Beam	No Mes	495	1.2D+1L+1EX	27.9645	13.3195	12.9961	0.0491
2293	VIGA50X70	Beam	No Mes	40.55	1.2D+1L+1EY	27.9545	13.315	12.9961	0.0535
582	VIGA50X70	Beam	No Mes	375	1.2D+1L+1EX	27.9386	13.3079	12.9961	0.0524
580	VIGA50X70	Beam	No Mes	375	1.2D+1L+1EX	27.9217	13.3002	12.9961	0.0523
2293	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	27.9162	8.6855	12.9961	0.0535
159	VIGA50X70	Beam	No Mes	173	1.2D+1.6L	27.9144	13.2969	12.9961	0.0206
2178	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.9121	9.8661	0	0
2184	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.8894	9.8586	0	0
2287	VIGA50X70	Beam	No Mes	50	1.2D+1L+1EY	27.8642	8.764	12.9961	0.0597
2198	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	27.8622	11.6835	12.9961	0.0398
579	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	27.7977	13.2443	12.9961	0.0521
2214	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.7592	9.7638	12.9961	0.0449
386	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	27.7539	9.2021	12.9961	0.0187
997	VIGA50X70	Beam	No Mes	37.5	1.2D+1L+1EX	27.7351	13.2161	16.4364	0.1206
585	VIGA50X70	Beam	No Mes	375	1.2D+1L+1EX	27.7289	13.2133	12.9961	0.0534
2190	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.6936	9.7949	0	0
207	VIGA50X70	Beam	No Mes	44.25	1.2D+1L+1EX (Sp)	27.6767	9.0654	12.9961	0.0485
975	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	27.6761	13.1895	12.9961	0.0556
2285	VIGA50X70	Beam	No Mes	40.55	1.2D+1L+1EY	27.6411	13.1737	12.9961	0.0226
386	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	27.6268	9.2021	0	0
2172	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.618	9.682	0	0
1049	VIGA50X70	Beam	No Mes	385	1.2D+1L+1EX	27.6145	13.1617	12.9961	0.0326
2285	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	27.6042	8.5954	12.9961	0.0226
2293	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	27.5654	8.6855	12.9961	0.0548
2279	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	27.4481	13.0866	12.9961	0.0371
2279	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	27.4081	8.5399	12.9961	0.0371
2236	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	27.3882	13.0596	12.9961	0.0206
586	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	27.3875	13.0592	12.9961	0.0516

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
444	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	27.3638	10.8333	12.9961	0.0205
2198	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	27.3571	11.6835	12.9961	0.0396
207	VIGA50X70	Beam	No Mes	44.25	1.2D+1L+1EX (Sp)	27.3562	9.0654	12.9961	0.0484
2172	VIGA50X70	Beam	No Mes	41.458	1.2D+1.6L	27.3418	9.682	0	0
2244	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	27.2702	13.0063	0	0
2285	VIGA50X70	Beam	No Mes	40.75	1.2D+1L+1EY	27.2395	8.5954	12.9961	0.0235
2437	VIGA50X70	Beam	No Mes	81.5	1.2D+1L+1EY	27.1164	10.8333	14.4329	0.1059
2279	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	27.0626	8.5399	12.9961	0.0384
1026	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	27.0144	12.8906	0	0
2233	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	26.976	12.8733	12.9961	0.025
444	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	26.9725	10.8333	12.9961	0.0209
2437	VIGA50X70	Beam	No Mes	81.5	1.2D+1L+1EY	26.9154	10.8333	13.3208	0.0977
2263	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	26.8573	12.8195	12.9961	0.0174
284	VIGA50X70	Beam	No Mes	495	1.2D+1.6L	26.8562	12.819	12.7443	0.0668
2255	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	26.8317	12.8079	12.9961	0.0175
2263	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.8184	8.3694	12.9961	0.0174
594	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	26.7999	9.6932	0	0
2255	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.7929	8.362	12.9961	0.0175
976	VIGA50X70	Beam	No Mes	476.667	1.2D+1L+1EX	26.7307	9.2277	12.9961	0.0504
2180	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	26.7188	11.1965	0	0
2186	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	26.6604	11.1777	0	0
594	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	26.5913	9.6932	0	0
2245	VIGA50X70	Beam	No Mes	40.55	1.2D+1.6L	26.5897	12.6983	12.9961	0.0312
976	VIGA50X70	Beam	No Mes	476.667	1.2D+1L+1EX	26.5594	9.2277	12.9961	0.0494
351	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	26.5547	12.6824	0	0
2245	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	26.5509	8.292	12.9961	0.0312
364	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	26.5375	12.6746	0	0
2263	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.4828	8.3694	12.9961	0.0179
2255	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.4575	8.362	12.9961	0.018
2271	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	26.4418	12.6312	12.9961	0.0176
603	VIGA50X70	Beam	No Mes	47.273	1.2D+1.6L	26.4348	9.5695	0	0
574	VIGA50X70	Beam	No Mes	43.333	1.2(D+F)+1.6(H+L)	26.4161	9.2442	12.9961	0.0513
2271	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.4033	8.2492	12.9961	0.0176
997	VIGA50X70	Beam	No Mes	992.727	1.2D+1L+1EX	26.3907	8.7013	14.0016	0.1027

