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DISEÑO ESTRUCTURAL

PROYECTO

AULA AMBIENTAL PARA CULTURA DEL ARBOL
Diseño Tipo I – Zona de Riesgo Símico Alta

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DISEÑO ESTRUCTURAL
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1. INTRODUCCIÓN

El presente informe busca realizar el diseño estructural de un Aula Ambiental para varios municipios del departamento de Cundinamarca y Boyacá, una estructura principal compuesta bajo elementos metálicos, placas de tanques en concreto sobre nivel de piso y una placa de concreto para una edificación en concreto prefabricado. Se realizará el análisis de la estructura basado en la información que entregan los diseños arquitectónicos, los cuales darán las pautas de implantación definitiva de las estructuras. Los diseños estarán basados bajo la normativa sismorresistente colombiana (NSR-10).

2. LOCALIZACIÓN

El proyecto se ubicará en varios municipios de los departamentos de Cundinamarca y Boyacá, los cuales se ilustran a continuación:

#	MUNICIPIO
1	Municipio Zipaquirá Aula Ambiental Tipo 1
2	Municipio Carmen de Carupa Aula Ambiental Tipo 2
3	Municipio Ubaté Aula Ambiental Tipo 1
4	Municipio Nemocón Aula Ambiental Tipo 1
5	Municipio Buenavista Aula Ambiental Tipo 2
6	Municipio Yacopí Aula Ambiental Tipo 2
7	Municipio Pacho Aula Ambiental Tipo 1
8	Municipio Machetá Aula Ambiental Tipo 2
9	Municipio Chocontá Aula Ambiental Tipo 1
10	Municipio La Calera Aula Ambiental Tipo 1
11	Municipio Tabio Aula Ambiental Tipo 1
12	Municipio Factativa Aula Ambiental Tipo 1
13	Municipio San Francisco Aula Ambiental Tipo 2
14	Municipio Vergara Aula Ambiental Tipo 2
15	Municipio Villeta Aula Ambiental Tipo 1
16	Municipio Quebradanegra Aula Ambiental Tipo 2
17	Municipio Guaduas Aula Ambiental Tipo 1
18	Municipio Viani Aula Ambiental Tipo 1
19	Municipio La Mesa Aula Ambiental Tipo 1
20	Municipio Tocaima Aula Ambiental Tipo 1
21	Municipio Girardot Aula Ambiental Tipo 1
22	Municipio Cabrera Aula Ambiental Tipo 1

No	MUNICIPIO	DIRECCION REGIONAL
1	ARBELAEZ	DRSU
2	ZIPACON	DRSO
3	BOJACA	DRSO
4	CUCUNUBA	DRU
5	SABOYA	DRCH
6	CALDAS	DRCH
7	SAN MIGUEL DE SEMA	DRCH
8	FUSAGASUGA	DRSU
9	NOCAIMA	DRGU
10	PUERTO SALGAR	DRBM
11	SAN JUAN DE RIO SECO	DRMC
12	UTICA	DRGU
13	TOPAIPI	DRRN
14	SOPO	DRSC
15	PASCA	DRSU
16	SUPATA	DRGU
17	TOCANCIPA	DRSC
18	COGUA	DRSC
19	TENA	DRTE
20	VENECIA	DRSU
21	SILVANIA	DRSU
22	EL COLEGIO	DRTE
23	AGUA DE DIOS	DRAM
24	NIMAIMA	DRGU
25	LA VEGA	DRGU
26	VILLA GOMEZ	DRRN

Ilustración 1 Municipios del proyecto

3. IMPLANTACIÓN ESTRUCTURAL

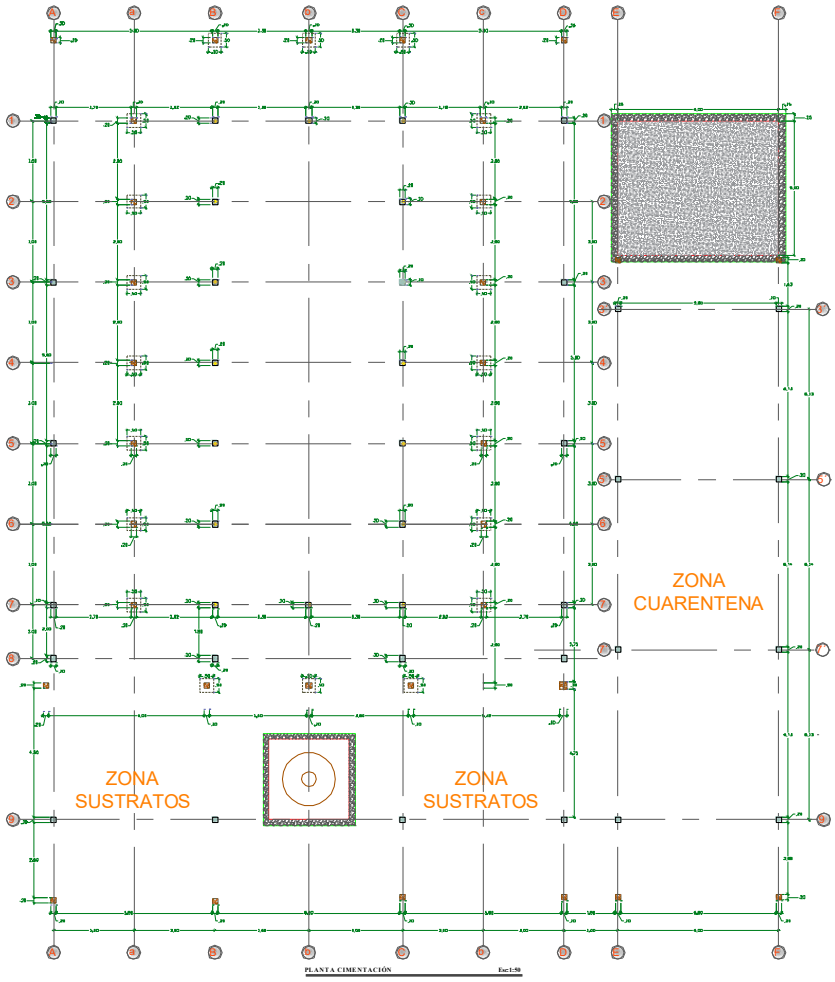


Ilustración 2 Planta Estructural Nivel 1

4. NORMAS Y ESPECIFICACIONES

El presente diseño estará basado en la Norma Sismorresistente Colombiana de 2010, por medio de la metodología de resistencia ultima ***"Load and Resistance Factor Design***" (LRFD). El análisis y diseño de la estructura se efectúa por medio del software de diseño Midas Gen, en donde se realizarán los siguientes análisis descritos en la norma:

- Análisis por Fuerza Horizontal Equivalente.
- Fuerzas internas y deflexiones.
- Verificación de diseño de elementos de concreto.
- Diseño de cimentación.

5. PARÁMETROS SÍSMICOS DE LA ESTRUCTURA

Debido a que en zona de riesgo sísmico Alto se encuentran ubicados varios de los municipios objeto del diseño, se tomará para el presente análisis el mayormente crítico para los factores Aa y Av:

Zona de Riesgo Sísmico	ALTA
Coeficiente de Aceleración (Aa)	0,25
Coeficiente de velocidad (Av)	0,25
Tipo de suelo	E
Coeficiente de importancia (I) (Grupo de uso II)	1,10
Altura total edificio (m)	5,40
Fa (Coef. De sitio para Zona de periodos cortos)	1,45
Fv (Coef. De sitio para Zona de periodos intermedios)	3,0

6. MATERIALES

6.1 Columnas y Losas

ELEMENTO	SECCIÓN	RESISTENCIA
CIMENTACIÓN		
DADOS DE CIMENTACIÓN	Ver planos	21 MPa
PLACA TANQUE	3,0m x 3,0m x 0,10m	21 MPa
PLACA CUARTO ALMACENAMIENTO	5,0m x 6,0m x 0,12m	21 MPa
ESTRUCTURA Y CUBIERTA		
COLUMNAS Y ARCOS INVERNADERO	TUBO 3" (Ø88,9 X2.0mm)	ASTM A 500 GRADO C
COLUMNAS EXTERNAS	TUBO 2" (Ø60,2 X2.0mm)	ASTM A 500 GRADO C
GUAYAS O TENSORES	1/4" (6,35mm)	ASTM A 416 GRADO175(250)
GUAYAS O TENSORES	1/8" (3,20mm)	ASTM A 416 GRADO175(250)
GUAYAS O TENSORES	(5,0mm)	ASTM A 416 GRADO175(250)

6.2 Refuerzo

- ✓ Refuerzo: Ø 1/4" f'y = 240 MPa
- ✓ Refuerzo: Ø 3/8" f'y = 420 MPa
- ✓ Refuerzo: Ø 1/2" f'y = 420 MPa
- ✓ Malla electrosoldada f'y = 485 MPa

7. COMBINACIONES DE CARGAS

7.1 Patrones de Cargas

No	Name	Type
1	Peso Propio	Dead Load (D)
2	Carga Muerta Sobre Impuesta	Dead Load (D)
3	EX (Sismo Reducido)	Earthquake (E)
4	EY (Sismo Reducido)	Earthquake (E)
5	Sismo X	User Defined Load (USER)
6	Sismo Y	User Defined Load (USER)
7	Carga de Viento	Wind Load on Structure (W)
8	Carga Fluidos	Fluid Pressure (FP)

7.2 Combinaciones de Cargas

No	Name	Active	Type	Description
1	sLCB1	Strength/Stress	Add	1.4(D+FP)
2	sLCB2	Strength/Stress	Add	1.2D + 1.0Carga de Viento
3	sLCB3	Strength/Stress	Add	1.2D - 1.0Carga de Viento
4	sLCB4	Strength/Stress	Add	1.2D + 1.0(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
5	sLCB5	Strength/Stress	Add	1.2D + 1.0(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
6	sLCB6	Strength/Stress	Add	1.2D + 1.0(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
7	sLCB7	Strength/Stress	Add	1.2D + 1.0(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
8	sLCB8	Strength/Stress	Add	1.2D - 1.0(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
9	sLCB9	Strength/Stress	Add	1.2D - 1.0(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
10	sLCB10	Strength/Stress	Add	1.2D - 1.0(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
11	sLCB11	Strength/Stress	Add	1.2D - 1.0(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
12	sLCB12	Strength/Stress	Add	0.9D + 1.0Carga de Viento
13	sLCB13	Strength/Stress	Add	0.9D - 1.0Carga de Viento
14	sLCB14	Strength/Stress	Add	0.9D + 1.0(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
15	sLCB15	Strength/Stress	Add	0.9D + 1.0(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
16	sLCB16	Strength/Stress	Add	0.9D + 1.0(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
17	sLCB17	Strength/Stress	Add	0.9D + 1.0(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
18	sLCB18	Strength/Stress	Add	0.9D - 1.0(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
19	sLCB19	Strength/Stress	Add	0.9D - 1.0(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
20	sLCB20	Strength/Stress	Add	0.9D - 1.0(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
21	sLCB21	Strength/Stress	Add	0.9D - 1.0(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
22	sLCB22	Serviceability	Add	SERV :(D+FP)

23	sLCB23	Serviceability	Add	SERV :(D+FP) + 0.6Carga de Viento
24	sLCB24	Serviceability	Add	SERV :(D+FP) - 0.6Carga de Viento
25	sLCB25	Serviceability	Add	SERV :(D+FP) + 0.7(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
26	sLCB26	Serviceability	Add	SERV :(D+FP) + 0.7(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
27	sLCB27	Serviceability	Add	SERV :(D+FP) + 0.7(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
28	sLCB28	Serviceability	Add	SERV :(D+FP) + 0.7(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
29	sLCB29	Serviceability	Add	SERV :(D+FP) - 0.7(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
30	sLCB30	Serviceability	Add	SERV :(D+FP) - 0.7(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
31	sLCB31	Serviceability	Add	SERV :(D+FP) - 0.7(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
32	sLCB32	Serviceability	Add	SERV :(D+FP) - 0.7(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
33	sLCB33	Serviceability	Add	SERV :(D+FP) + 0.75(0.6)Carga de Viento
34	sLCB34	Serviceability	Add	SERV :(D+FP) - 0.75(0.6)Carga de Viento
35	sLCB35	Serviceability	Add	SERV :(D+FP) + 0.75(0.7)(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
36	sLCB36	Serviceability	Add	SERV :(D+FP) + 0.75(0.7)(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
37	sLCB37	Serviceability	Add	SERV :(D+FP) + 0.75(0.7)(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
38	sLCB38	Serviceability	Add	SERV :(D+FP) + 0.75(0.7)(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
39	sLCB39	Serviceability	Add	SERV :(D+FP) - 0.75(0.7)(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
40	sLCB40	Serviceability	Add	SERV :(D+FP) - 0.75(0.7)(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
41	sLCB41	Serviceability	Add	SERV :(D+FP) - 0.75(0.7)(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
42	sLCB42	Serviceability	Add	SERV :(D+FP) - 0.75(0.7)(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
43	sLCB43	Serviceability	Add	SERV :0.6D + 0.6Carga de Viento
44	sLCB44	Serviceability	Add	SERV :0.6D - 0.6Carga de Viento
45	sLCB45	Serviceability	Add	SERV :0.6(D+FP) + 0.7(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
46	sLCB46	Serviceability	Add	SERV :0.6(D+FP) + 0.7(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
47	sLCB47	Serviceability	Add	SERV :0.6(D+FP) + 0.7(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
48	sLCB48	Serviceability	Add	SERV :0.6(D+FP) + 0.7(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
49	sLCB49	Serviceability	Add	SERV :0.6(D+FP) - 0.7(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
50	sLCB50	Serviceability	Add	SERV :0.6(D+FP) - 0.7(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
51	sLCB51	Serviceability	Add	SERV :0.6(D+FP) - 0.7(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
52	sLCB52	Serviceability	Add	SERV :0.6(D+FP) - 0.7(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
53	ENV MAY	Strength/Stress	Envelope	

54	ENV SERV	Serviceability	Envelope	

8. ANÁLISIS Y DISEÑO

8.1 Avalúo de Cargas de Cubierta – Carga Muerta

Como carga muerta considerada dentro de la cubierta se incluye la carga del plástico en polietileno Calibre 6 con peso aproximado de 0.00141 kN/m2.

8.2 Avalúo de Cargas de Cubierta – Carga de Fluidos

Como carga de fluidos se considerada en los laterales de la cubierta del canal en plástico en polietileno Calibre 6 con peso aproximado de 0.75 kN/ml.

8.3 Avalúo de Cargas de Cubierta – Carga de Granizo

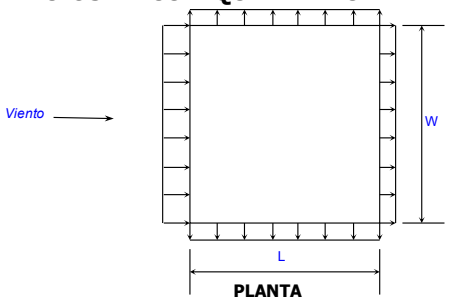
Para el presente proyecto no se considerará la carga de granizo, con la hipótesis de que esta condición no será muy probable que ocurra como carga importante, dado que la materialidad del plástico y la pendiente de la cubierta no permitían su acumulación.

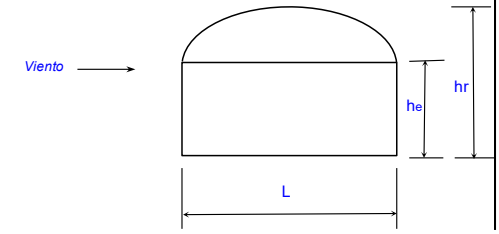
8.4 Avalúo de Cargas de Viento en Cubierta

PROCEDIMIENTO ANALÍTICO PARA SPRFV EN EDIFICIOS DE CUALQUIER ALTURA

DATOS

Región	3	
Grupo Uso del Edificio	I	
Rugosidad del Terreno	C	
Categoria de Exposición	C	
Tipo de Cubierta	En Arco	
Altura Cubierta, hr =	5,40	m
Altura Cornisa, he =	3,00	m
Ancho del Edificio, W =	18,00	m
Largo del Edificio, L =	7	m
Edificio sobre Colina o Escarpe	NO	
Tipo de estructura	SPRFV	
Clasificación según cerramiento	cerrado	
Región propensa a Huracanes	SI	
% de Amortiguamiento Crítico, β =	5%	
Sistema Estructural	Porticos arriostrados de acero estructural con diagonales excéntricas	





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PARÁMETROS RESULTANTES

ELEVACIÓN

General

Velocidad Básica del Viento, V =	100	km/h
Factor de Importancia, I =	0,77	
Ancho de la Zona, a =	0,7	m
2a =	1,4	m
Factor direccionalidad del viento, Kd =	0,85	
Factor Topográfico, Kzt =	1,00	
Ángulo inclinación Cubierta, θ =	18,92	grados
Altura media de la cubierta, h =	5,40	m
Coeficiente de Exposición, Kh =	0,88	

Presión por Velocidad

q_h =	272	N/m^2
q_h =	0,27	kN/m^2

Periodo Fundamental y Frecuencia Natural de la Estructura

Ct =	0,073	
αt =	0,750	
Periodo, T =	0,259	s
Frecuencia Natural, f =	3,87	Hz
Clasificación según frecuencia	Edificio Rígido	

FACTOR DE EFECTO RÁFAGA

Intensidad de Turbulencia, Iz =	0,23	
Factor pico respuesta entorno, g_Q =	3,40	
Factor pico respuesta viento, g_v =	3,40	
Longitud integral esc. turb, L_Z =	129,91	m
Factor de respuesta del entorno, Q =	0,91	
Factor pico respuesta viento, g_R =	4,50	
Rn =	0,015	
Rh =	0,152	
Rb =	0,049	
Rl =	0,038	
Factor de respuesta de resonancia, R =	0,035	
Factor de Efecto Ráfaga, G =	0,8500	

COEFICIENTES DE PRESIÓN Y PRESIONES NETAS DE DISEÑO

Coeficientes de Presión Interna

GCpi (+) =	0,18
GCpi (-) =	-0,18

Coeficientes de Presión Externa y Presiones Netas para Muros y Cubiertas de una Pendiente o a dos Aguas.

Dirección del Viento: **Normal a la Cumbrera**

Cp Muro a Barlovento =	0,8	Se debe utilizar qz para estimar la presión neta
Cp Muro a Sotavento =	-0,5	
Cp Muros Laterales =	-0,7	

	CONDICIÓN 1	CONDICIÓN 2	
Cp Cubierta a Barlovento =	-0,6		(zona #1 para 0 a h/2)
Cp Cubierta a Barlovento =	-0,1		(zona #2 para h/2 a h)
Cp Cubierta a Sotavento =	-0,6		(zona #3 para h a 2*h)
			(zona #4 para > 2*h)

Desea ingresar valores de z: **NO**

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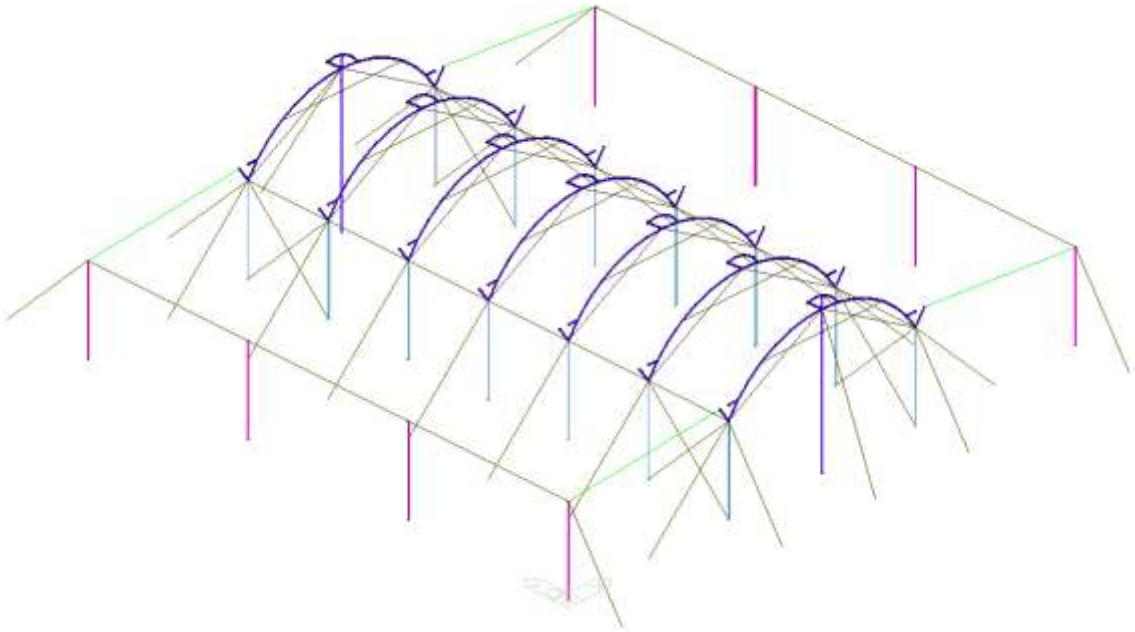
Carga de Viento Normal a la Cumbrera Para el SPRVF en Edificios de Cualquier Altura							
	Superficie	z (m)	Kz	qz (kN/m^2)	Cp	p = Presión Neta (kN/m^2)	
						GCp - (+)GCp	GCp - (-)GCpi
	MURO A BARLOVENTO	0	0,85	0,26	0,80	0,13	0,23
		5,00	0,87	0,27	0,80	0,13	0,23
		5,40	0,88	0,27	0,80	0,14	0,23
		z = he	3,00	0,85	0,26	0,80	0,13	0,23
		z = h	5,40	0,88	0,27	0,80	0,14	0,23
		z = hr	5,40	0,88	0,27	0,80	0,14	0,23
	MURO A SOTAVENTO	h	---	---	-0,5	-0,16	0,01
	MUROS LATERALES	h	---	---	-0,7	-0,21	0,00
Cond. 1	CUBIERTA (ZONA# 1)	---	---	---	-0,63	-0,19	-0,10
Cond. 2		---	---	---			
Cond. 1	CUBIERTA (ZONA# 2)	---	---	---	-0,12	-0,08	0,02
Cond. 2		---	---	---			
Cond. 1	CUBIERTA (ZONA# 3)	---	---	---	-0,59	-0,19	-0,09
Cond. 2		---	---	---			
Cond. 1	CUBIERTA (ZONA# 4	---	---	---			
Cond. 2		---	---	---			

NOTAS 1 Signos(+) y (-) significan presión y succión sobre las superficies respectivamente.

2. Para cubiertas con una sola pendiente, su superficie total será de barlovento o de sotavento.

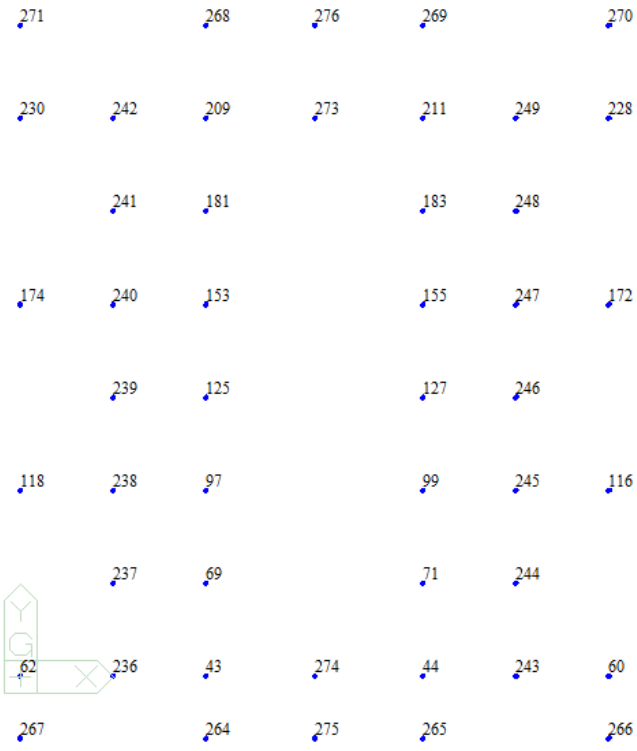
Como por evaluación por procedimiento analístico las cargas de vientos son inferiores a 0.40 kN/m2, se trabajará con este valor mínimo.

9. ELABORACIÓN DE MODELO ESTRUCTURAL EN SOFTWARE

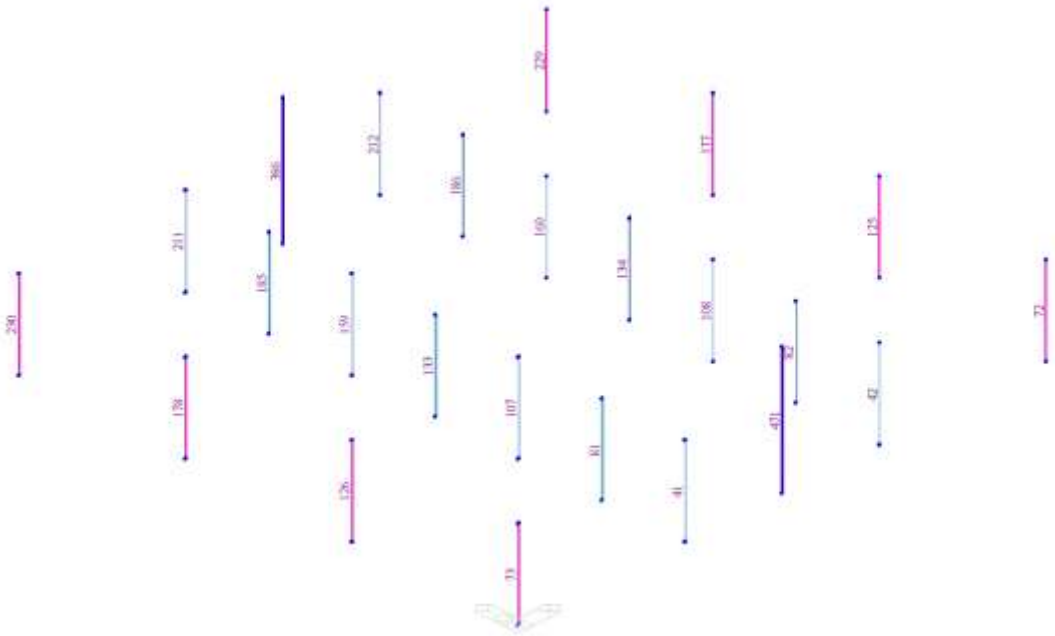


10. NUMERACIÓN DE ELEMENTOS Y NODOS

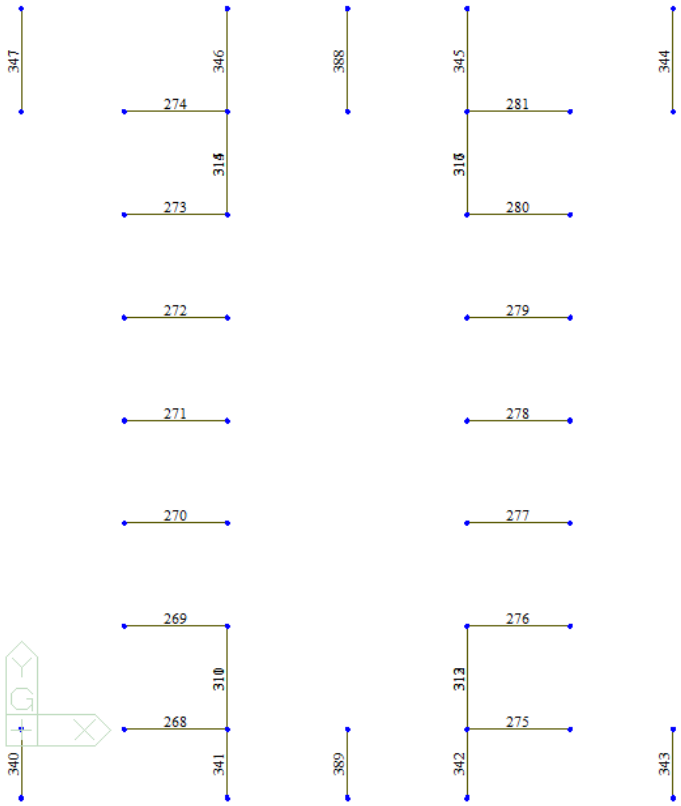
10.1 Apoyos de Cimentación



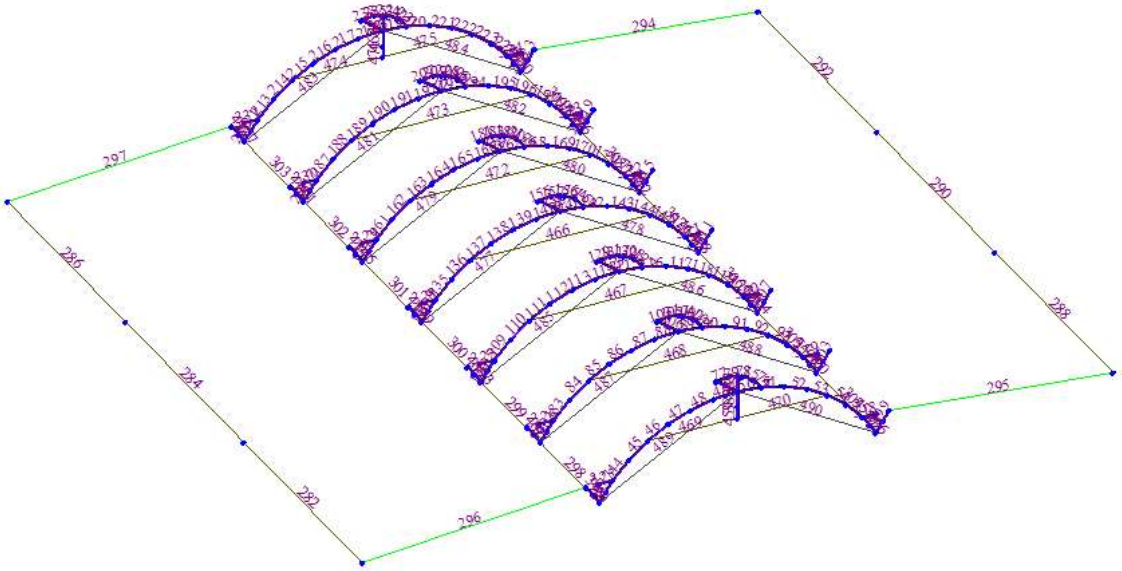
10.2 Numeración de Columnas



10.3 Numeración de Elementos Diagonales

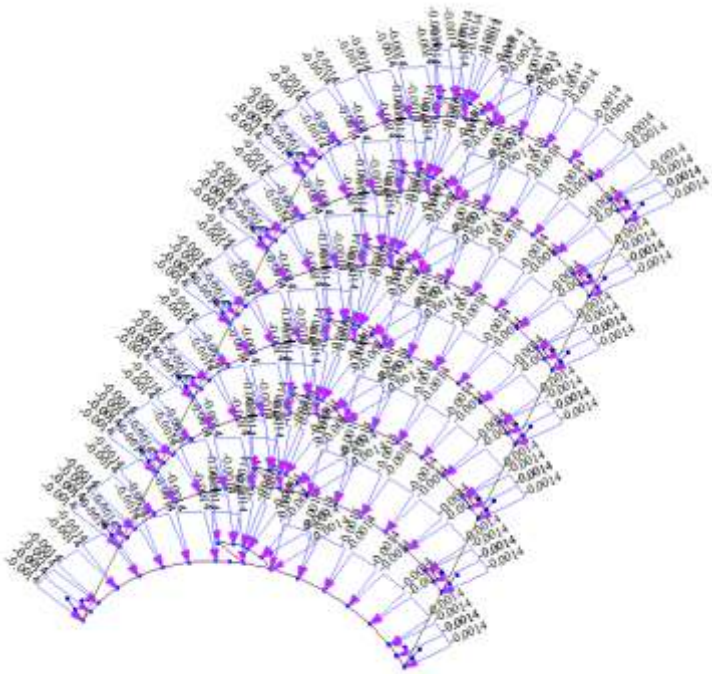


10.4 Numeración de Elementos Nivel Cubierta

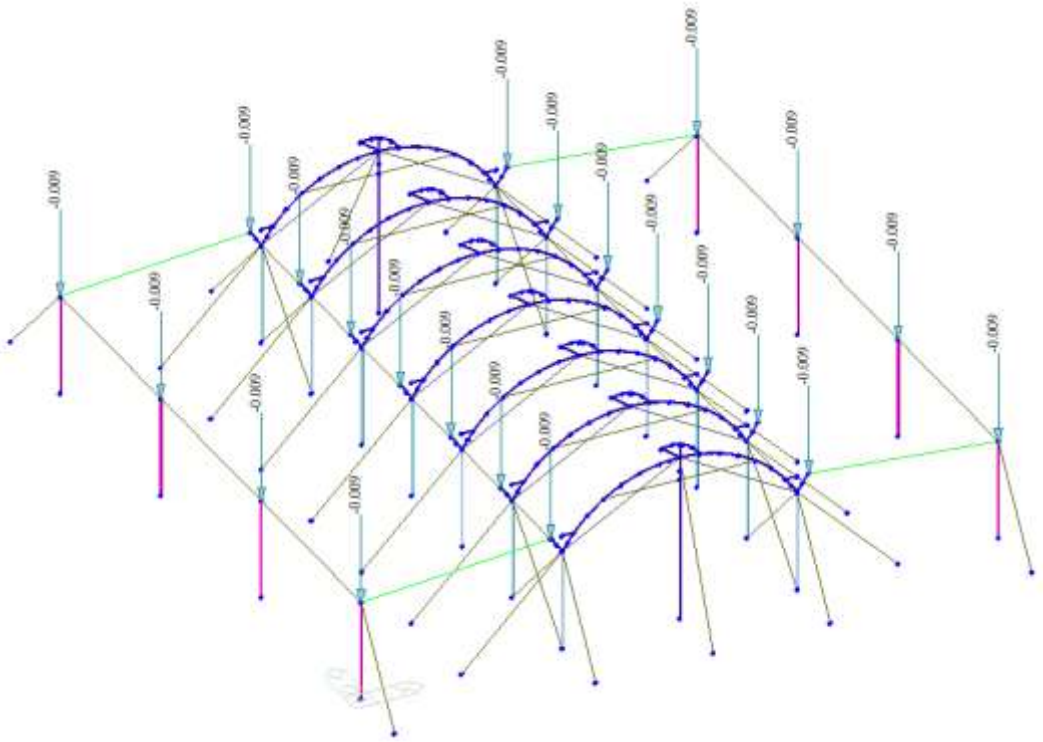


11. ASIGNACIÓN DE CARGAS EN MODELO

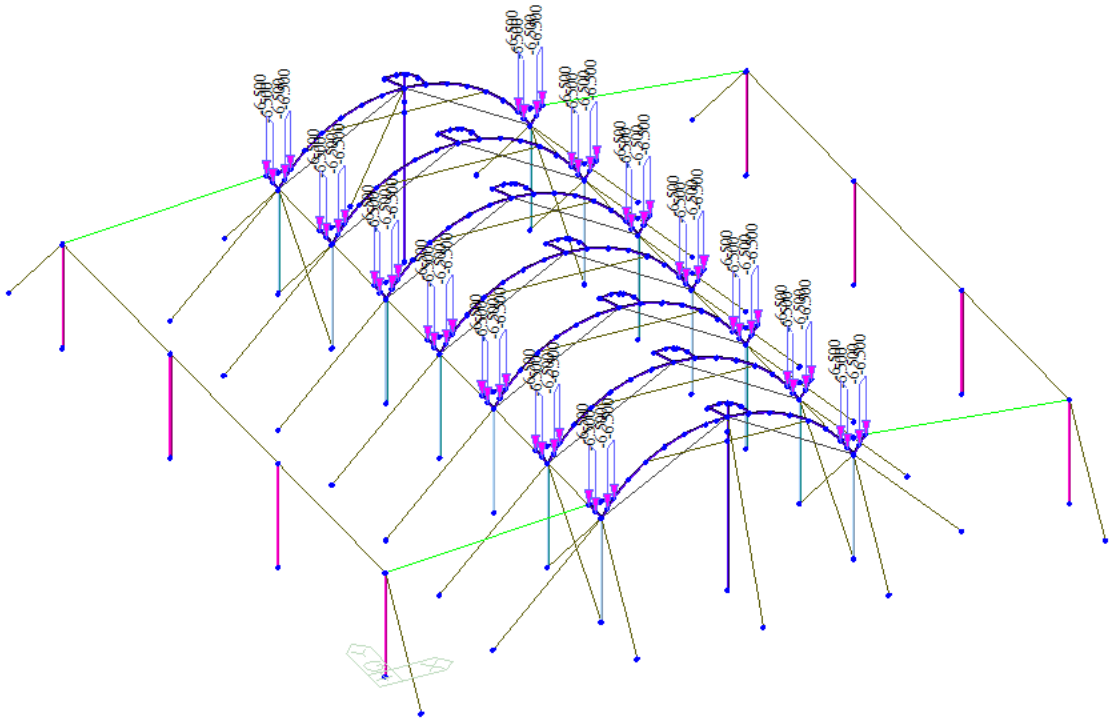
11.1 Cargas Muertas Cubierta (kN/ml)