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
379	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	26.3467	12.5881	0	0
997	VIGA50X70	Beam	No Mes	992.727	1.2D+1L+1EX	26.2959	8.7013	13.5738	0.0996
2192	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	26.2631	11.0472	0	0
2180	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	26.2411	11.1965	0	0
603	VIGA50X70	Beam	No Mes	47.273	1.2D+1.6L	26.2376	9.5695	0	0
574	VIGA50X70	Beam	No Mes	43.333	1.2(D+F)+1.6(H+L)	26.2179	9.2442	12.9961	0.0499
2245	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	26.1886	8.292	12.9961	0.0325
2186	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	26.1834	11.1777	0	0
997	VIGA50X70	Beam	No Mes	47.273	1.2D+1L+1EX	26.1577	8.7013	16.4364	0.1206
337	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	26.1331	12.4912	0	0
2284	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	26.1279	12.4888	0	0
153	VIGA50X70	Beam	No Mes	173	1.2D+1.6L	26.0881	12.4707	0	0
2247	VIGA50X70	Beam	No Mes	49.8	1.2(D+F)+1.6(H+L)	26.0797	12.4669	12.9961	0.0211
2271	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.0725	8.2492	12.9961	0.0181
997	VIGA50X70	Beam	No Mes	47.273	1.2D+1L+1EX	26.0623	8.7013	16.0908	0.1181
2174	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	26.0621	10.9634	0	0
2247	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	26.0417	8.1441	12.9961	0.0211
313	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	25.9594	9.065	12.9961	0.031
602	VIGA50X70	Beam	No Mes	830	1.2D+1.6L	25.9005	12.3855	0	0
627	VIGA50X70	Beam	No Mes	850	1.2D+1.6L	25.9005	9.8091	0	0
612	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	25.8985	9.4011	0	0
957	VIGA50X70	Beam	No Mes	85.5	1.2D+1L+1EX	25.815	10.8333	12.9961	0.0659
2192	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	25.7915	11.0472	0	0
356	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.7537	10.535	0	0
1042	VIGA50X70	Beam	No Mes	945.45	1.2D+1L+1EY	25.7381	12.3117	12.1444	0.0891
367	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.7318	10.5269	0	0
313	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	25.7263	9.065	12.9961	0.0313
612	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	25.7186	9.4011	0	0
2247	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	25.7153	8.1441	12.9961	0.0217
1042	VIGA50X70	Beam	No Mes	945.25	1.2D+1L+1EY	25.7107	8.0448	12.1444	0.0891
627	VIGA50X70	Beam	No Mes	850	1.2D+1.6L	25.6863	9.8091	0	0
2451	VIGA50X70	Beam	No Mes	81.5	1.2D+1L+1EY	25.661	10.5889	12.9961	0.0368
957	VIGA50X70	Beam	No Mes	85.5	1.2D+1L+1EX	25.6449	10.8333	12.9961	0.073
594	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	25.6378	9.6932	0	0