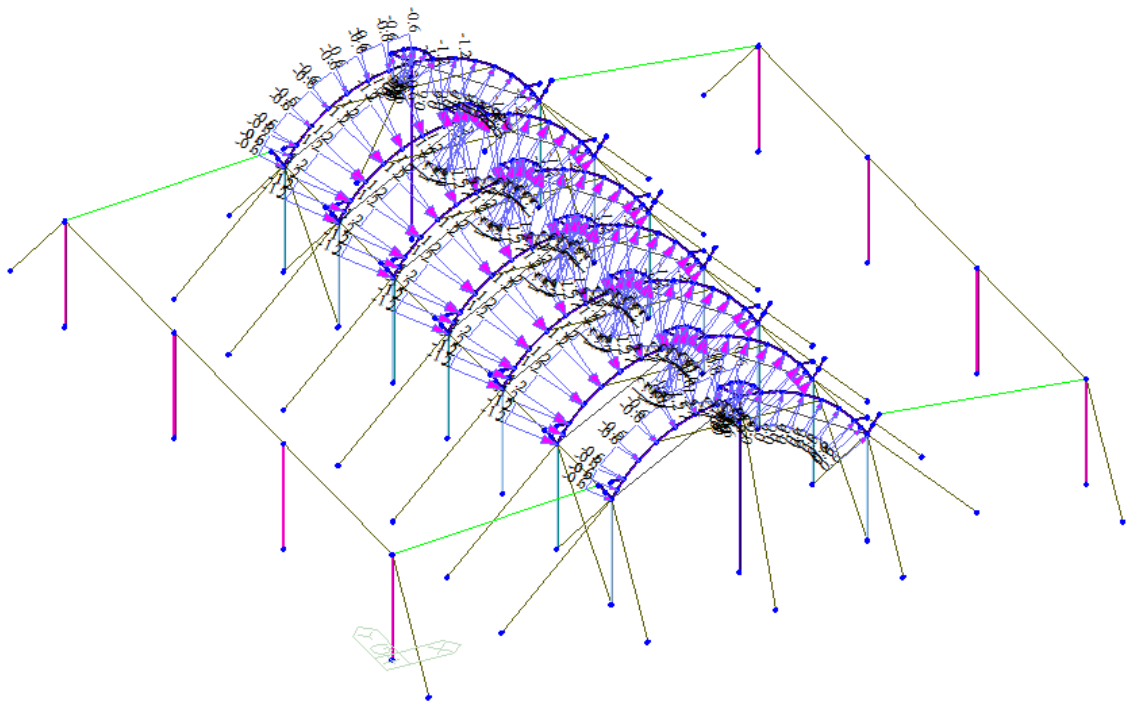
11.2 Cargas Muertas Cubierta (kN)



11.3 Cargas de Fluidos Cubierta (kN/ml)



11.4 Cargas de viento Cubierta (kN/ml)



12. ANÁLISIS SÍSMICO

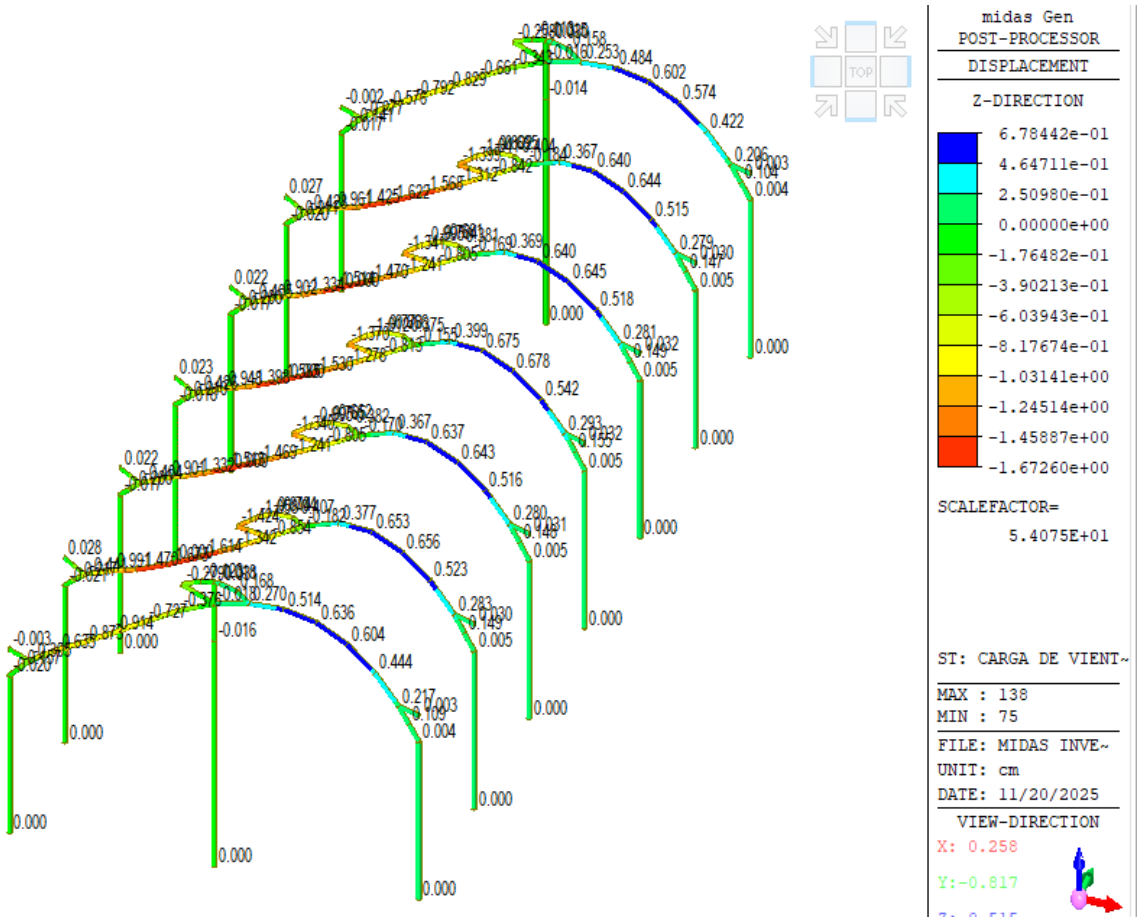
Se realiza la verificación del cumplimiento normativo de la estructura, en este punto se toma la aceleración máxima para un coeficiente de importancia igual a 1.

12.1 Chequeo Derivas Eje X y Y

	Load Case	Story	Story Height (m)	P-Delta Incremental Factor (ad)	Allowable Story Drift Ratio	Maximum Drift of All Vertical Elements					Drift at the Center of Mass				
						Node	Story Drift (m)	Modified Drift (m)	Story Drift Ratio	Remark	Story Drift (m)	Modified Drift (m)	Drift Factor (Maximum/Current)	Story Drift Ratio	Remark
	RMC,Not Used, Cd=1, Ie=1, Scale Factor=1, Allowable Ratio=0.015														
	Sismo X	12F	0,03	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0016	OK
	Sismo X	11F	0,17	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0007	OK
	Sismo X	10F	0,21	1	0,015	0	0	0	0	OK	0,0005	0,0005	0	0,0022	OK
	Sismo X	9F	0,04	1	0,015	0	0	0	0	OK	0,0006	0,0006	0	0,0142	OK
	Sismo X	8F	0,13	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0005	OK
	Sismo X	7F	0,22	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0003	OK
	Sismo X	6F	0,3	1	0,015	0	0	0	0	OK	0	0	0	0,0001	OK
	Sismo X	5F	0,37	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0003	OK
	Sismo X	4F	0,44	1	0,015	0	0	0	0	OK	0,0003	0,0003	0	0,0007	OK
	Sismo X	3F	0,25	1	0,015	0	0	0	0	OK	0,0003	0,0003	0	0,0012	OK
	Sismo X	2F	0,25	1	0,015	0	0	0	0	OK	0,0008	0,0008	0	0,0032	OK
	Sismo X	1F	3	1	0,015	62	0,0134	0,0134	0,0045	OK	0,0024	0,0024	5,5084	0,0008	OK
	Sismo Y	12F	0,03	1	0,015	0	0	0	0	OK	0	0	0	0,0006	OK
	Sismo Y	11F	0,17	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0007	OK
	Sismo Y	10F	0,21	1	0,015	0	0	0	0	OK	0,0011	0,0011	0	0,0051	OK
	Sismo Y	8F	0,13	1	0,015	0	0	0	0	OK	0,0002	0,0002	0	0,0012	OK
	Sismo Y	7F	0,22	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0004	OK
	Sismo Y	6F	0,3	1	0,015	0	0	0	0	OK	0,0001	0,0001	0	0,0003	OK
	Sismo Y	5F	0,37	1	0,015	0	0	0	0	OK	0,0003	0,0003	0	0,0008	OK
	Sismo Y	4F	0,44	1	0,015	0	0	0	0	OK	0,0005	0,0005	0	0,0012	OK
	Sismo Y	3F	0,25	1	0,015	0	0	0	0	OK	0,0003	0,0003	0	0,0012	OK
	Sismo Y	2F	0,25	1	0,015	0	0	0	0	OK	0,0003	0,0003	0	0,0013	OK
	Sismo Y	1F	3	1	0,015	183	0,003	0,003	0,001	OK	0,0019	0,0019	1,6054	0,0006	OK

12.2 Chequeo Deflexiones en Cubierta

Para este caso se verifica la deflexión para la carga más crítica en la cubierta, lo cual es la carga de viento.



En cubierta se presenta una deflexión máxima de 1.7 cm, lo cual se considera aceptable para el proyecto. En todo caso la cubierta no está diseñada para cargas vivas, por lo tanto, se dejarán las respectivas notas dentro de los planos.

13. COEFICIENTE DE CAPACIDAD DE DISIPACIÓN DE ENERGÍA

El coeficiente de disipación de utilizado según el sistema estructural propuesta y la capacidad de energía mínima requerida para el caso de la zona de riesgo sísmico en este caso es la siguiente basados en la tabla A.3-3:

SISTEMA DE PÓRTICOS RESISTENTES A MOMENTOS – NAVE INDUSTRIAL

- ✓ Pórticos resistentes a momentos con capacidad especial de disipación de energía (DES)
- ✓ Sistema resistencia sísmica (fuerzas horizontales)

✓ Sistema resistencia para cargas verticales

R_0	Ω_0
1.5	1.0

COEFICIENTE DE CAPACIDAD DE DISIPACIÓN DE ENERGÍA REDUCIDOS

Coef. Inicial	ϕ_p	ϕ_a	Aus. Redundancia	Soldadura en Obra	Coef. Diseño
(x) 1.5	1	1	1	0.9	1.35
(y) 1.5	1	1	1	0.9	1.35

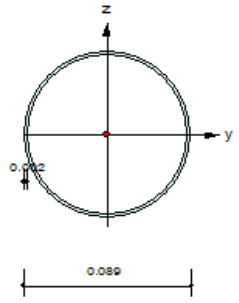
14. DISEÑO DE ELEMENTOS

14.1 14.1 Diseño de elementos tubulares 3" x 2mm

Se aporta el reporte de diseño del elemento más solicitado.

1. Design Information

Design Code	AISC(14th)-LRFD10
Unit System	kN, m
Member No	382
Material	A500-50 (No:2)
	(Fy = 344738, Es = 199948024)
Section Name	Tub 3.5" x 2mm (No:1)
	(Built-up Section).
Member Length	: 5.00000



2. Member Forces

Axial Force	Fxx = -8.4391 (LCB: 2, POS:I)
Bending Moments	My = -1.4290, Mz = -0.0048
End Moments	Myi = -1.4293, Myj = 1.01878 (for Lb)
	Myi = -1.4293, Myj = 1.01878 (for Ly)
	Mzi = -0.0048, Mzj = 0.19147 (for Lz)
Shear Forces	Fyy = -0.0393 (LCB: 2, POS:1/2)
	Fzz = 0.49204 (LCB: 3, POS:1/2)

Outer Dia.	0.08900	Wall Thick	0.00200
Area	0.00055	Asz	0.00027
Qyb	0.00189	Qzb	0.00189
Iyy	0.00000	Izz	0.00000
Ybar	0.04450	Zbar	0.04450
Syy	0.00001	Szz	0.00001
ry	0.03077	rz	0.03077

3. Design Parameters

Unbraced Lengths — Ly = 5.00000, Lz = 5.00000, Lb = 5.00000

Effective Length Factors — Ky = 1.00, Kz = 1.00

Moment Factor / Bending Coefficient — Cmy = 0.85, Cmz = 0.85, Cb = 1.00

4. Checking Results

Slenderness Ratio

KL/r = 162.5 < 200.0 (Memb:382, LCB: 2)..... O.K

Axial Strength

Pr/Pc = 8.4391/32.2401 = 0.262 < 1.000 ..... O.K

Bending Strength

Mry/Mcy = 1.42904/4.59535 = 0.311 < 1.000 ..... O.K

Mrz/Mcz = 0.00476/4.59535 = 0.001 < 1.000 ..... O.K

Combined Strength (Compression+Bending)

Pr/Pc = 0.26 > 0.20

Rmax = Pr/Pc + 8/9*SQRT[(Mry/Mcy)^2 + (Mrz/Mcz)^2] = 0.538 < 1.000 ..... O.K

Shear Strength

Vry/Vcy = 0.001 < 1.000 ..... O.K

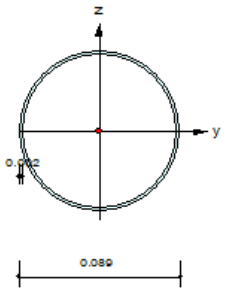
Vrz/Vcz = 0.010 < 1.000 ..... O.K

14.2 14.2 Diseño de elementos tubulares 2” x 2mm

Se aporta el reporte de diseño del elemento más solicitado.

1. Design Information

Design Code	AISC(14th)-LRFD10
Unit System	kN, m
Member No	382
Material	A500-50 (No:2)
	(Fy = 344738, Es = 199948024)
Section Name	Tub 3.5" x 2mm (No:1)
	(Built-up Section).
Member Length	: 5.00000



2. Member Forces

Axial Force	Fxx = -8.4391 (LCB: 2, POS:I)
Bending Moments	My = -1.4290, Mz = -0.0048
End Moments	Myi = -1.4293, Myj = 1.01878 (for Lb)
	Myi = -1.4293, Myj = 1.01878 (for Ly)
	Mzi = -0.0048, Mzj = 0.19147 (for Lz)
Shear Forces	Fyy = -0.0393 (LCB: 2, POS:1/2)
	Fzz = 0.49204 (LCB: 3, POS:1/2)

Outer Dia.	0.08900	Wall Thick	0.00200
Area	0.00055	Asz	0.00027
Qyb	0.00189	Qzb	0.00189
Iyy	0.00000	Izz	0.00000
Ybar	0.04450	Zbar	0.04450
Syy	0.00001	Szz	0.00001
ry	0.03077	rz	0.03077

3. Design Parameters

Unbraced Lengths — Ly = 5.00000, Lz = 5.00000, Lb = 5.00000

Effective Length Factors — Ky = 1.00, Kz = 1.00

Moment Factor / Bending Coefficient — Cmy = 0.85, Cmz = 0.85, Cb = 1.00

4. Checking Results

Slenderness Ratio

KL/r = 146.2 < 200.0 (Memb:72, LCB: 17)..... O.K

Axial Strength

Pr/Pc = 2.282/111.324 = 0.021 < 1.000 ..... O.K

Bending Strength

Mry/Mcy = 0.69668/2.08828 = 0.334 < 1.000 ..... O.K

Mrz/Mcz = 0.00000/2.08828 = 0.000 < 1.000 ..... O.K

Combined Strength (Compression+Bending)

Pr/Pc = 0.02 < 0.20

Rmax = Pr/(2*Pc) + SQRT[(Mry/Mcy)^2 + (Mrz/Mcz)^2] = 0.344 < 1.000 ..... O.K

Shear Strength

Vry/Vcy = 0.000 < 1.000 ..... O.K

Vrz/Vcz = 0.046 < 1.000 ..... O.K

14.3 14.3 Diseño de elementos tipo guaya

MEMB	SECT	SEL	Section	Section	LCB	L (m)	Pu (kN)	ϕPn (kN)	ESTADO
COM	SHR	SEL	Material	Fy	LCB				
268	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-8,3960	34,8	OK
1.215.684	0.000		A500-50	344738	3	424.264			
269	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-6,8707	34,8	OK
994.835	0.000		A500-50	344738	3	424.264			
270	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-6,8992	34,8	OK
998.964	0.000		A500-50	344738	3	424.264			
271	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-7,1613	34,8	OK
1.036.910	0.000		A500-50	344738	3	424.264			
272	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-6,9556	34,8	OK
1.007.126	0.000		A500-50	344738	3	424.264			
273	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-7,2052	34,8	OK
1.043.266	0.000		A500-50	344738	3	424.264			
274	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-8,0558	34,8	OK
1.166.426	0.000		A500-50	344738	3	424.264			
275	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,0982	34,8	OK
14.224	0.000		A500-50	344738	20	424.264			
276	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	0,0000	34,8	OK
0.000	0.000		A500-50	344738	3	424.264			
277	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,0177	34,8	OK
2.567	0.000		A500-50	344738	20	424.264			
278	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,0440	34,8	OK
6.369	0.000		A500-50	344738	20	424.264			
279	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,0199	34,8	OK
2.881	0.000		A500-50	344738	20	424.264			
280	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	0,0000	34,8	OK
0.000	0.000		A500-50	344738	3	424.264			
281	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,0519	34,8	OK

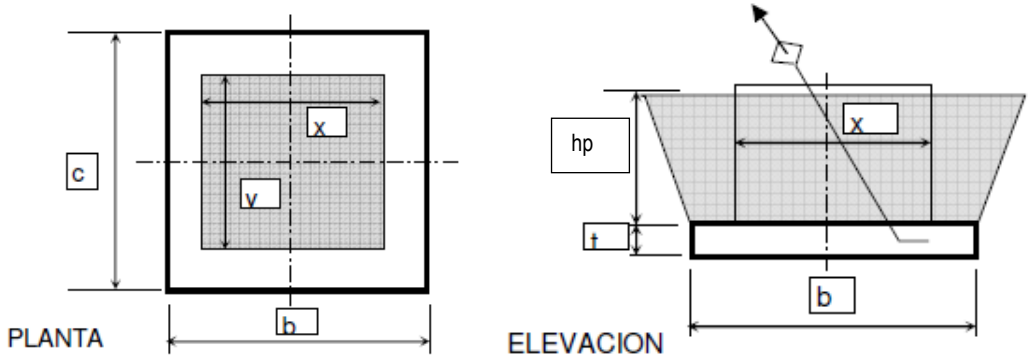
7.516	0.000		A500-50	344738	20	424.264			
282	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1692	34,8	OK
12.250	0.000		A500-50	344738	20	300.000			
283	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1420	34,8	OK
10.281	0.000		A500-50	344738	20	300.000			
284	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1152	34,8	OK
8.337	0.000		A500-50	344738	20	300.000			
285	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0878	34,8	OK
6.354	0.000		A500-50	344738	20	300.000			
286	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0612	34,8	OK
4.434	0.000		A500-50	344738	20	300.000			
287	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0347	34,8	OK
2.513	0.000		A500-50	344738	20	300.000			
288	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,2099	34,8	OK
15.195	0.000		A500-50	344738	20	300.000			
289	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1746	34,8	OK
12.639	0.000		A500-50	344738	20	300.000			
290	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1394	34,8	OK
10.096	0.000		A500-50	344738	20	300.000			
291	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1053	34,8	OK
7.620	0.000		A500-50	344738	20	300.000			
292	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0705	34,8	OK
5.105	0.000		A500-50	344738	20	300.000			
293	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0360	34,8	OK
2.607	0.000		A500-50	344738	20	300.000			
294	5	0	Tensor 1/8"	Tensor 1/8"	9	568.479	-0,0255	8,8	OK
102.811	0.000		A500-50	344738	9	568.479			
295	5	0	Tensor 1/8"	Tensor 1/8"	18	568.479	-0,0288	8,8	OK
115.982	0.000		A500-50	344738	18	568.479			
296	5	0	Tensor 1/8"	Tensor 1/8"	3	568.479	-0,0521	8,8	OK
209.830	0.000		A500-50	344738	3	568.479			
297	5	0	Tensor 1/8"	Tensor 1/8"	3	568.479	-0,0497	8,8	OK
200.183	0.000		A500-50	344738	3	568.479			
298	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,2806	34,8	OK
20.672	0.000		A416-250(Normal)	1465136	20	300.000			
299	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,8197	34,8	OK
60.388	0.000		A416-250(Normal)	1465136	20	300.000			
300	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,5614	34,8	OK
41.356	0.000		A416-250(Normal)	1465136	20	300.000			
301	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,3252	34,8	OK
23.955	0.000		A416-250(Normal)	1465136	20	300.000			
302	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0988	34,8	OK
7.275	0.000		A416-250(Normal)	1465136	20	300.000			
303	2	0	Tensor 1/4"	Tensor 1/4"	3	300.000	0,0000	34,8	OK
0.000	0.000		A416-250(Normal)	1465136	3	300.000			
304	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,2948	34,8	OK
21.714	0.000		A416-250(Normal)	1465136	20	300.000			

305	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,8960	34,8	OK
66.008	0.000		A416-250(Normal)	1465136	20	300.000			
306	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,6229	34,8	OK
45.887	0.000		A416-250(Normal)	1465136	20	300.000			
307	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,3436	34,8	OK
25.311	0.000		A416-250(Normal)	1465136	20	300.000			
308	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,0817	34,8	OK
6.021	0.000		A416-250(Normal)	1465136	20	300.000			
309	2	0	Tensor 1/4"	Tensor 1/4"	3	300.000	0,0000	34,8	OK
0.000	0.000		A416-250(Normal)	1465136	3	300.000			
310	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-1,2496	34,8	OK
184.106	0.000		A416-250(Normal)	1465136	20	424.264			
311	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	0,0000	34,8	OK
0.000	0.000		A416-250(Normal)	1465136	3	424.264			
312	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-1,3167	34,8	OK
194.000	0.000		A416-250(Normal)	1465136	20	424.264			
313	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	0,0000	34,8	OK
0.000	0.000		A416-250(Normal)	1465136	3	424.264			
314	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	-0,4609	34,8	OK
67.899	0.000		A416-250(Normal)	1465136	3	424.264			
315	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,2155	34,8	OK
31.747	0.000		A416-250(Normal)	1465136	20	424.264			
316	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	0,0000	34,8	OK
0.000	0.000		A416-250(Normal)	1465136	3	424.264			
317	2	0	Tensor 1/4"	Tensor 1/4"	20	424.264	-0,2232	34,8	OK
32.887	0.000		A416-250(Normal)	1465136	20	424.264			
340	2	0	Tensor 1/4"	Tensor 1/4"	20	360.555	-0,3577	34,8	OK
38.065	0.000		A416-250(Normal)	1465136	20	360.555			
341	2	0	Tensor 1/4"	Tensor 1/4"	13	360.555	-4,7845	34,8	OK
509.105	0.000		A416-250(Normal)	1465136	13	360.555			
342	2	0	Tensor 1/4"	Tensor 1/4"	20	360.555	-1,0530	34,8	OK
112.045	0.000		A416-250(Normal)	1465136	20	360.555			
343	2	0	Tensor 1/4"	Tensor 1/4"	20	360.555	-0,4445	34,8	OK
47.303	0.000		A416-250(Normal)	1465136	20	360.555			
344	2	0	Tensor 1/4"	Tensor 1/4"	3	424.264	0,0000	34,8	OK
0.000	0.000		A416-250(Normal)	1465136	3	424.264			
345	2	0	Tensor 1/4"	Tensor 1/4"	13	424.264	-0,1391	34,8	OK
20.501	0.000		A416-250(Normal)	1465136	13	424.264			
346	2	0	Tensor 1/4"	Tensor 1/4"	13	424.264	-3,8071	34,8	OK
560.910	0.000		A416-250(Normal)	1465136	13	424.264			
347	2	0	Tensor 1/4"	Tensor 1/4"	9	424.264	-0,0286	34,8	OK
4.217	0.000		A416-250(Normal)	1465136	9	424.264			
388	2	0	Tensor 1/4"	Tensor 1/4"	13	583.095	-4,9840	34,8	OK
1.387.023	0.000		A416-250(Normal)	1465136	13	583.095			
389	2	0	Tensor 1/4"	Tensor 1/4"	13	538.516	-5,2731	34,8	OK
1.251.677	0.000		A416-250(Normal)	1465136	13	538.516			
430	2	0	Tensor 1/4"	Tensor 1/4"	20	502.494	-0,2544	34,8	OK

52.583	0.000		A416-250(Normal)	1465136	20	502.494			
431	3	0	Tensor 5mm	Tensor 5mm	1	502.494	0,2776	21,6	OK
0.023	0.000		A500-50	344738	1	502.494			
432	3	0	Tensor 5mm	Tensor 5mm	1	502.494	0,0438	21,6	OK
0.004	0.000		A500-50	344738	1	502.494			
433	3	0	Tensor 5mm	Tensor 5mm	20	502.494	-0,2498	21,6	OK
132.008	0.000		A500-50	344738	20	502.494			
434	3	0	Tensor 5mm	Tensor 5mm	1	502.494	0,0402	21,6	OK
0.003	0.000		A500-50	344738	1	502.494			
435	3	0	Tensor 5mm	Tensor 5mm	20	502.494	-0,2518	21,6	OK
133.071	0.000		A500-50	344738	20	502.494			
436	3	0	Tensor 5mm	Tensor 5mm	1	502.494	0,0466	21,6	OK
0.004	0.000		A500-50	344738	1	502.494			
437	3	0	Tensor 5mm	Tensor 5mm	20	502.494	-0,2727	21,6	OK
144.074	0.000		A500-50	344738	20	502.494			
438	3	0	Tensor 5mm	Tensor 5mm	20	502.494	-0,0099	21,6	OK
5.217	0.000		A500-50	344738	20	502.494			
439	3	0	Tensor 5mm	Tensor 5mm	20	502.494	-0,2429	21,6	OK
128.324	0.000		A500-50	344738	20	502.494			
440	3	0	Tensor 5mm	Tensor 5mm	1	502.494	0,0300	21,6	OK
0.002	0.000		A500-50	344738	1	502.494			
441	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-0,1465	21,6	OK
77.420	0.000		A500-50	344738	13	502.494			
442	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-3,6181	21,6	OK
1.911.781	0.000		A500-50	344738	13	502.494			
443	3	0	Tensor 5mm	Tensor 5mm	3	502.494	-4,4312	21,6	OK
2.341.365	0.000		A500-50	344738	3	502.494			
444	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,4819	21,6	OK
2.368.175	0.000		A500-50	344738	13	502.494			
445	3	0	Tensor 5mm	Tensor 5mm	3	502.494	-4,7788	21,6	OK
2.525.047	0.000		A500-50	344738	3	502.494			
446	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,7556	21,6	OK
2.512.819	0.000		A500-50	344738	13	502.494			
447	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,7611	21,6	OK
2.515.697	0.000		A500-50	344738	13	502.494			
448	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,7566	21,6	OK
2.513.329	0.000		A500-50	344738	13	502.494			
449	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,7602	21,6	OK
2.515.206	0.000		A500-50	344738	13	502.494			
450	3	0	Tensor 5mm	Tensor 5mm	3	502.494	-4,7690	21,6	OK
2.519.901	0.000		A500-50	344738	3	502.494			
451	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,5404	21,6	OK
2.399.080	0.000		A500-50	344738	13	502.494			
452	3	0	Tensor 5mm	Tensor 5mm	3	502.494	-4,4956	21,6	OK
2.375.434	0.000		A500-50	344738	3	502.494			
453	3	0	Tensor 5mm	Tensor 5mm	13	502.494	-4,3049	21,6	OK
2.274.659	0.000		A500-50	344738	13	502.494			

15. DISEÑO DE CONTRAPESOS PARA TENSORES

Para el diseño del elemento se tiene que la carga mayormente critica dentro de estos elementos es de 5.59 kN en el eje "X" y de 5.58 kN para el eje "Y". Calcularemos un factor de seguridad vertical, que garantice que, en combinación con la fuerza horizontal, pueda cumplir el factor de seguridad al arrancamiento de la fuerza resultante actuante.



Las dimensiones del elemento son las siguientes:

Coeficiente	Valor	Un
b	0.50	m
c	0.50	m
x	0.20	m
y	0.20	m
hp	0.60	m
t	0.30	m

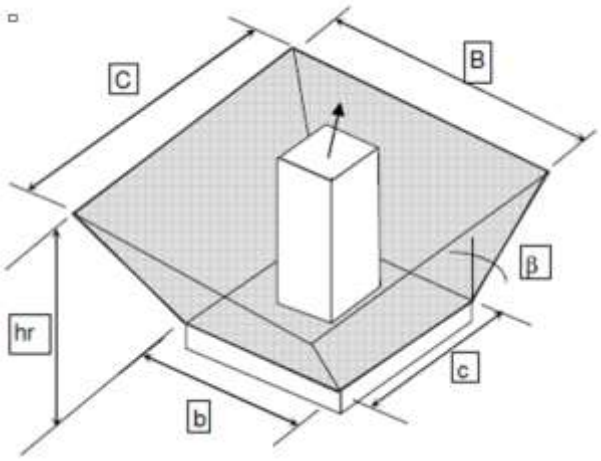
El peso de la estructura de concreto está dado por lo siguiente:

W_{ZAPATA}: 0.50m x 0.50m x 0.30m x 24 kN/m3: 1.8 kN

$W_{PEDESTAL}$: 0.20m x 0.20m x 0.6m x 24 kN/m3: 0.576 kN

$W_{CIMENTACIÓN}$: 2.376 kN

El factor de seguridad al arrancamiento estará dado por la sumatoria del peso de la estructura de concreto sumando el tronco de pirámide que se genera con el suelo de relleno:



Coeficiente	Valor	Un
hr	0.50	m
β	20	°
B= b+2hr*tanβ	0.86	m
C= c+2hr*tanβ	0.86	m
Vt= hr/3[BC+bc+ (BCbc)$^{1/2}$]	0.24	m3
γ_{suelo}	18	kN/m3

Ahora, el peso del suelo por encima del elemento es el siguiente:

$$W_{SUELO} = Vt \times \gamma_{suelo} = 0.24\ m3 * 18\ kN/m3 = 4.29\ kN$$

Descontando el peso del área ocupada por el pedestal, tenemos que:

$$W = W_{SUELO} - W_{PEDESTAL\ SUELO} = 4.29\ kN - 0.576\ kN = 3.71\ kN$$

Con esto, el factor de seguridad ante el arrancamiento es:

$$F.S.= (W + W_{CIMENTACIÓN}) / RFZT$$

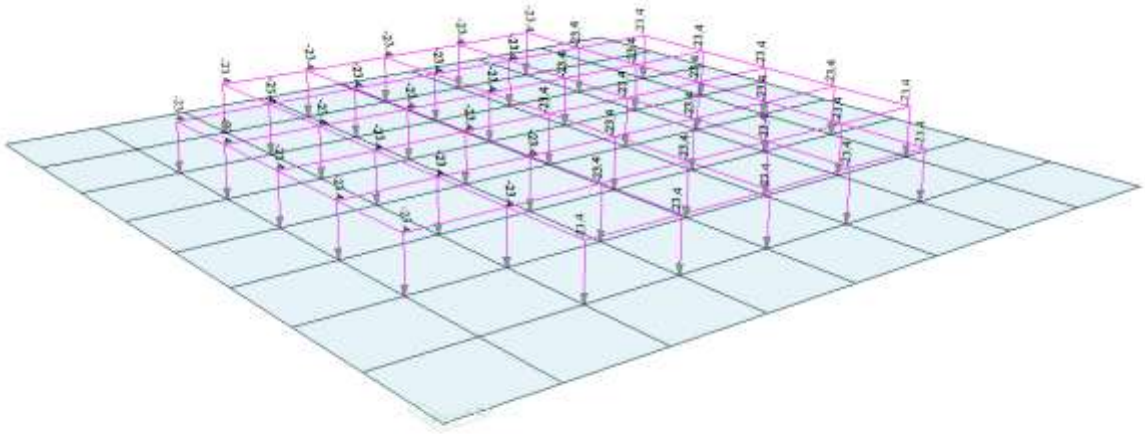
$$F.S.= (3.71\ kN + 2.376\ kN) / 5.58$$

$$F.S.= 1.1$$

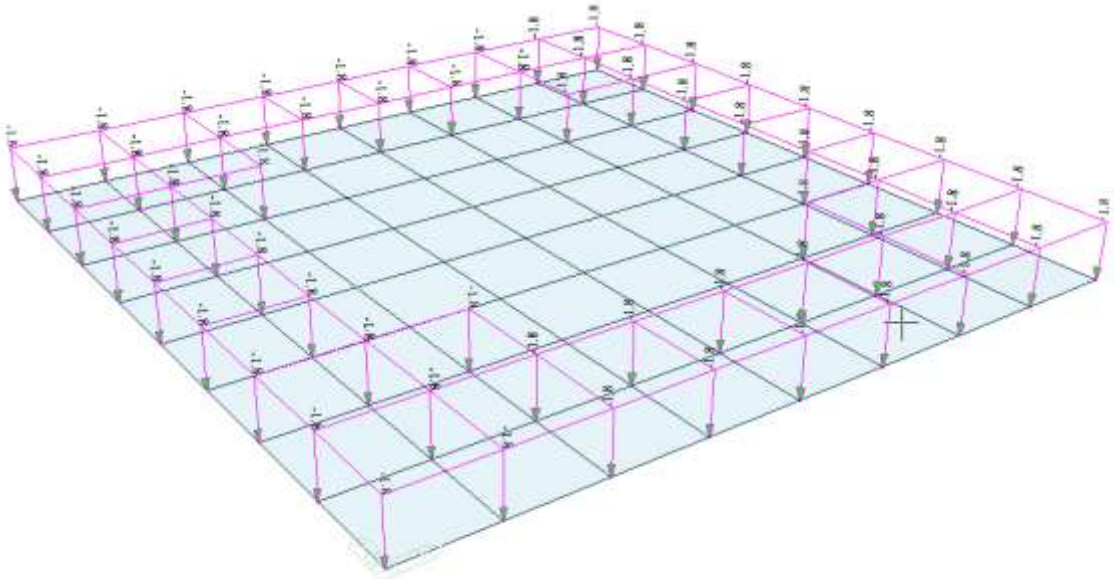
16. DISEÑO DE PLACA DE CIMENTACIÓN PARA TANQUE 5000 Litros

Las cargas actuantes consideradas dentro del diseño de la placa son las siguientes:

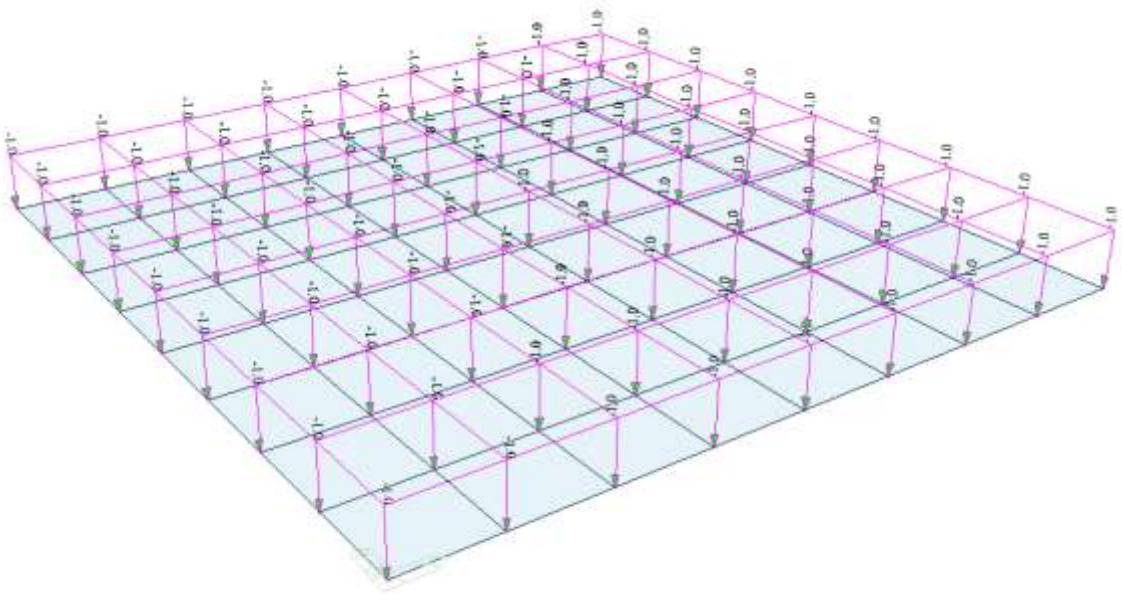
- CARGA MUERTA: Peso propio de placa E=0.10m
- CARGA FLUIDOS: Carga de tanque 5000 lts – 23.4 kN/m2