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
2174	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	25.595	10.9634	0	0
1042	VIGA50X70	Beam	No Mes	945.25	1.2D+1L+1EY	25.5792	8.0448	12.0794	0.0849
398	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.5378	10.4548	0	0
498	VIGA50X70	Beam	No Mes	1002.5	1.2(D+F)+1.6(H+L)	25.5202	12.2125	0	0
594	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	25.4319	9.6932	0	0
380	VIGA50X70	Beam	No Mes	241.867	1.2D+1L+1EY	25.4052	12.1601	12.9961	0.0344
356	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.385	10.535	0	0
2235	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	25.3778	12.1476	0	0
380	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	25.3705	7.9479	12.9961	0.0344
367	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.3634	10.5269	0	0
1003	VIGA50X70	Beam	No Mes	37.5	1.2D+1L+1EX	25.3609	12.1399	17.0488	0.1251
2238	VIGA50X70	Beam	No Mes	382.5	1.2(D+F)+1.6(H+L)	25.3414	12.131	12.9961	0.0225
1026	VIGA50X70	Beam	No Mes	875	1.2D+1L+1EX	25.3368	12.1289	12.9961	0.0207
344	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.3014	10.367	0	0
2451	VIGA50X70	Beam	No Mes	81.5	1.2D+1L+1EY	25.2916	10.5889	12.9961	0.0362
612	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	25.2834	9.4011	12.9961	0.0198
1039	VIGA50X70	Beam	No Mes	49.8	1.2D+1L+1EY	25.188	12.0611	12.8	0.0807
398	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	25.1721	10.4548	0	0
286	VIGA50X70	Beam	No Mes	476.667	1.2D+1L+1EX	25.167	8.6884	12.9961	0.0491
1039	VIGA50X70	Beam	No Mes	50	1.2D+1L+1EY	25.1614	7.8845	12.8	0.0807
215	VIGA50X70	Beam	No Mes	241.867	1.2D+1L+1EY	25.1456	12.0418	12.9961	0.0203
2437	VIGA50X70	Beam	No Mes	90.556	1.2D+1L+1EY	25.1348	10.8333	13.3208	0.0977
215	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	25.1078	7.8721	12.9961	0.0203
380	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	25.1076	7.9479	12.9961	0.0348
612	VIGA50X70	Beam	No Mes	47.273	1.2(D+F)+1.6(H+L)	25.1036	9.4011	12.9961	0.0189
286	VIGA50X70	Beam	No Mes	476.667	1.2D+1L+1EX	25.0846	8.6884	12.9961	0.0446
603	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	25.0809	9.5695	0	0
283	VIGA50X70	Beam	No Mes	43.333	1.2D+1.6L	25.0566	8.8541	12.8665	0.0669
1039	VIGA50X70	Beam	No Mes	50	1.2D+1L+1EY	25.0361	7.8845	12.9961	0.0772
498	VIGA50X70	Beam	No Mes	37.5	1.2D+1.6L	25.0133	11.9814	0	0
304	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	25.0108	8.7715	12.9961	0.0332
2432	VIGA50X70	Beam	No Mes	750.2	1.2D+1L+1EY	25.0087	11.9793	17.6679	0.1296
2432	VIGA50X70	Beam	No Mes	750	1.2D+1L+1EY	24.9818	7.8321	17.6679	0.1296
2437	VIGA50X70	Beam	No Mes	90.556	1.2D+1L+1EY	24.981	10.8333	14.6517	0.1075

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
1003	VIGA50X70	Beam	No Mes	862.5	1.2D+1L+1EX	24.9495	11.9523	19.1219	0.1403
344	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	24.9391	10.367	0	0
603	VIGA50X70	Beam	No Mes	992.727	1.2D+1.6L	24.8897	9.5695	0	0
283	VIGA50X70	Beam	No Mes	43.333	1.2D+1.6L	24.8643	8.8541	12.8788	0.0669
2432	VIGA50X70	Beam	No Mes	750	1.2D+1L+1EY	24.8451	7.8321	17.1135	0.1256
413	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	24.8278	8.6991	0	0
215	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	24.8036	7.8721	12.9961	0.0208
304	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	24.7879	8.7715	12.9961	0.0335
975	VIGA50X70	Beam	No Mes	43.333	1.2D+1L+1EX	24.7077	8.6055	12.9961	0.0556
587	VIGA50X70	Beam	No Mes	350	1.2D+1L+1EX	24.6997	9.4302	12.9961	0.0476
2260	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	24.6676	11.8236	0	0
471	VIGA50X70	Beam	No Mes	1015	1.2(D+F)+1.6(H+L)	24.6347	11.8085	0	0
2268	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	24.6335	11.808	0	0
327	VIGA50X70	Beam	No Mes	241.867	1.2D+1L+1EY	24.6263	11.8047	12.9961	0.0299
2277	VIGA50X70	Beam	No Mes	40.55	1.2D+1.6L	24.6146	11.7993	0	0
413	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	24.6001	8.6991	0	0
426	VIGA50X70	Beam	No Mes	37.5	1.2D+1L+1EX	24.5974	11.7915	0	0
327	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	24.59	7.7202	12.9961	0.0299
2277	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	24.5779	7.7168	0	0
975	VIGA50X70	Beam	No Mes	43.333	1.2D+1L+1EX	24.5424	8.6055	12.9961	0.0541
2241	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	24.5076	11.7504	12.9961	0.0208
587	VIGA50X70	Beam	No Mes	350	1.2D+1L+1EX	24.5058	9.4302	12.9961	0.0478
2309	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	24.4885	11.7417	12.9961	0.0214
2276	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	24.438	11.7186	0	0
1022	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	24.4302	11.715	0	0
595	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	24.4297	11.7148	0	0
1060	VIGA50X70	Beam	No Mes	1500	1.4D+1.4F	24.3915	11.6973	12.9961	0.0189
1049	VIGA50X70	Beam	No Mes	369	1.2D+1L+1EX	24.3912	8.5878	12.9961	0.0326
589	VIGA50X70	Beam	No Mes	405	1.2D+1L+1EX	24.3878	9.0184	11.9353	0.0876
327	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	24.2918	7.7202	12.9961	0.0307
1049	VIGA50X70	Beam	No Mes	369	1.2D+1L+1EX	24.2756	8.5878	12.9961	0.0338
2277	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	24.2354	7.7168	0	0
2269	VIGA50X70	Beam	No Mes	40.55	1.2D+1.6L	24.2257	11.6214	0	0
2252	VIGA50X70	Beam	No Mes	337.5	1.2D+1.6L	24.2056	11.6122	0	0

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
2269	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	24.1893	7.6027	0	0
2204	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	24.1887	10.8333	12.9961	0.073
2261	VIGA50X70	Beam	No Mes	40.55	1.2D+1.6L	24.1649	11.5936	0	0
589	VIGA50X70	Beam	No Mes	405	1.2D+1L+1EX	24.1527	9.0184	11.8864	0.0872
2253	VIGA50X70	Beam	No Mes	40.55	1.2D+1.6L	24.1422	11.5832	0	0
2261	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	24.1286	7.5849	0	0
489	VIGA50X70	Beam	No Mes	1015	1.2(D+F)+1.6(H+L)	24.1229	11.5743	0	0
2253	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	24.1059	7.5782	0	0
43	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	24.0702	10.8333	12.9961	0.0435
611	VIGA50X70	Beam	No Mes	830	1.2D+1L+1EX	23.9702	11.5044	0	0
957	VIGA50X70	Beam	No Mes	95	1.2D+1L+1EX	23.9305	10.8333	12.9961	0.073
498	VIGA50X70	Beam	No Mes	992.727	1.2(D+F)+1.6(H+L)	23.9258	7.9814	0	0
593	VIGA50X70	Beam	No Mes	830	1.2D+1.6L	23.8625	11.455	0	0
1025	VIGA50X70	Beam	No Mes	775	1.2D+1L+1EX	23.8572	11.4526	0	0
2269	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	23.8512	7.6027	0	0
613	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	23.8159	11.4336	0	0
2261	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	23.7912	7.5849	0	0
957	VIGA50X70	Beam	No Mes	95	1.2D+1L+1EX	23.7766	10.8333	12.9961	0.0628
2253	VIGA50X70	Beam	No Mes	40.75	1.2D+1.6L	23.7693	7.5782	0	0
2204	VIGA50X70	Beam	No Mes	207.292	1.2(D+F)+1.6(H+L)	23.7633	10.8333	12.9961	0.0737
2244	VIGA50X70	Beam	No Mes	317.188	1.2D+1.6L	23.7562	8.4886	0	0
498	VIGA50X70	Beam	No Mes	992.727	1.2(D+F)+1.6(H+L)	23.7465	7.9814	0	0
213	VIGA50X70	Beam	No Mes	241.867	1.2D+1L+1EY	23.7455	11.4013	12.9961	0.0258
213	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	23.7098	7.4616	12.9961	0.0258
2281	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	23.6913	11.3764	0	0
2439	VIGA50X70	Beam	No Mes	81.5	1.2D+1L+1EY	23.6798	9.7785	12.9961	0.0661
43	VIGA50X70	Beam	No Mes	248.75	1.2D+1.6L	23.605	10.8333	12.9961	0.0435
600	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	23.5834	11.3269	0	0
2244	VIGA50X70	Beam	No Mes	317.188	1.2D+1.6L	23.5767	8.4886	0	0
284	VIGA50X70	Beam	No Mes	476.667	1.2D+1.6L	23.5475	8.3691	12.7443	0.0668
480	VIGA50X70	Beam	No Mes	1015	1.2(D+F)+1.6(H+L)	23.5468	11.3101	0	0
351	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.5416	8.2819	0	0
604	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	23.5393	11.3067	0	0
1048	VIGA50X70	Beam	No Mes	48.75	1.2D+1L+1EX	23.5313	8.8904	12.9961	0.0287