- CARGA VIVA= 1.8 kN/m2

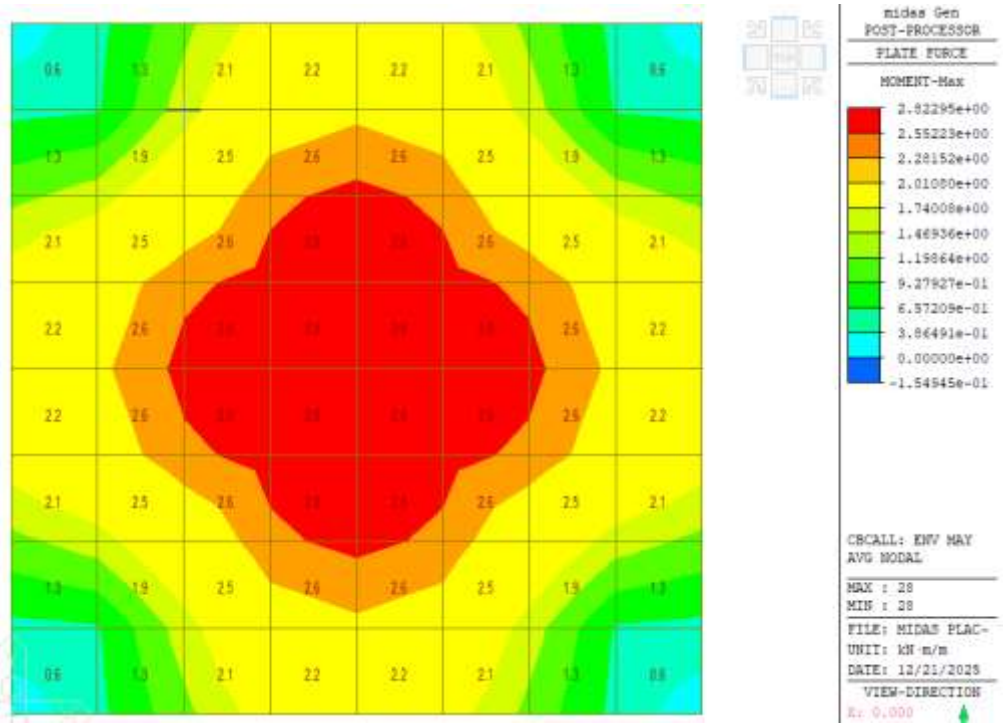


- CARGA GRANIZO= 1.0 kN/m2

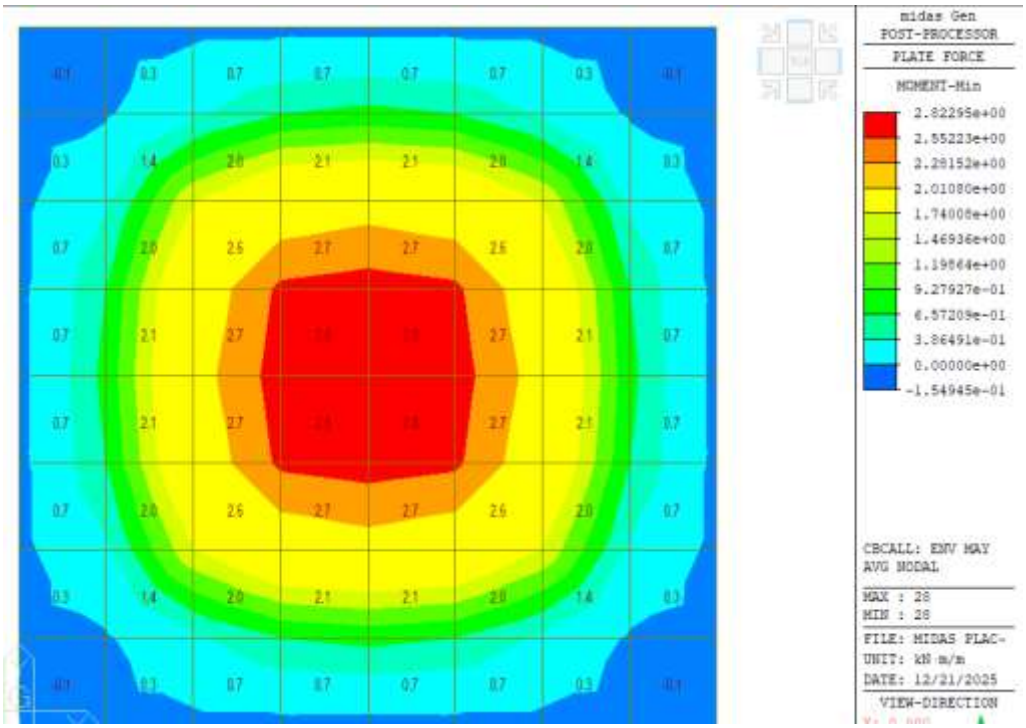


Con el fin de realizar el modelo con condiciones del terreno se utilizaron resortes equivalentes a arcillas blandas, una condición conservadora ante la cantidad de posibles suelos que se puedan encontrar dentro de los municipios. El valor utilizado como reacción de la subrasante en esta ocasión es de 15.000 kN/m3

- DISEÑO DE ACERO DE REFUERZO



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ESPECIALISTA EN ANÁLISIS Y DISEÑO DE ESTRUCTURAS



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DATOS DE ENTRADA		
Cortante (Vu)	0	KN
Momento (Mu)	2.8	KN*m
Torsión (Tu)	0	KN*m
f'c	21	Mpa
fy	420	Mpa
b	1.00	m
h	0.10	m
Recubrimiento	0.05	m
Peralte (d)	0.05	m

DISEÑO A FLEXIÓN			
ρmin	0.0020		
β1	0.85		
ρmax	0.01355		
ρ	0.00308	OK	
ρ diseño	0.0031		
As	154	mm2	Acero Req a Flexión
As	154	mm2	Acero Req a Flexión + Torsión

Diámetro Barra (mm)	Área Barra(mm2)	#	Área Suministrada (mm2)
6	28.3	6.5	183.95

S	0.153	m	CUMPLE

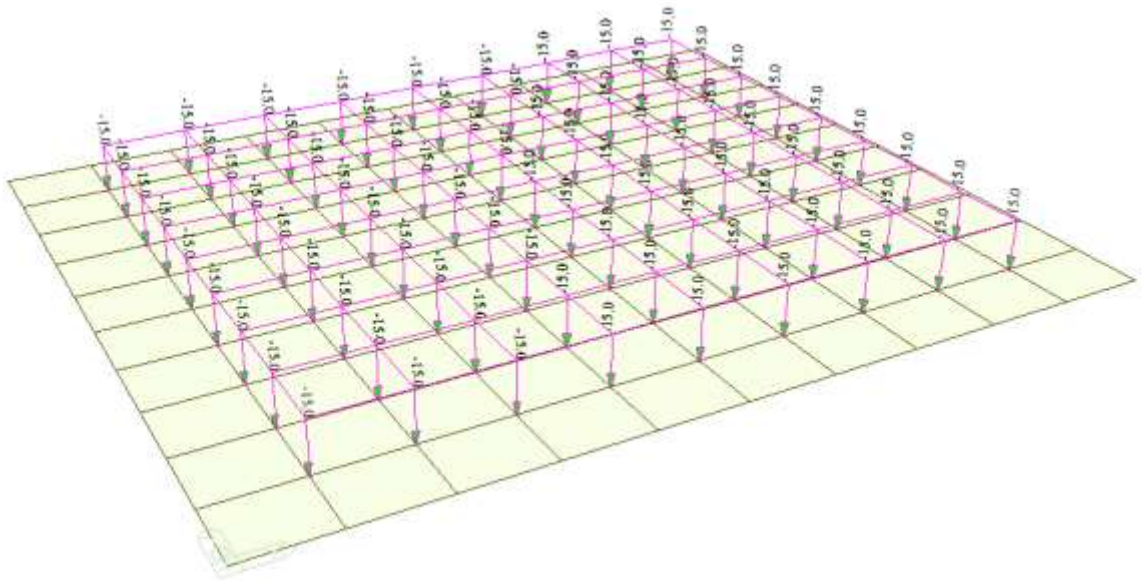
- Para la losa de 10 cm, incluir malla electrosoldada de 6 mm cada 0.15m en cada dirección.

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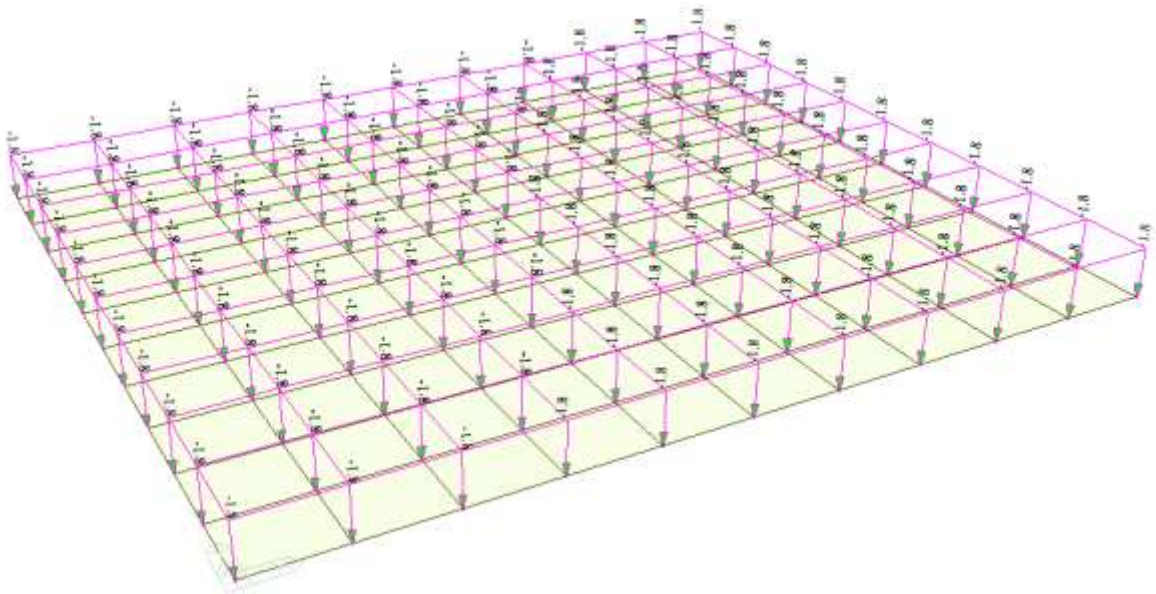
17. DISEÑO DE PLACA DE CIMENTACIÓN PARA CUARTO DE ALMACENAMIENTO

Las cargas actuantes consideradas dentro del diseño de la placa son las siguientes:

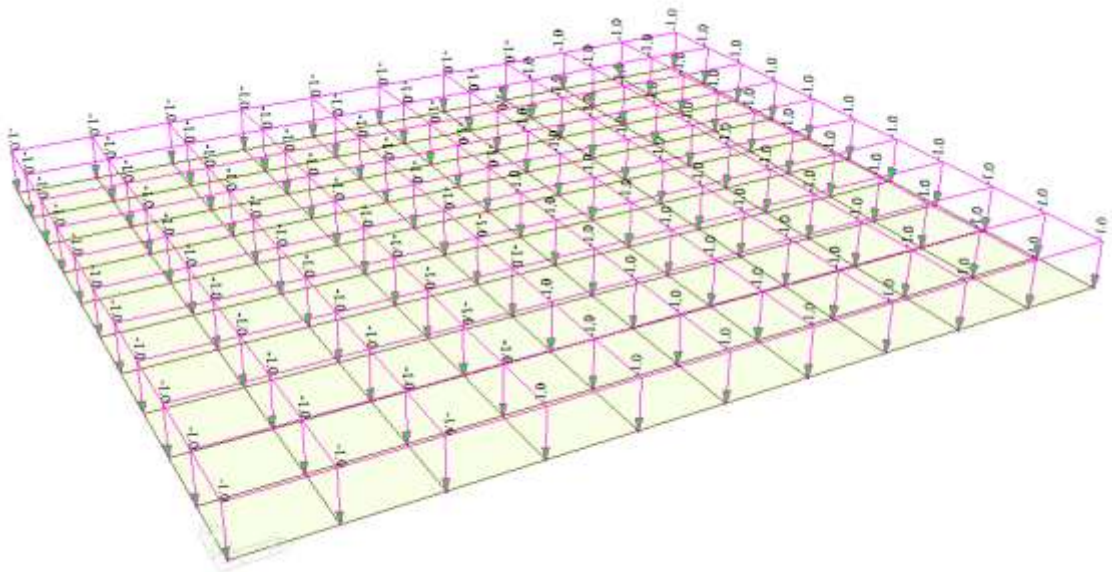
- CARGA MUERTA: Peso propio de placa E=0.12m, más una carga de 15 kN/m2 que considera el peso de la estructura prefabricada y almacenamiento.



- CARGA VIVA= 1.8 kN/m2

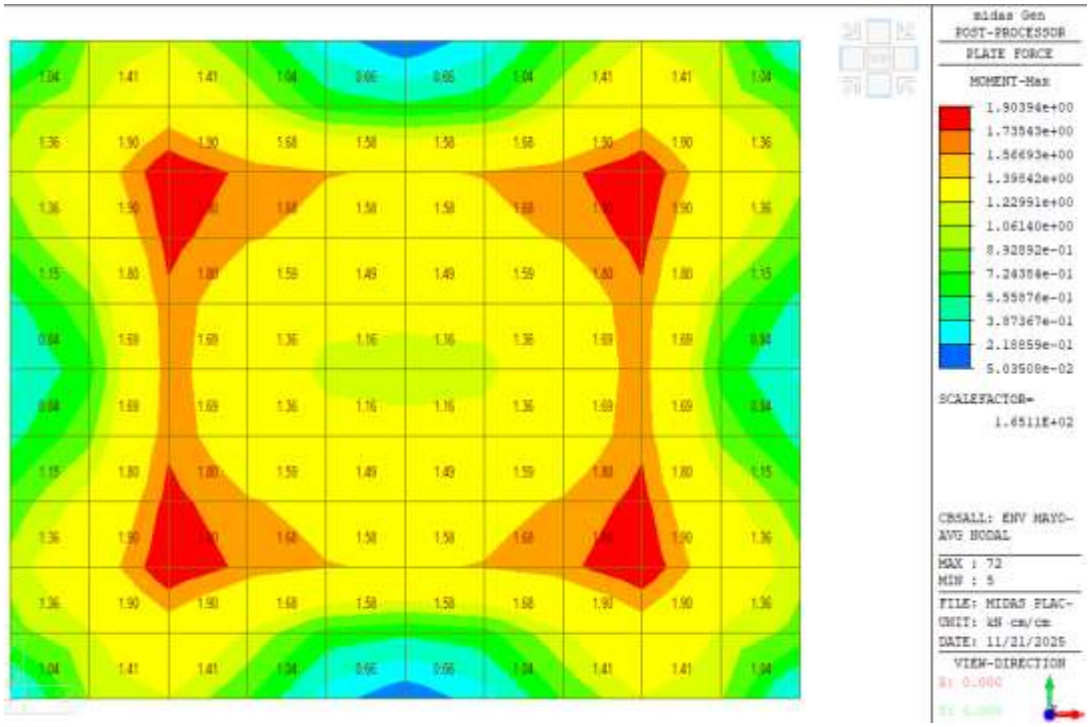


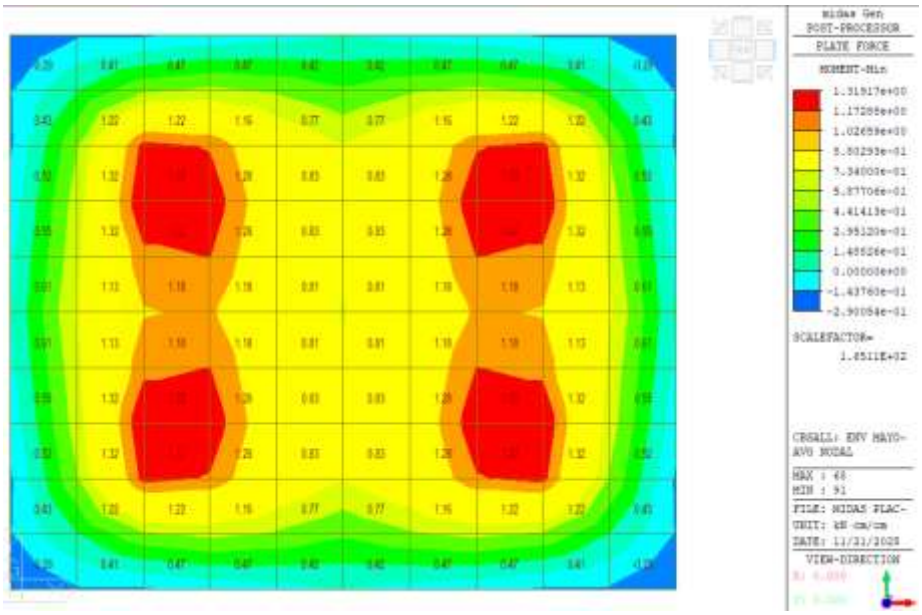
- CARGA GRANIZO= 1.0 kN/m2



Con el fin de realizar el modelo con condiciones del terreno se utilizaron resortes equivalentes a arcillas blandas, una condición conservadora ante la cantidad de posibles suelos que se puedan encontrar dentro de los municipios. El valor utilizado como reacción de la subrasante en esta ocasión es de 15.000 kN/m3

- DISEÑO DE ACERO DE REFUERZO





DATOS DE ENTRADA		
Cortante (Vu)	0	KN
Momento (Mu)	1.91	KN*m
Torsión (Tu)	0	KN*m
f´c	21	Mpa
fy	420	Mpa
b	1.00	m
h	0.12	m
Recubrimiento	0.06	m
Peralte (d)	0.06	m

DISEÑO A FLEXIÓN			
ρmin	0.0020		
β1	0.85		
ρmax	0.01355		
ρ	0.00143	OK	
ρ diseño	0.0020		
As	120	mm2	Acero Req a Flexión
As	120	mm2	Acero Req a Flexión + Torsión

Diámetro Barra (mm)	Área Barra(mm2)	#	Área Suministrada (mm2)
6	28.3	6	169.8

S	0.160	m	CUMPLE

Para la losa de 10 cm, incluir malla electrosoldada de 6 mm cada 0.15m en cada dirección.

18. REPORTE DISEÑO DE ELEMENTOS TUBULARES

Ver anexo.

19. REPORTE MIDAS

Ver anexo.