Frame	DesignSect	Design Type	Status	Location	FTopCombo	FTopArea	FBotArea	TLngArea	TTrnRebar
Text	Text	Text	Text	cm	Text	cm2	cm2	cm2	cm2/cm
364	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.5265	8.2769	0	0
2236	VIGA50X70	Beam	No Mes	317.188	1.2D+1.6L	23.4997	8.5226	12.9961	0.0206
498	VIGA50X70	Beam	No Mes	47.273	1.2D+1.6L	23.4444	7.9814	0	0
213	VIGA50X70	Beam	No Mes	241.667	1.2D+1L+1EY	23.4441	7.4616	12.9961	0.0266
426	VIGA50X70	Beam	No Mes	45	1.2D+1L+1EX	23.4157	7.7118	0	0
1003	VIGA50X70	Beam	No Mes	50	1.2D+1L+1EX	23.3803	7.9349	17.0488	0.1251
284	VIGA50X70	Beam	No Mes	476.667	1.2D+1.6L	23.3631	8.3691	12.7234	0.0673
379	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.3573	8.2216	0	0
1048	VIGA50X70	Beam	No Mes	48.75	1.2D+1L+1EX	23.3405	8.8904	12.9961	0.0279
2439	VIGA50X70	Beam	No Mes	81.5	1.2D+1L+1EY	23.328	9.7785	12.9961	0.0657
351	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.3262	8.2819	0	0
364	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.3112	8.2769	0	0
426	VIGA50X70	Beam	No Mes	45	1.2D+1L+1EX	23.306	7.7118	0	0
2236	VIGA50X70	Beam	No Mes	317.188	1.2D+1.6L	23.3054	8.5226	12.9961	0.021
1003	VIGA50X70	Beam	No Mes	50	1.2D+1L+1EX	23.2997	7.9349	16.4936	0.121
974	VIGA50X70	Beam	No Mes	402.5	1.2D+1L+1EX	23.2996	11.1965	0	0
498	VIGA50X70	Beam	No Mes	47.273	1.2D+1.6L	23.2676	7.9814	0	0
471	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	23.2304	11.1648	0	0
480	VIGA50X70	Beam	No Mes	25	1.2D+1.6L	23.2091	11.155	0	0
337	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.1681	8.1596	0	0
1023	VIGA50X70	Beam	No Mes	775	1.2D+1L+1EX	23.15	11.1278	0	0
379	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	23.1438	8.2216	0	0
609	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	23.1437	11.1249	0	0
427	VIGA50X70	Beam	No Mes	412.5	1.2D+1L+1EX	23.1413	11.1238	12.9961	0.0173
2544	VIGA50X70	Beam	No Mes	326	1.2D+1L+1EY	23.1347	9.3535	11.3677	0.0751
1024	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	23.0975	11.1036	0	0
1025	VIGA50X70	Beam	No Mes	25	1.2D+1L+1EX	23.0851	11.0979	0	0
1024	VIGA50X70	Beam	No Mes	775	1.2D+1L+1EX	23.0229	11.0693	0	0
1003	VIGA50X70	Beam	No Mes	850	1.2D+1L+1EX	22.9652	7.9349	19.1219	0.1403
337	VIGA50X70	Beam	No Mes	41.458	1.2(D+F)+1.6(H+L)	22.9563	8.1596	0	0
618	VIGA50X70	Beam	No Mes	25	1.2(D+F)+1.6(H+L)	22.9537	11.0375	0	0
571	VIGA50X70	Beam	No Mes	402.5	1.2D+1.6L	22.9523	11.0368	0	0
576	VIGA50X70	Beam	No Mes	50	1.2(D+F)+1.6(H+L)	22.9232	8.8992	12.9961	0.0534
1003	VIGA50X70	Beam	No Mes	850	1.2D+1L+1EX	22.8852	7.9349	18.4593	0.1354

PARTE 3:

CANTIDADES ESTRUCTURALES

1. CIMIENTOS

ITEM	UBICACIÓN	CANTIDAD [M3]	TOTAL (M3)
CONCRETO 3000PSI ZAPATA T1 -2.0X2.0X0.5m	CIMENTACION	30.00	
CONCRETO 3000PSI ZAPATA T2 -5.0X2.0X0.7m	CIMENTACION	63.00	
CONCRETO 3000PSI ZAPATA T3 -3.0X3.0X0.5m	CIMENTACION	94.50	
CONCRETO 3000PSI ZAPATA T4 -4.0X3.0X0.7m	CIMENTACION	58.80	
CONCRETO 3000PSI ZAPATA T5 -4.0X2.0X0.7m	CIMENTACION	11.20	
CONCRETO 3000PSI ZAPATA T6 -2.0X5.0X0.5m	CIMENTACION	15.00	
CIMIENTO CORRIDO 0.7X0.45 DE MURO EN CONCRETO DE 0.35m DE CONTENCION EN SOTANOS	CIMENTACION	86.14	
CONCRETO 2000PSI PARA SOLADO BAJO ZAPATAS Y CIMIENTOS CORRIDOS Y VIGAS DE AMARRE	CIMENTACION	346.64	
CONCRETO 2000PSI PARA SOLADO BAJO PLACA DE ANTEPISO	CIMENTACION	1,356.26	
CONCRETO 2000PSI PARA SOLADO BAJO MUROS DE CONTENCION	CIMENTACION	86.00	
CONCRETO 3000 PSI PLACA CIMIENTO PARA FOSO e=0.25m	CIMENTACION	2.19	
CONCRETO CIMIENTO DE ESCALERA 1.85X0.8X0.5m	CIMENTACION	0.74	
CONCRETO VIGA DE AMARRE 0.5X0.5m	CIMENTACION	247.53	**2,398.00**

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
ACERO ZAPATA T1	CIMENTACION	877.80	1,362.35
ACERO ZAPATA T2	CIMENTACION	993.60	1,542.07
ACERO ZAPATA T3	CIMENTACION	2,352.00	3,650.30
ACERO ZAPATA T4	CIMENTACION	1,041.60	1,616.56
ACERO ZAPATA T5	CIMENTACION	177.20	275.01
ACERO DE VIGAS DE AMARRE	CIMENTACION	990.11	15,841.76
			24,288.05

2. COLUMNAS

ITEM	UBICACIÓN	CANTIDAD [M3]	TOTAL (M3)
CONCRETO COLUMNA 3000PSI 0.6X0.8m	SOTANO-2	174.96	
CONCRETO COLUMNA 3000PSI 2.5X0.75m	SOTANO-2	33.75	
CONCRETO COLUMNA 3000PSI 2.0X0.75m	SOTANO-2	94.50	
CONCRETO COLUMNA 3000PSI 0.6X0.8m	SOTANO-1	182.74	
CONCRETO COLUMNA 3000PSI 2.5X0.75m	SOTANO-1	35.25	
CONCRETO COLUMNA 3000PSI 2.0X0.75m	SOTANO-1	98.70	
CONCRETO COLUMNA 3000PSI 0.6X0.8m	N+0.00m	87.55	
CONCRETO COLUMNA 3000PSI 2.5X0.75m	N+0.00m	42.75	
CONCRETO COLUMNA 3000PSI 2.0X0.75m	N+0.00m	119.70	
CONCRETO COLUMNA 3000PSI 0.6X0.8m	N+5.70m	89.09	
CONCRETO COLUMNA 3000PSI 2.5X0.75m	N+5.70m	43.50	
CONCRETO COLUMNA 3000PSI 2.0X0.75m	N+5.70m	121.80	**1,124.29**

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
ACERO COLUMNAS	-	-	**185,507.19**

3. PLACAS

ITEM	UBICACIÓN	CANTIDAD [M3]	TOTAL (M3)
CONCRETO PLACA ANTEPISO e=0,20m	SOTANO-2	904.18	
CONCRETO VIGAS 3000PSI 0.5X0.7m	SOTANO-1	508.29	
CONCRETO VIGAS 3000PSI 0.3X0.7m	SOTANO-1	24.11	
CONCRETO VIGAS 3000PSI 0.61X0.7m	SOTANO-1	23.91	
CONCRETO PLACA MACIZA e=0,15m	SOTANO-1	647.06	
CONCRETO VIGAS 3000PSI 0,5X0,7m	N+0.00m	577.49	
CONCRETO VIGAS 3000PSI 0.3X0.7m	N+0.00m	20.36	
CONCRETO VIGAS 3000PSI 0.61X0.7m	N+0.00m	23.91	
CONCRETO PLACA MACIZA e=0,15m	N+0.00m	718.29	
CONCRETO VIGAS 3000PSI 0,5X0,7m	N+4.60m	119.65	
CONCRETO VIGAS 3000PSI 0.3X0.7m	N+4.60m	3.23	
CONCRETO PLACA MACIZA e=0,15m	N+4.60m	76.14	
CONCRETO VIGAS 3000PSI 0,5X0,7m	N+5.70m	143.25	
CONCRETO PLACA MACIZA e=0,15m	N+5.70m	117.06	
CONCRETO VIGAS 3000PSI 0,5X0,7m	N+9.80m	125.92	
CONCRETO PLACA MACIZA e=0,15m	N+9.80m	80.89	
CONCRETO PLACA CUBIERTA - JARDIN	N+9.80m	340.00	**4,453.74**

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
PERFIL IPE ACERO NEGRO A36	N+9.80m	923.00	406,120.00
MALLA DE TEMPERATURA PARA CUBIERTA-JARDIN	N+9.80m	-	7,140.00
CERCHAS CUBIERTA - JARDIN	N+9.80m	-	510,000.00
ACERO PLACA ANTEPISO	SOTANO-2	-	40,687.92
ACERO PLACA MACIZA e=0.15m	TODOS LOS NIVELES	-	131,154.50
ACERO EN VIGAS 0.5X0.7m & 0.61x0.7m	TODOS LOS NIVELES	-	234,888.19
ACERO EN VIGAS 0.3X0.7m	TODOS LOS NIVELES	-	7,156.49
			1,337,147.09

ITEM	UBICACIÓN	CANTIDAD [M2]	PESO [KG]
METALDECK 2" CAL.20 PARA CUBIERTA JARDIN	CUBIERTA JARDIN	3400	-

4. VIGA CANAL

ITEM	UBICACIÓN	CANTIDAD [M3]	TOTAL (M3)
CONCRETO VIGA CANAL INCLUYE VOLADIZO	CUBIERTA	34.56	**34.56**

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
ACERO EN VIGA CANAL	CUBIERTA	-	**5,529.60**

5. MUROS

ITEM	UBICACIÓN	CANTIDAD [M3]	TOTAL (M3)
MURO EN CONCRETO e=0.35m SOTANO 2	SOTANO 2	492.23	
MURO EN CONCRETO e=0.35m SOTANO 1	SOTANO 1	514.10	
MURO EN CONCRETO e=0.35m N+0.00m	N+0.00m	986.00	
MURO EN CONCRETO ANTEPECHO e=0.15m N+9.8m	N+9.8m	17.95	
MURO CONTENCION EN CONCRETO 3000PSI e=0.50m	BAJO JARDIN AL N+0.00m	526.32	
			2,536.60
GRAVA PARA DREN	MUROS DE CONTENCION	**630.00**	-

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
CINTA SIKADUR CONBIFLEX	JUNTAS DE EXPANSION	**120**	**-**
ACERO DE MURO EN CONCRETO e=0.35m SOTANO 2	SOTANO2	-	59067.36
ACERO DE MURO EN CONCRETO e=0.35m SOTANO 1	SOTANO1	-	61692.576
ACERO DE MURO EN CONCRETO e=0.35m N+0.00m	N+0.00m ZONA DE COCINA	-	118320
ACERO DE 60000PSI MURO DE CONTENCION EN CONCRETO	BAJO JARDIN AL N+0.00m	-	24100
			263,179.94

ITEM	UBICACIÓN	CANTIDAD [M2]	PESO [KG]
GEOTEXTIL IMPERMEABILIZANTE MEMBRANA GEOFLEX500 O SIMILAR	MUROS DE CONTENCION	6,300.00	**-**
MEMBRANA GEODREN PLANAR	MUROS DE CONTENCION	6,300.00	**-**
EPOXICO SIKADUR 31 ADHESIVO O SIMILAR	JUNTAS DE EXPANSION	50.00	**-**
MASILLA SIKAFLEX 1A	JUNTAS DE EXPANSION	50.00	**-**

6. ESCALERAS Y RAMPAS

ITEM	UBICACIÓN	CANTIDAD [M3]	TOTAL (M3)
CONCRETO ESCALERAS ENTRE EJES S2-S3_SG-SF	SOTANO2-N0.00	6.37	
CONCRETO ESCALERAS ENTRE EJES S11-S10_SG-SF	SOTANO2-SOTANO1	2.86	
CONCRETO ESCALERAS ENTRE EJES S1-S2_SB-SC	SOTANO2-N+4.60m	11.76	
CONCRETO ESCALERAS DE SOTANO2 HASTA N-3.60m DE LA ESTRUCTURA EXISTENTE	PUENTE ENTRE SOTANOS	13.01	
CONCRETO RAMPA VEHICULAR Y PEATONAL PUENTE ENTRE GRAN SALON Y ESTRUCTURA EXISTENTE	PUENTE ENTRE SOTANOS	62.00	
CONCRETO RAMPA VEH. ENTRE SOTANOS	SOTANO-2 a SOTANO-1	62.00	
			158.00

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
ACERO EN ESCALERAS Y RAMPAS	TODOS LOS NIVELES	-	**28,440.62**

7. ESTRUCTURA CUBIERTA PRINCIPAL SOBRE GRAN SALÓN

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
GUAYA DIAMETRO 1/2"	CUBIERTA GRAN SALON	**1,000.00**	
CORREAS 200X70X4m	CUBIERTA GRAN SALON	1,080.00	17,420.40
CERCHAS PRINCIPALES	CUBIERTA GRAN SALON	-	167,000.00
			184,420.40

8. COLUMNATAS

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
PERFIL NEGRO ACERO GRADO 50 DIAMETRO 12" e=10.31m	-	1,755.00	**140,000.00**

ITEM	UBICACIÓN	CANTIDAD [Un]	PESO [KG]
PLATINAS ACERO A36 50X50cm e=1,5"	-	**408.00**	
ANCLAJES DE 7" Y DIAMETRO DE 3/4" INCLUYE PERNO		**1,632.00**	

9. PUENTE ENTRADA GRAN SALON

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
ACERO A-36, EN PERFIL CAJÓN	N+4.60m	-	**20,000.00**

10. PUENTE METALICO EJE A

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
ACERO A-36, EN PERFIL CAJÓN	N+4.60m	-	**12,000.00**

11. CONEXIONES METALICAS

ITEM	UBICACIÓN	CANTIDAD [M]	PESO [KG]
KILOS DE SOLDADURA 6013	CARPINTERIA METALICA	-	**1,000.00**

12. MANEJO DE TIERRA

ITEM	UBICACIÓN	CANTIDAD [M3]	PESO [KG]
EXCAVACION EN TERRENO COMÚN	-	**36,000.00**	-
RELLENO EN MATERIAL COMÚN	-	**1,200.00**	-

ITEM	UBICACIÓN	CANTIDAD [M2]	PESO [KG]
TERRACEO	-	**15,000.00**	-

13. TEJA

ITEM	UBICACIÓN	CANTIDAD [M2]	PESO [KG]
TEJA HUNTER DOUGLAS	CUBIERTA	**2,300.00**	-

14. LOCALIZACION Y REPLANTEO

ITEM	UBICACIÓN	CANTIDAD [M2]	PESO [KG]
LOCALIZACIÓN Y REPLANTEO	-	**25,000.00**	-

15. CERRAMIENTOS ESPECIALES

ITEM	UBICACIÓN	CANTIDAD [M2]	PESO [KG]
CERRAMIENTO AVIARIO EN MALLA Y TUBERIA METALICA DE 4"	-	GLOB	-
CERRAMIENTO MARIPOSARIO EN MALLA Y TUBERIA METALICA DE 3"	-	GLOB	-