AMAURY ANDRÉS URUETA MORA
Ingeniero Civil
Especialista en Análisis y Diseño de Estructuras
Matr. Prof. # 22202-212829 COR

ANEXOS

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REPORTE DISEÑO ELEMENTOS TUBULARES

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MEMB	SECT	SEL	Section	Section	LCB	Len	Ly	Cb	Ky	B1y	B2y	Pr	Mry	Mrz	Vry	Vrz	Tr	CHK
COM	SHR	SEL	Material	Fy	LCB	Lb	Lz	Cb	Kz	B1z	B2z	Pc	Mcy	Mcz	Vcy	Vcz	Tc	CHK
41	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-98.605	138.356	0.08962	-0.0179	0.59886	0.02889	OK
0.360	0.012		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
42	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	300.000	300.000	1.000	1.000	1.000	1.000	-29.365	-0.5987	-0.1302	-0.0637	-0.1474	0.07367	OK
0.151	0.003		A500-50	344738	3	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
44	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.36103	104.191	0.02277	0.05203	-20.279	0.03574	OK
0.228	0.040		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
45	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.56561	154.911	-0.0141	0.05203	-12.162	0.03871	OK
0.339	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
46	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.63624	160.709	-0.0353	0.05203	-0.3801	0.03621	OK
0.352	0.007		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
47	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.58207	155.220	-0.0558	0.05203	121.271	0.02828	OK
0.340	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
48	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.40737	104.843	-0.0903	0.05203	204.018	0.01510	OK
0.230	0.040		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
49	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.11029	-14.316	-0.1538	0.05203	283.278	0.00568	OK
0.314	0.056		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
50	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	271.540	-0.2327	-0.0803	-0.0602	0.59596	0.02156	OK
0.062	0.013		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
51	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-23.028	0.76028	0.05844	0.05516	-11.617	0.05070	OK
0.173	0.023		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
52	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-22.282	0.98215	0.01814	0.05516	-0.7444	0.06200	OK
0.221	0.015		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
53	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-22.124	102.264	-0.0063	0.05516	0.42790	0.06566	OK
0.229	0.008		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
54	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-22.588	0.95026	-0.0306	0.05516	0.84249	0.06161	OK
0.214	0.017		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
55	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-23.771	0.66802	-0.0705	0.05516	124.095	0.04993	OK
0.153	0.024		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
56	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.30101	0.30101	1.000	1.000	1.000	1.000	-25.834	-0.1734	-0.1251	0.05516	125.323	0.03087	OK
0.054	0.032		A500-50	344738	3	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
69	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-0.0041	-14.185	0.09010	0.05203	-28.066	0.02736	OK
0.309	0.055		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
70	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.823	-0.6967	0.00000	0.00000	-15.540	0.00000	OK
0.344	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
71	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.823	-0.6967	0.00000	0.00000	-15.540	0.00000	OK
0.344	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
72	4	1	Tub 2" x 2mm	Tub 2" x 2mm	4	300.000	300.000	1.000	1.000	1.000	1.000	-0.2594	0.02816	0.00186	-0.0006	-0.0094	0.00000	OK
0.018	0.000		A500-50	344738	4	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
73	4	1	Tub 2" x 2mm	Tub 2" x 2mm	3	300.000	300.000	1.000	1.000	1.000	1.000	-0.1281	-0.1556	0.00000	0.00000	0.05186	0.00000	OK
0.077	0.002		A500-50	344738	3	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	0.00000	339.204	0.00000	OK
74	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-0.2605	-0.1150	0.02855	-0.0104	-0.2228	0.04180	OK
0.027	0.006		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
75	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.33054	0.33054	1.000	1.000	1.000	1.000	0.51020	0.09701	-0.0305	0.01297	0.68452	0.02999	OK
0.024	0.013		A500-50	344738	3	0.33054	0.33054	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
77	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-0.1068	0.01907	-0.0017	0.05256	-0.2359	0.00688	OK
0.004	0.005		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
78	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.10711	0.10711	1.000	1.000	1.000	1.000	0.36304	-0.1519	-0.0404	0.01297	0.91304	0.01964	OK
0.035	0.018		A500-50	344738	3	0.10711	0.10711	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
79	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.22438	0.22438	1.000	1.000	1.000	1.000	0.16897	-0.0897	0.01938	-0.0403	0.52790	0.01083	OK
0.020	0.010		A500-50	344738	3	0.22438	0.22438	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
80	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	0.21824	0.03979	-0.0301	-0.0526	0.09971	0.00387	OK
0.012	0.002		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
81	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-70.865	122.834	0.04119	0.00623	0.55212	0.01549	OK
0.309	0.011		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
82	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	106.608	156.937	-0.0210	0.02489	-0.7078	0.02438	OK
0.345	0.014		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
83	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-48.049	-0.6597	0.02726	0.02245	-13.056	0.01495	OK
0.158	0.026		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
84	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	411.037	-0.4952	0.00374	-0.0104	112.880	0.01681	OK
0.120	0.025		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
85	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-44.865	0.92961	-0.0181	0.02245	-11.929	0.01631	OK
0.216	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
86	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-43.607	136.632	-0.0339	0.02245	-11.012	0.01345	OK
0.311	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
87	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-42.545	173.568	-0.0490	0.02245	-0.9900	0.00830	OK
0.391	0.019		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
88	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.001	1.000	-41.705	202.837	-0.0632	0.02245	-0.8630	0.00569	OK

0.454	0.017		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
89	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	457.141	136.336	-0.0510	-0.0423	250.813	0.01063	OK
0.310	0.049		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
90	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	106.016	0.87953	-0.0458	-0.0250	220.390	0.01532	OK
0.195	0.043		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
91	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	-12.495	104.499	0.00458	0.01296	-15.420	0.01971	OK
0.231	0.032		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
92	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.64179	-14.577	0.00496	-0.0250	106.700	0.02143	OK
0.319	0.021		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
93	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.56563	-15.486	0.01936	-0.0250	0.46277	0.02046	OK
0.339	0.009		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
94	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.58945	-15.264	0.02589	-0.0250	-0.8498	0.01682	OK
0.334	0.019		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
95	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.67210	-12.225	0.04297	-0.0250	-10.986	0.01498	OK
0.268	0.030		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
96	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-49.846	-12.354	0.04268	0.02245	-13.320	0.01346	OK
0.284	0.031		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
97	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
98	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
99	4	1	Tub 2" x 2mm	Tub 2" x 2mm	4	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	0.10695	0.00224	-0.0007	-0.0357	0.00000	OK
0.054	0.001		A500-50	344738	4	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
100	4	1	Tub 2" x 2mm	Tub 2" x 2mm	4	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	0.10695	0.00088	-0.0003	-0.0356	0.00000	OK
0.053	0.001		A500-50	344738	4	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
101	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-19.087	101.700	0.01715	0.01730	260.764	0.01999	OK
0.227	0.051		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
102	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-25.050	0.21872	0.01531	0.01730	150.305	0.01129	OK
0.055	0.030		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
103	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-25.428	-0.2409	0.00808	0.01730	-13.514	0.00375	OK
0.060	0.027		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
104	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.10711	0.10711	1.000	1.000	1.000	1.000	-26.760	-0.2689	0.00958	0.01730	0.56471	0.00749	OK
0.066	0.011		A500-50	344738	2	0.10711	0.10711	1.000	1.000	1.000	1.000	169.452	459.535	459.535	508.806	508.806	442.661	OK
105	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.22438	0.22438	1.000	1.000	1.000	1.000	-27.122	-0.2689	-0.0107	0.01730	0.25367	0.00578	OK
0.067	0.007		A500-50	344738	2	0.22438	0.22438	1.000	1.000	1.000	1.000	168.944	459.535	459.535	508.806	508.806	442.661	OK
106	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	276.206	-0.6648	-0.0110	-0.0173	-0.7744	0.00796	OK
0.153	0.015		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
107	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-63.166	115.362	-0.0158	-0.0235	0.52436	0.01060	OK
0.288	0.010		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
108	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	114.034	160.097	0.01022	-0.0042	-0.7427	0.00570	OK
0.352	0.015		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
109	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-52.108	-0.6868	-0.0137	-0.0058	-11.953	0.00609	OK
0.165	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
110	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	462.864	-0.3619	0.00631	0.00856	101.139	0.00787	OK
0.092	0.024		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
111	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-49.069	0.81451	-0.0015	-0.0058	-12.061	0.00872	OK
0.192	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
112	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-47.745	129.648	0.00294	-0.0058	-11.763	0.00861	OK
0.297	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
113	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-46.526	174.741	0.00740	-0.0058	-11.255	0.00755	OK
0.394	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
114	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-45.443	215.620	0.01174	-0.0058	-10.558	0.00557	OK
0.483	0.021		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
115	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	483.776	142.318	0.00992	0.00878	253.788	0.01047	OK
0.324	0.050		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
116	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	112.671	0.99431	0.01077	0.00324	223.562	0.00417	OK
0.220	0.044		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
117	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	-11.920	101.657	-0.0089	-0.0060	-15.471	0.00592	OK
0.225	0.033		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
118	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.69616	-14.168	0.00503	0.00324	111.679	0.00344	OK
0.310	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
119	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.61204	-15.335	0.00341	0.00324	0.52005	0.00358	OK
0.336	0.010		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
120	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.62689	-15.199	0.00268	0.00324	-0.7863	0.00747	OK
0.333	0.019		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
121	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.69974	-12.543	0.00044	0.00324	-10.303	0.01100	OK
0.275	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
122	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-53.698	-11.607	-0.0177	-0.0058	-11.630	0.00945	OK
0.269	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK

123	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
124	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
125	4	1	Tub 2" x 2mm	Tub 2" x 2mm	4	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	0.10312	0.00256	-0.0009	-0.0344	0.00000	OK
0.052	0.001		A500-50	344738	4	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
126	4	1	Tub 2" x 2mm	Tub 2" x 2mm	4	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	0.10311	0.00111	-0.0004	-0.0344	0.00000	OK
0.052	0.001		A500-50	344738	4	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
127	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-20.410	108.988	-0.0055	-0.0055	275.232	0.01957	OK
0.243	0.054		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
128	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-26.764	0.24378	-0.0044	-0.0055	159.808	0.01103	OK
0.061	0.031		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
129	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-27.369	-0.2590	-0.0011	-0.0055	-13.791	0.00149	OK
0.064	0.027		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
130	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.10711	0.10711	1.000	1.000	1.000	1.000	-28.638	-0.2813	-0.0022	-0.0055	0.62110	0.00738	OK
0.070	0.012		A500-50	344738	2	0.10711	0.10711	1.000	1.000	1.000	1.000	169.452	459.535	459.535	508.806	508.806	442.661	OK
131	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.22438	0.22438	1.000	1.000	1.000	1.000	-29.066	-0.2813	0.00225	-0.0055	0.22830	0.00484	OK
0.070	0.006		A500-50	344738	2	0.22438	0.22438	1.000	1.000	1.000	1.000	168.944	459.535	459.535	508.806	508.806	442.661	OK
132	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	292.292	-0.7327	0.00317	0.00555	-0.8865	0.00820	OK
0.168	0.017		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
133	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-63.962	115.384	-0.0033	-0.0052	0.52285	0.00557	OK
0.289	0.010		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
134	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	113.329	161.343	0.01447	-0.0061	-0.7494	0.00611	OK
0.354	0.015		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
135	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-52.079	-0.6857	-0.0023	-0.0017	-11.970	0.00510	OK
0.165	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
136	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	462.006	-0.3683	-0.0002	0.00044	100.730	0.00242	OK
0.094	0.024		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
137	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-49.036	0.81800	0.00127	-0.0017	-12.069	0.00512	OK
0.193	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
138	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-47.712	130.019	0.00250	-0.0017	-11.767	0.00736	OK
0.297	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
139	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-46.493	175.104	0.00370	-0.0017	-11.253	0.00586	OK
0.395	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
140	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-45.410	215.945	0.00482	-0.0017	-10.552	0.00454	OK
0.484	0.021		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
141	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	484.324	142.497	0.00389	0.00324	254.032	0.01114	OK
0.324	0.050		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
142	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	112.752	0.99606	0.00354	0.00187	223.825	0.00509	OK
0.220	0.044		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
143	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	-11.857	102.308	-0.0002	-0.0006	-15.442	0.00664	OK
0.226	0.033		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
144	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.69617	-14.199	-0.0002	0.00187	111.954	0.00395	OK
0.311	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
145	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.61165	-15.379	-0.0013	0.00187	0.52277	0.00182	OK
0.336	0.010		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
146	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.62610	-15.247	-0.0018	0.00187	-0.7837	0.00640	OK
0.334	0.019		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
147	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.69857	-12.607	-0.0031	0.00187	-10.278	0.01037	OK
0.276	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
148	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-53.672	-11.610	-0.0035	-0.0017	-11.651	0.00883	OK
0.269	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
149	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
150	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
151	4	1	Tub 2" x 2mm	Tub 2" x 2mm	4	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	0.09907	0.00281	-0.0009	-0.0330	0.00000	OK
0.050	0.001		A500-50	344738	4	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
152	4	1	Tub 2" x 2mm	Tub 2" x 2mm	9	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	-0.0991	0.00231	-0.0008	0.03302	0.00000	OK
0.050	0.001		A500-50	344738	9	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
153	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-20.440	109.131	-0.0014	-0.0014	275.533	0.01996	OK
0.244	0.054		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
154	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-26.802	0.24421	-0.0012	-0.0014	159.997	0.01126	OK
0.061	0.031		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
155	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-27.411	-0.2594	-0.0006	-0.0014	-13.799	0.00170	OK
0.065	0.027		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
156	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.10711	0.10711	1.000	1.000	1.000	1.000	-28.679	-0.2816	-0.0007	-0.0014	0.62212	0.00762	OK
0.070	0.012		A500-50	344738	2	0.10711	0.10711	1.000	1.000	1.000	1.000	169.452	459.535	459.535	508.806	508.806	442.661	OK
157	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.22438	0.22438	1.000	1.000	1.000	1.000	-29.108	-0.2816	0.00082	-0.0014	0.22796	0.00508	OK

0.070	0.006		A500-50	344738	2	0.22438	0.22438	1.000	1.000	1.000	1.000	168.944	459.535	459.535	508.806	508.806	442.661	OK
158	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	292.655	-0.7342	0.00087	0.00137	-0.8887	0.00850	OK
0.168	0.017		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
159	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-63.321	115.150	0.00247	0.00723	0.52270	0.00687	OK
0.288	0.010		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
160	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	114.018	160.201	0.02088	-0.0101	-0.7430	0.00785	OK
0.352	0.015		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
161	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-52.122	-0.6855	0.00392	-0.0006	-11.942	0.00654	OK
0.165	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
162	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	462.410	-0.3638	-0.0053	-0.0045	101.172	0.00453	OK
0.093	0.024		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
163	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-49.085	0.81437	0.00486	-0.0006	-12.055	0.00613	OK
0.192	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
164	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-47.763	129.614	0.00499	-0.0006	-11.760	0.00837	OK
0.297	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
165	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-46.544	174.702	0.00507	-0.0006	-11.254	0.00650	OK
0.394	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
166	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-45.461	215.592	0.00495	-0.0006	-10.560	0.00438	OK
0.483	0.021		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
167	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	483.653	142.310	0.00368	0.00266	253.809	0.01136	OK
0.324	0.050		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
168	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	112.598	0.99387	0.00201	0.00294	223.579	0.00545	OK
0.220	0.044		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
169	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	-11.915	101.775	0.00580	0.00213	-15.470	0.00767	OK
0.225	0.033		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
170	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.69541	-14.174	-0.0046	0.00294	111.674	0.00540	OK
0.310	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
171	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.61131	-15.340	-0.0064	0.00294	0.51989	0.00402	OK
0.336	0.010		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
172	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.62619	-15.204	-0.0073	0.00294	-0.7866	0.00742	OK
0.333	0.019		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
173	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.69909	-12.546	-0.0093	0.00294	-10.306	0.01099	OK
0.275	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
174	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-53.710	-11.586	0.00350	-0.0006	-11.617	0.00975	OK
0.268	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
175	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
176	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
177	4	1	Tub 2" x 2mm	Tub 2" x 2mm	9	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	-0.0970	0.00170	-0.0006	0.03233	0.00000	OK
0.049	0.001		A500-50	344738	9	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
178	4	1	Tub 2" x 2mm	Tub 2" x 2mm	9	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	-0.0970	0.00238	-0.0008	0.03233	0.00000	OK
0.049	0.001		A500-50	344738	9	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
179	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-20.406	108.965	0.00031	0.00028	275.189	0.02076	OK
0.243	0.054		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
180	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-26.760	0.24369	-0.0001	0.00028	159.779	0.01197	OK
0.061	0.031		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
181	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-27.363	-0.2589	-0.0009	0.00028	-13.791	0.00184	OK
0.064	0.027		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
182	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.10711	0.10711	1.000	1.000	1.000	1.000	-28.633	-0.2813	-0.0005	0.00028	0.62091	0.00808	OK
0.070	0.012		A500-50	344738	2	0.10711	0.10711	1.000	1.000	1.000	1.000	169.452	459.535	459.535	508.806	508.806	442.661	OK
183	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.22438	0.22438	1.000	1.000	1.000	1.000	-29.061	-0.2813	0.00065	0.00028	0.22841	0.00538	OK
0.070	0.006		A500-50	344738	2	0.22438	0.22438	1.000	1.000	1.000	1.000	168.944	459.535	459.535	508.806	508.806	442.661	OK
184	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	292.250	-0.7325	0.00008	-0.0003	-0.8861	0.00857	OK
0.168	0.017		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
185	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-66.449	109.379	-0.0442	-0.0172	0.47991	0.01688	OK
0.277	0.009		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
186	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	133.809	138.593	0.04754	-0.0344	-0.5947	0.02507	OK
0.306	0.012		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
187	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-49.747	-0.6014	-0.0296	-0.0238	-12.029	0.01588	OK
0.146	0.024		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
188	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	427.900	-0.4470	-0.0038	0.00741	106.339	0.01796	OK
0.110	0.023		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
189	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-46.789	0.85077	0.01855	-0.0238	-11.443	0.01753	OK
0.199	0.022		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
190	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-45.582	127.567	0.03527	-0.0238	-10.816	0.01460	OK
0.292	0.021		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
191	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-44.527	165.091	0.05137	-0.0238	-0.9998	0.00923	OK
0.373	0.020		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK

192	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.002	1.000	-43.651	196.707	0.06650	-0.0238	-0.9019	0.00619	OK
0.442	0.018		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.002	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
193	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	437.568	133.443	0.05369	0.04458	249.328	0.01131	OK
0.304	0.049		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
194	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.96017	0.82468	0.04845	0.02614	217.811	0.01563	OK
0.183	0.043		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
195	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.000	1.000	-11.708	105.374	-0.0026	-0.0098	-15.082	0.02030	OK
0.233	0.032		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.000	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
196	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.55370	-14.403	-0.0046	0.02614	101.311	0.02219	OK
0.315	0.020		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
197	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.49119	-15.072	-0.0157	0.02614	0.39645	0.02127	OK
0.329	0.008		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
198	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.52097	-14.690	-0.0264	0.02614	-0.9271	0.01756	OK
0.321	0.020		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
199	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.61579	-11.187	-0.0443	0.02614	-11.852	0.01545	OK
0.245	0.030		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
200	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-51.374	-11.009	-0.0459	-0.0238	-12.054	0.01499	OK
0.255	0.030		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
201	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
202	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.803	-0.6959	0.00000	0.00000	-15.526	0.00000	OK
0.343	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
203	4	1	Tub 2" x 2mm	Tub 2" x 2mm	9	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	-0.0950	0.00177	-0.0006	0.03166	0.00000	OK
0.048	0.001		A500-50	344738	9	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
204	4	1	Tub 2" x 2mm	Tub 2" x 2mm	9	300.000	300.000	1.000	1.000	1.000	1.000	-0.1207	-0.0950	0.00239	-0.0008	0.03166	0.00000	OK
0.048	0.001		A500-50	344738	9	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
205	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-18.460	0.98215	-0.0183	-0.0184	253.878	0.02119	OK
0.219	0.050		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
206	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-24.151	-0.2121	-0.0102	-0.0184	145.772	0.01220	OK
0.053	0.029		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
207	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-24.506	-0.2324	-0.0085	-0.0184	-13.384	0.00388	OK
0.058	0.027		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
208	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.10711	0.10711	1.000	1.000	1.000	1.000	-25.869	-0.2631	-0.0101	-0.0184	0.53771	0.00823	OK
0.065	0.011		A500-50	344738	2	0.10711	0.10711	1.000	1.000	1.000	1.000	169.452	459.535	459.535	508.806	508.806	442.661	OK
209	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.22438	0.22438	1.000	1.000	1.000	1.000	-26.199	-0.2631	0.01124	-0.0184	0.26593	0.00601	OK
0.065	0.007		A500-50	344738	2	0.22438	0.22438	1.000	1.000	1.000	1.000	168.944	459.535	459.535	508.806	508.806	442.661	OK
210	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	268.578	-0.6324	0.01173	0.01844	-0.7211	0.00854	OK
0.146	0.014		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
211	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	300.000	300.000	1.000	1.000	1.000	1.000	-84.375	131.522	-0.0653	0.01251	0.56890	0.02106	OK
0.336	0.011		A500-50	344738	2	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
212	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	300.000	300.000	1.000	1.000	1.000	1.000	-30.169	-0.6037	0.09652	0.04766	-0.1592	0.05371	OK
0.151	0.003		A500-50	344738	3	300.000	300.000	1.000	1.000	1.000	1.000	846.305	459.535	459.535	508.806	508.806	442.661	OK
213	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.07319	0.98621	-0.0165	-0.0379	-19.447	0.02601	OK
0.215	0.038		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
214	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.26862	146.945	0.01032	-0.0379	-11.764	0.02817	OK
0.321	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
215	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.33663	152.879	0.02579	-0.0379	-0.3846	0.02633	OK
0.334	0.008		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
216	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.28642	147.526	0.04069	-0.0379	116.395	0.02055	OK
0.322	0.023		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
217	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	0.12217	100.084	0.06586	-0.0379	194.826	0.01093	OK
0.219	0.038		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
218	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	-0.1582	-13.438	0.11217	-0.0379	269.973	0.00405	OK
0.294	0.053		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
219	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.60203	0.60203	1.000	1.000	1.000	1.000	279.855	-0.2205	0.05851	0.04393	0.58303	0.01568	OK
0.058	0.013		A500-50	344738	2	0.60203	0.60203	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
220	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-23.143	0.73288	-0.0438	-0.0411	-11.647	0.03689	OK
0.167	0.023		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
221	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-22.390	0.95755	-0.0139	-0.0411	-0.7491	0.04513	OK
0.215	0.015		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
222	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-22.224	0.99990	0.00429	-0.0411	0.42170	0.04781	OK
0.224	0.008		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
223	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-22.678	0.92939	0.02236	-0.0411	0.83487	0.04486	OK
0.209	0.016		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
224	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.60203	0.60203	1.000	1.000	1.001	1.000	-23.849	0.65173	0.05203	-0.0411	123.208	0.03635	OK
0.150	0.024		A500-50	344738	3	0.60203	0.60203	1.000	1.000	1.001	1.000	164.920	459.535	459.535	508.806	508.806	442.661	OK
225	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.30101	0.30101	1.000	1.000	1.000	1.000	-25.898	-0.1814	0.09266	-0.0411	124.332	0.02246	OK
0.052	0.032		A500-50	344738	3	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
226	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-0.2765	-13.489	-0.0656	-0.0379	-26.817	0.01991	OK

0.295	0.053		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
227	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.823	-0.6967	0.00000	0.00000	-15.540	0.00000	OK
0.344	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
228	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.823	-0.6967	0.00000	0.00000	-15.540	0.00000	OK
0.344	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
229	4	1	Tub 2" x 2mm	Tub 2" x 2mm	9	300.000	300.000	1.000	1.000	1.000	1.000	-0.1269	-0.0227	0.00181	-0.0006	0.00757	0.00000	OK
0.013	0.000		A500-50	344738	9	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	339.204	339.204	0.00000	OK
230	4	1	Tub 2" x 2mm	Tub 2" x 2mm	3	300.000	300.000	1.000	1.000	1.000	1.000	-0.1289	-0.1484	0.00000	0.00000	0.04947	0.00000	OK
0.074	0.001		A500-50	344738	3	300.000	300.000	1.000	1.000	1.000	1.000	265.526	208.828	208.828	0.00000	339.204	0.00000	OK
231	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-0.3204	-0.1051	-0.0209	0.00750	0.20309	0.03047	OK
0.024	0.007		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
232	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.33054	0.33054	1.000	1.000	1.000	1.000	0.58117	0.09373	0.02287	-0.0093	0.66484	0.02185	OK
0.023	0.013		A500-50	344738	3	0.33054	0.33054	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
233	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.33054	0.33054	1.000	1.000	1.000	1.000	-0.1257	0.01656	0.00124	-0.0383	-0.2297	0.00501	OK
0.004	0.005		A500-50	344738	2	0.33054	0.33054	1.000	1.000	1.000	1.000	168.177	459.535	459.535	508.806	508.806	442.661	OK
234	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.10711	0.10711	1.000	1.000	1.000	1.000	0.43657	-0.1482	0.03009	-0.0093	0.90891	0.01430	OK
0.034	0.018		A500-50	344738	3	0.10711	0.10711	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
235	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	3	0.22438	0.22438	1.000	1.000	1.000	1.000	0.18579	-0.0917	-0.0144	0.03006	0.53912	0.00789	OK
0.021	0.011		A500-50	344738	3	0.22438	0.22438	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
236	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.68600	0.68600	1.000	1.000	1.000	1.000	0.22787	0.03037	0.02196	0.03832	0.08232	0.00282	OK
0.009	0.002		A500-50	344738	2	0.68600	0.68600	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
318	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
319	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
320	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	6	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00179	-0.0031	0.00184	0.00525	-0.0177	0.00000	OK
0.001	0.000		A500-50	344738	6	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	0.00000	OK
321	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	6	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00146	-0.0031	0.00183	0.00522	-0.0177	0.00000	OK
0.001	0.000		A500-50	344738	6	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	0.00000	OK
322	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	6	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00112	-0.0031	0.00184	0.00525	-0.0177	0.00000	OK
0.001	0.000		A500-50	344738	6	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	0.00000	OK
323	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
324	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
325	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
326	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
327	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
328	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
329	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
330	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
331	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.35000	0.35000	1.000	1.000	1.000	1.000	0.00000	-0.0036	0.00000	0.00000	-0.0206	0.00000	OK
0.001	0.000		A500-50	344738	1	0.35000	0.35000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	0.00000	508.806	0.00000	OK
382	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	500.000	500.000	1.000	1.000	1.071	1.000	-84.391	-14.290	-0.0048	-0.0393	-0.4896	0.02002	OK
0.538	0.010		A500-50	344738	2	500.000	500.000	1.000	1.000	1.071	1.000	322.401	459.535	459.535	508.806	508.806	442.661	OK
383	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.41000	0.41000	1.000	1.000	1.000	1.000	116.507	0.07948	0.02126	0.06295	0.37983	0.02897	OK
0.021	0.007		A500-50	344738	2	0.41000	0.41000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
386	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	500.000	500.000	1.000	1.000	1.054	1.000	-79.129	-13.707	-0.0033	0.02832	0.46925	0.01460	OK
0.511	0.009		A500-50	344738	2	500.000	500.000	1.000	1.000	1.054	1.000	322.401	459.535	459.535	508.806	508.806	442.661	OK
387	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.41000	0.41000	1.000	1.000	1.000	1.000	121.306	-0.0706	0.00332	-0.0458	0.32805	0.02111	OK
0.019	0.006		A500-50	344738	2	0.41000	0.41000	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
396	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.30101	0.30101	1.000	1.000	1.000	1.000	-23.503	-0.6673	0.02080	-0.0098	161.690	0.03087	OK
0.152	0.032		A500-50	344738	1	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
397	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.00840	-0.6294	0.07444	0.05203	-24.362	0.02736	OK
0.138	0.048		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
398	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.726	-0.2327	0.00000	0.00000	-15.474	0.00000	OK
0.122	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
399	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.726	-0.2327	0.00000	0.00000	-15.474	0.00000	OK
0.122	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
400	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.65960	-0.9448	0.05050	-0.0250	-14.506	0.01498	OK
0.208	0.031		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
401	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-49.721	-0.8902	0.03592	0.02245	-0.9616	0.01346	OK
0.209	0.030		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK

402	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
403	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
404	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.68724	-0.9972	-0.0005	0.00324	-13.823	0.01100	OK
0.219	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
405	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-53.573	-0.8664	-0.0160	-0.0058	-0.7926	0.00945	OK
0.204	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
406	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
407	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
408	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.68606	-10.043	-0.0036	0.00187	-13.798	0.01037	OK
0.221	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
409	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-53.547	-0.8660	-0.0029	-0.0017	-0.7947	0.00883	OK
0.204	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
410	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
411	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
412	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.68659	-0.9974	-0.0101	0.00294	-13.827	0.01099	OK
0.219	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
413	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-53.585	-0.8647	0.00368	-0.0006	-0.7913	0.00975	OK
0.204	0.032		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
414	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
415	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
416	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	0.60329	-0.8149	-0.0522	0.02614	-15.372	0.01545	OK
0.179	0.031		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	169.602	459.535	459.535	508.806	508.806	442.661	OK
417	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-51.249	-0.7938	-0.0388	-0.0238	-0.8350	0.01499	OK
0.188	0.030		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
418	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
419	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.706	-0.2323	0.00000	0.00000	-15.460	0.00000	OK
0.121	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
420	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	1	0.30101	0.30101	1.000	1.000	1.000	1.000	-23.491	-0.6675	-0.0138	0.00652	161.740	0.02246	OK
0.152	0.032		A500-50	344738	1	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
421	1	1	Tub 3.5" x 2mm	Tub 3.5" x 2mm	2	0.30101	0.30101	1.000	1.000	1.000	1.000	-0.2640	-0.5974	-0.0542	-0.0379	-23.113	0.01991	OK
0.131	0.045		A500-50	344738	2	0.30101	0.30101	1.000	1.000	1.000	1.000	168.419	459.535	459.535	508.806	508.806	442.661	OK
422	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.726	-0.2327	0.00000	0.00000	-15.474	0.00000	OK
0.122	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK
423	4	1	Tub 2" x 2mm	Tub 2" x 2mm	1	0.29918	0.29918	1.000	1.000	1.001	1.000	-22.726	-0.2327	0.00000	0.00000	-15.474	0.00000	OK
0.122	0.046		A500-50	344738	1	0.29918	0.29918	1.000	1.000	1.001	1.000	111.324	208.828	208.828	0.00000	339.204	0.00000	OK

AMAURY ANDRES URUETA MORA
ESPECIALISTA EN ANÁLISIS Y DISEÑO DE ESTRUCTURAS

ARCHIVO SALIDA MIDAS GEN

Transversal 60 #100-93 Edificio Arco Oficina 406, Bogotá D.C.
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PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

*** PROJECT INFORMATION

Project Name : INVERNADERO TIPO 1
Date : 2025/12/21

*** CONTROL DATA

Panel Zone Effect : Do not Calculate
Unit System : KN, CM
Definition of Frame
- X Direction of Frame : Braced I Non-sway
- Y Direction of Frame : Braced I Non-sway
- Design Type : 3-D
Design Code
- Steel : AISC(14th)-LRFD10
- Concrete : NSR-10
- SRC : SSRC79

*** LOAD CASE DATA

NO	NAME	TYPE	SELF WEIGHT FACTOR X	Y	Z	DESCRIPTION
1	Peso Propio	D	0.000	0.000	-1.000	
2	Carga Muerta Sobre ~	D	0.000	0.000	0.000	
4	EX (Sismo Reducido)	E	0.000	0.000	0.000	
5	EY (Sismo Reducido)	E	0.000	0.000	0.000	
6	Sismo X	USER	0.000	0.000	0.000	
7	Sismo Y	USER	0.000	0.000	0.000	
8	Carga de Viento	W	0.000	0.000	0.000	
11	Carga Fluidos	FP	0.000	0.000	0.000	

*** MATERIAL PROPERTY DATA

NO	NAME	TYPE	MODULUS OF ELASTICITY	SHEAR MODULUS	THERMAL COEFF.	POISSON RATIO	WEIGHT DENSITY
1	A416-250(Normal)	STEEL	1.965e+04	7558	6.5e-06	0.3	7.709e-05
2	A500-50	STEEL	1.999e+04	7690	6.5e-06	0.3	7.709e-05

NO	NAME	TYPE	STRENGTH OF DESIGN MATERIAL STEEL	CONCRETE	MAIN REBAR	SUB REBAR
1	A416-250(Normal)	STEEL	146.5	-	-	-
2	A500-50	STEEL	34.47	-	-	-

*** STORY DATA

NAME	LEVEL	HEIGHT	FLOOR DIAPHRAGM

Roof	544.620	0.000	Do not consider
14F	541.000	3.620	Do not consider
13F	537.590	3.410	Do not consider
12F	520.641	16.948	Do not consider
11F	500.000	20.641	Do not consider
10F	497.770	2.230	Do not consider
9F	495.539	2.230	Do not consider
8F	482.255	13.284	Do not consider
7F	460.439	21.816	Do not consider
6F	430.570	29.869	Do not consider
5F	393.304	37.266	Do not consider
4F	349.460	43.844	Do not consider
3F	324.730	24.730	Do not consider
2F	300.000	24.730	Do not consider
1F	0.000	300.000	Do not consider

*** NODE DATA

NO	X	Y	Z	TEMPERATURE
3	600	0	300	0
4	1300	0	300	0
24	950	0	500	0
43	600	0	0	0
44	1300	0	0	0
45	634.3	0	349.5	0
46	675.6	0	393.3	0
47	722.9	0	430.6	0
48	775.1	0	460.4	0
49	831.2	0	482.3	0
50	890	0	495.5	0
51	1010	0	495.5	0
52	1069	0	482.3	0
53	1125	0	460.4	0
54	1177	0	430.6	0
55	1224	0	393.3	0
56	1266	0	349.5	0
57	566.3	0	349.5	0
58	1334	0	349.5	0
59	1900	0	300	0
60	1900	0	0	0
61	0	0	300	0
62	0	0	0	0
63	950	0	541	0
64	895	0	541	0
65	988.5	0	520.6	0
66	960.2	0	537.6	0
67	927.9	0	544.6	0
68	600	300	300	0
69	600	300	0	0
70	1300	300	300	0
71	1300	300	0	0
72	634.3	300	349.5	0
73	675.6	300	393.3	0
74	722.9	300	430.6	0
75	775.1	300	460.4	0
76	831.2	300	482.3	0
77	890	300	495.5	0
78	950	300	500	0
79	1010	300	495.5	0
80	1069	300	482.3	0
81	1125	300	460.4	0

82	1177	300	430.6	0
83	1224	300	393.3	0
84	1266	300	349.5	0
85	566.3	300	349.5	0
86	1334	300	349.5	0
91	988.5	300	520.6	0
92	960.2	300	537.6	0
93	927.9	300	544.6	0
94	895	300	541	0
95	950	300	541	0
96	600	600	300	0
97	600	600	0	0
98	1300	600	300	0
99	1300	600	0	0
100	634.3	600	349.5	0
101	675.6	600	393.3	0
102	722.9	600	430.6	0
103	775.1	600	460.4	0
104	831.2	600	482.3	0
105	890	600	495.5	0
106	950	600	500	0
107	1010	600	495.5	0
108	1069	600	482.3	0
109	1125	600	460.4	0
110	1177	600	430.6	0
111	1224	600	393.3	0
112	1266	600	349.5	0
113	566.3	600	349.5	0
114	1334	600	349.5	0
115	1900	600	300	0
116	1900	600	0	0
117	0	600	300	0
118	0	600	0	0
119	988.5	600	520.6	0
120	960.2	600	537.6	0
121	927.9	600	544.6	0
122	895	600	541	0
123	950	600	541	0
124	600	900	300	0
125	600	900	0	0
126	1300	900	300	0
127	1300	900	0	0
128	634.3	900	349.5	0
129	675.6	900	393.3	0
130	722.9	900	430.6	0
131	775.1	900	460.4	0
132	831.2	900	482.3	0
133	890	900	495.5	0
134	950	900	500	0
135	1010	900	495.5	0
136	1069	900	482.3	0
137	1125	900	460.4	0
138	1177	900	430.6	0
139	1224	900	393.3	0
140	1266	900	349.5	0
141	566.3	900	349.5	0
142	1334	900	349.5	0
147	988.5	900	520.6	0
148	960.2	900	537.6	0
149	927.9	900	544.6	0
150	895	900	541	0
151	950	900	541	0
152	600	1200	300	0
153	600	1200	0	0

PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

154	1300	1200	300	0
155	1300	1200	0	0
156	634.3	1200	349.5	0
157	675.6	1200	393.3	0
158	722.9	1200	430.6	0
159	775.1	1200	460.4	0
160	831.2	1200	482.3	0
161	890	1200	495.5	0
162	950	1200	500	0
163	1010	1200	495.5	0
164	1069	1200	482.3	0
165	1125	1200	460.4	0
166	1177	1200	430.6	0
167	1224	1200	393.3	0
168	1266	1200	349.5	0
169	566.3	1200	349.5	0
170	1334	1200	349.5	0
171	1900	1200	300	0
172	1900	1200	0	0
173	0	1200	300	0
174	0	1200	0	0
175	988.5	1200	520.6	0
176	960.2	1200	537.6	0
177	927.9	1200	544.6	0
178	895	1200	541	0
179	950	1200	541	0
180	600	1500	300	0
181	600	1500	0	0
182	1300	1500	300	0
183	1300	1500	0	0
184	634.3	1500	349.5	0
185	675.6	1500	393.3	0
186	722.9	1500	430.6	0
187	775.1	1500	460.4	0
188	831.2	1500	482.3	0
189	890	1500	495.5	0
190	950	1500	500	0
191	1010	1500	495.5	0
192	1069	1500	482.3	0
193	1125	1500	460.4	0
194	1177	1500	430.6	0
195	1224	1500	393.3	0
196	1266	1500	349.5	0
197	566.3	1500	349.5	0
198	1334	1500	349.5	0
203	988.5	1500	520.6	0
204	960.2	1500	537.6	0
205	927.9	1500	544.6	0
206	895	1500	541	0
207	950	1500	541	0
208	600	1800	300	0
209	600	1800	0	0
210	1300	1800	300	0
211	1300	1800	0	0
212	634.3	1800	349.5	0
213	675.6	1800	393.3	0
214	722.9	1800	430.6	0
215	775.1	1800	460.4	0
216	831.2	1800	482.3	0
217	890	1800	495.5	0
218	950	1800	500	0
219	1010	1800	495.5	0
220	1069	1800	482.3	0
221	1125	1800	460.4	0

PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

222	1177	1800	430.6	0
223	1224	1800	393.3	0
224	1266	1800	349.5	0
225	566.3	1800	349.5	0
226	1334	1800	349.5	0
227	1900	1800	300	0
228	1900	1800	0	0
229	0	1800	300	0
230	0	1800	0	0
231	988.5	1800	520.6	0
232	960.2	1800	537.6	0
233	927.9	1800	544.6	0
234	895	1800	541	0
235	950	1800	541	0
236	300	0	0	0
237	300	300	0	0
238	300	600	0	0
239	300	900	0	0
240	300	1200	0	0
241	300	1500	0	0
242	300	1800	0	0
243	1600	0	0	0
244	1600	300	0	0
245	1600	600	0	0
246	1600	900	0	0
247	1600	1200	0	0
248	1600	1500	0	0
249	1600	1800	0	0
250	1301	0	349.5	0
251	1301	300	349.5	0
252	1301	600	349.5	0
253	1301	900	349.5	0
254	1301	1200	349.5	0
255	1301	1500	349.5	0
256	1301	1800	349.5	0
257	599.3	0	349.5	0
258	599.3	300	349.5	0
259	599.3	600	349.5	0
260	599.3	900	349.5	0
261	599.3	1200	349.5	0
262	599.3	1500	349.5	0
263	599.3	1800	349.5	0
264	600	-200	0	0
265	1300	-200	0	0
266	1900	-200	0	0
267	0	-200	0	0
268	600	2100	0	0
269	1300	2100	0	0
270	1900	2100	0	0
271	0	2100	0	0
273	950	1800	0	0
274	950	0	0	0
275	950	-200	0	0
276	950	2100	0	0
277	1283	0	324.7	0
278	617.2	0	324.7	0
279	583.2	0	324.7	0
280	1317	0	324.7	0
281	1283	300	324.7	0
282	617.2	300	324.7	0
283	583.2	300	324.7	0
284	1317	300	324.7	0
285	1283	600	324.7	0
286	617.2	600	324.7	0

287	583.2	600	324.7	0
288	1317	600	324.7	0
289	1283	900	324.7	0
290	617.2	900	324.7	0
291	583.2	900	324.7	0
292	1317	900	324.7	0
293	1283	1200	324.7	0
294	617.2	1200	324.7	0
295	583.2	1200	324.7	0
296	1317	1200	324.7	0
297	1283	1500	324.7	0
298	617.2	1500	324.7	0
299	583.2	1500	324.7	0
300	1317	1500	324.7	0
301	1283	1800	324.7	0
302	617.2	1800	324.7	0
303	583.2	1800	324.7	0
304	1317	1800	324.7	0
305	920	0	497.8	0
306	950	1800	430.6	0
307	950	0	430.6	0

*** SUPPORT / SPECIFIED DISPLACEMENT / POINT SPRING SUPPORT

** SUPPORT / SPECIFIED DISPLACEMENT

NODE	SUPPORT DDDRRR	SPECIFIED DISPLACEMENT Dx	Dy	Dz	Rx	Ry	Rz
43	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
44	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
69	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
71	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
97	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
99	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
116	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
118	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
125	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
127	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
153	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
155	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
209	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
211	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
228	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
230	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
236	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
237	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
238	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
239	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
240	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
241	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
242	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
243	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
244	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
245	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
246	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
247	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

248	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
249	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
264	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
265	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
266	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
267	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
268	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
269	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
270	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
271	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
273	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
274	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
275	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
276	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

*** SECTION PROPERTY DATA

NO	NAME	SHAPE	H	B	tw	tf1	r1
1	Tub 3.5" x 2mm	P	8.9	0.2	0	0	0
2	Tensor 1/4"	SR	0.635	0	0	0	0
3	Tensor 5mm	SR	0.5	0	0	0	0
4	Tub 2" x 2mm	P	6	0.2	0	0	0
5	Tensor 1/8"	SR	0.32	0	0	0	0

NO	NAME	STIFFNESS SCALE FACTOR							
		A	Asy	Asz	Ix	Iy	Iz	W	Boundary Group
1	Tub 3.5" x 2mm								
2	Tensor 1/4"								
3	Tensor 5mm								
4	Tub 2" x 2mm								
5	Tensor 1/8"								

NO	NAME	AREA	MOMENT OF INERTIA			SHAPE FACTOR	
		[SRC:EQIV.]	Ix	Iy	Iz	k-Y	k-Z
1	Tub 3.5" x 2mm	5.466	103.5	51.75	51.75	0.5	0.5
2	Tensor 1/4"	0.3167	0.01596	0.007981	0.007981	0.9	0.9
3	Tensor 5mm	0.1963	0.006136	0.003068	0.003068	0.9	0.9
4	Tub 2" x 2mm	3.644	30.68	15.34	15.34	0.5	0.5
5	Tensor 1/8"	0.08042	0.001029	0.0005147	0.0005147	0.9	0.9

NO	NAME	SECTION MODULUS Sy		SECTION MODULUS Sz	
		I or CONC.	J or STEEL	I or CONC.	J or STEEL
1	Tub 3.5" x 2mm	11.63	11.63	11.63	11.63
2	Tensor 1/4"	0.02514	0.02514	0.02514	0.02514
3	Tensor 5mm	0.01227	0.01227	0.01227	0.01227
4	Tub 2" x 2mm	5.114	5.114	5.114	5.114

5	Tensor 1/8"	0.003217	0.003217	0.003217	0.003217

*** BEAM MEMBER DATA

NO	NODAL CONNECTIVITY I	J	BEAM END RELEASE I	J	MATERIAL	SECTION	LENGTH
41	3	43	-	-	A500-50	Tub 3.5" x 2mm	300
42	4	44	-	-	A500-50	Tub 3.5" x 2mm	300
44	45	46	-	-	A500-50	Tub 3.5" x 2mm	60.2
45	46	47	-	-	A500-50	Tub 3.5" x 2mm	60.2
46	47	48	-	-	A500-50	Tub 3.5" x 2mm	60.2
47	48	49	-	-	A500-50	Tub 3.5" x 2mm	60.2
48	49	50	-	-	A500-50	Tub 3.5" x 2mm	60.2
49	50	24	-	-	A500-50	Tub 3.5" x 2mm	60.2
50	24	51	-	-	A500-50	Tub 3.5" x 2mm	60.2
51	51	52	-	-	A500-50	Tub 3.5" x 2mm	60.2
52	52	53	-	-	A500-50	Tub 3.5" x 2mm	60.2
53	53	54	-	-	A500-50	Tub 3.5" x 2mm	60.2
54	54	55	-	-	A500-50	Tub 3.5" x 2mm	60.2
55	55	56	-	-	A500-50	Tub 3.5" x 2mm	60.2
56	56	277	-	-	A500-50	Tub 3.5" x 2mm	30.1
69	3	278	-	-	A500-50	Tub 3.5" x 2mm	30.1
70	3	279	-	-	A500-50	Tub 2" x 2mm	29.92
71	4	280	-	-	A500-50	Tub 2" x 2mm	29.92
72	59	60	-	-	A500-50	Tub 2" x 2mm	300
73	61	62	-	-	A500-50	Tub 2" x 2mm	300
74	51	65	-	-	A500-50	Tub 3.5" x 2mm	33.05
75	65	66	-	-	A500-50	Tub 3.5" x 2mm	33.05
77	67	64	-	-	A500-50	Tub 3.5" x 2mm	33.05
78	66	63	-	-	A500-50	Tub 3.5" x 2mm	10.71
79	67	63	-	-	A500-50	Tub 3.5" x 2mm	22.44
80	24	64	-	-	A500-50	Tub 3.5" x 2mm	68.6
81	68	69	-	-	A500-50	Tub 3.5" x 2mm	300
82	70	71	-	-	A500-50	Tub 3.5" x 2mm	300
83	72	73	-	-	A500-50	Tub 3.5" x 2mm	60.2
84	73	74	-	-	A500-50	Tub 3.5" x 2mm	60.2
85	74	75	-	-	A500-50	Tub 3.5" x 2mm	60.2
86	75	76	-	-	A500-50	Tub 3.5" x 2mm	60.2
87	76	77	-	-	A500-50	Tub 3.5" x 2mm	60.2
88	77	78	-	-	A500-50	Tub 3.5" x 2mm	60.2
89	78	79	-	-	A500-50	Tub 3.5" x 2mm	60.2
90	79	80	-	-	A500-50	Tub 3.5" x 2mm	60.2
91	80	81	-	-	A500-50	Tub 3.5" x 2mm	60.2
92	81	82	-	-	A500-50	Tub 3.5" x 2mm	60.2
93	82	83	-	-	A500-50	Tub 3.5" x 2mm	60.2
94	83	84	-	-	A500-50	Tub 3.5" x 2mm	60.2
95	84	281	-	-	A500-50	Tub 3.5" x 2mm	30.1
96	68	282	-	-	A500-50	Tub 3.5" x 2mm	30.1
97	68	283	-	-	A500-50	Tub 2" x 2mm	29.92
98	70	284	-	-	A500-50	Tub 2" x 2mm	29.92
101	79	91	-	-	A500-50	Tub 3.5" x 2mm	33.05
102	91	92	-	-	A500-50	Tub 3.5" x 2mm	33.05
103	93	94	-	-	A500-50	Tub 3.5" x 2mm	33.05
104	92	95	-	-	A500-50	Tub 3.5" x 2mm	10.71
105	93	95	-	-	A500-50	Tub 3.5" x 2mm	22.44
106	78	94	-	-	A500-50	Tub 3.5" x 2mm	68.6
107	96	97	-	-	A500-50	Tub 3.5" x 2mm	300
108	98	99	-	-	A500-50	Tub 3.5" x 2mm	300
109	100	101	-	-	A500-50	Tub 3.5" x 2mm	60.2
110	101	102	-	-	A500-50	Tub 3.5" x 2mm	60.2
111	102	103	-	-	A500-50	Tub 3.5" x 2mm	60.2
112	103	104	-	-	A500-50	Tub 3.5" x 2mm	60.2

113	104	105	-	-	A500-50	Tub 3.5" x 2mm	60.2
114	105	106	-	-	A500-50	Tub 3.5" x 2mm	60.2
115	106	107	-	-	A500-50	Tub 3.5" x 2mm	60.2
116	107	108	-	-	A500-50	Tub 3.5" x 2mm	60.2
117	108	109	-	-	A500-50	Tub 3.5" x 2mm	60.2
118	109	110	-	-	A500-50	Tub 3.5" x 2mm	60.2
119	110	111	-	-	A500-50	Tub 3.5" x 2mm	60.2
120	111	112	-	-	A500-50	Tub 3.5" x 2mm	60.2
121	112	285	-	-	A500-50	Tub 3.5" x 2mm	30.1
122	96	286	-	-	A500-50	Tub 3.5" x 2mm	30.1
123	96	287	-	-	A500-50	Tub 2" x 2mm	29.92
124	98	288	-	-	A500-50	Tub 2" x 2mm	29.92
125	115	116	-	-	A500-50	Tub 2" x 2mm	300
126	117	118	-	-	A500-50	Tub 2" x 2mm	300
127	107	119	-	-	A500-50	Tub 3.5" x 2mm	33.05
128	119	120	-	-	A500-50	Tub 3.5" x 2mm	33.05
129	121	122	-	-	A500-50	Tub 3.5" x 2mm	33.05
130	120	123	-	-	A500-50	Tub 3.5" x 2mm	10.71
131	121	123	-	-	A500-50	Tub 3.5" x 2mm	22.44
132	106	122	-	-	A500-50	Tub 3.5" x 2mm	68.6
133	124	125	-	-	A500-50	Tub 3.5" x 2mm	300
134	126	127	-	-	A500-50	Tub 3.5" x 2mm	300
135	128	129	-	-	A500-50	Tub 3.5" x 2mm	60.2
136	129	130	-	-	A500-50	Tub 3.5" x 2mm	60.2
137	130	131	-	-	A500-50	Tub 3.5" x 2mm	60.2
138	131	132	-	-	A500-50	Tub 3.5" x 2mm	60.2
139	132	133	-	-	A500-50	Tub 3.5" x 2mm	60.2
140	133	134	-	-	A500-50	Tub 3.5" x 2mm	60.2
141	134	135	-	-	A500-50	Tub 3.5" x 2mm	60.2
142	135	136	-	-	A500-50	Tub 3.5" x 2mm	60.2
143	136	137	-	-	A500-50	Tub 3.5" x 2mm	60.2
144	137	138	-	-	A500-50	Tub 3.5" x 2mm	60.2
145	138	139	-	-	A500-50	Tub 3.5" x 2mm	60.2
146	139	140	-	-	A500-50	Tub 3.5" x 2mm	60.2
147	140	289	-	-	A500-50	Tub 3.5" x 2mm	30.1
148	124	290	-	-	A500-50	Tub 3.5" x 2mm	30.1
149	124	291	-	-	A500-50	Tub 2" x 2mm	29.92
150	126	292	-	-	A500-50	Tub 2" x 2mm	29.92
153	135	147	-	-	A500-50	Tub 3.5" x 2mm	33.05
154	147	148	-	-	A500-50	Tub 3.5" x 2mm	33.05
155	149	150	-	-	A500-50	Tub 3.5" x 2mm	33.05
156	148	151	-	-	A500-50	Tub 3.5" x 2mm	10.71
157	149	151	-	-	A500-50	Tub 3.5" x 2mm	22.44
158	134	150	-	-	A500-50	Tub 3.5" x 2mm	68.6
159	152	153	-	-	A500-50	Tub 3.5" x 2mm	300
160	154	155	-	-	A500-50	Tub 3.5" x 2mm	300
161	156	157	-	-	A500-50	Tub 3.5" x 2mm	60.2
162	157	158	-	-	A500-50	Tub 3.5" x 2mm	60.2
163	158	159	-	-	A500-50	Tub 3.5" x 2mm	60.2
164	159	160	-	-	A500-50	Tub 3.5" x 2mm	60.2
165	160	161	-	-	A500-50	Tub 3.5" x 2mm	60.2
166	161	162	-	-	A500-50	Tub 3.5" x 2mm	60.2
167	162	163	-	-	A500-50	Tub 3.5" x 2mm	60.2
168	163	164	-	-	A500-50	Tub 3.5" x 2mm	60.2
169	164	165	-	-	A500-50	Tub 3.5" x 2mm	60.2
170	165	166	-	-	A500-50	Tub 3.5" x 2mm	60.2
171	166	167	-	-	A500-50	Tub 3.5" x 2mm	60.2
172	167	168	-	-	A500-50	Tub 3.5" x 2mm	60.2
173	168	293	-	-	A500-50	Tub 3.5" x 2mm	30.1
174	152	294	-	-	A500-50	Tub 3.5" x 2mm	30.1
175	152	295	-	-	A500-50	Tub 2" x 2mm	29.92
176	154	296	-	-	A500-50	Tub 2" x 2mm	29.92
177	171	172	-	-	A500-50	Tub 2" x 2mm	300
178	173	174	-	-	A500-50	Tub 2" x 2mm	300

179	163	175	-	-	A500-50	Tub 3.5" x 2mm	33.05
180	175	176	-	-	A500-50	Tub 3.5" x 2mm	33.05
181	177	178	-	-	A500-50	Tub 3.5" x 2mm	33.05
182	176	179	-	-	A500-50	Tub 3.5" x 2mm	10.71
183	177	179	-	-	A500-50	Tub 3.5" x 2mm	22.44
184	162	178	-	-	A500-50	Tub 3.5" x 2mm	68.6
185	180	181	-	-	A500-50	Tub 3.5" x 2mm	300
186	182	183	-	-	A500-50	Tub 3.5" x 2mm	300
187	184	185	-	-	A500-50	Tub 3.5" x 2mm	60.2
188	185	186	-	-	A500-50	Tub 3.5" x 2mm	60.2
189	186	187	-	-	A500-50	Tub 3.5" x 2mm	60.2
190	187	188	-	-	A500-50	Tub 3.5" x 2mm	60.2
191	188	189	-	-	A500-50	Tub 3.5" x 2mm	60.2
192	189	190	-	-	A500-50	Tub 3.5" x 2mm	60.2
193	190	191	-	-	A500-50	Tub 3.5" x 2mm	60.2
194	191	192	-	-	A500-50	Tub 3.5" x 2mm	60.2
195	192	193	-	-	A500-50	Tub 3.5" x 2mm	60.2
196	193	194	-	-	A500-50	Tub 3.5" x 2mm	60.2
197	194	195	-	-	A500-50	Tub 3.5" x 2mm	60.2
198	195	196	-	-	A500-50	Tub 3.5" x 2mm	60.2
199	196	297	-	-	A500-50	Tub 3.5" x 2mm	30.1
200	180	298	-	-	A500-50	Tub 3.5" x 2mm	30.1
201	180	299	-	-	A500-50	Tub 2" x 2mm	29.92
202	182	300	-	-	A500-50	Tub 2" x 2mm	29.92
205	191	203	-	-	A500-50	Tub 3.5" x 2mm	33.05
206	203	204	-	-	A500-50	Tub 3.5" x 2mm	33.05
207	205	206	-	-	A500-50	Tub 3.5" x 2mm	33.05
208	204	207	-	-	A500-50	Tub 3.5" x 2mm	10.71
209	205	207	-	-	A500-50	Tub 3.5" x 2mm	22.44
210	190	206	-	-	A500-50	Tub 3.5" x 2mm	68.6
211	208	209	-	-	A500-50	Tub 3.5" x 2mm	300
212	210	211	-	-	A500-50	Tub 3.5" x 2mm	300
213	212	213	-	-	A500-50	Tub 3.5" x 2mm	60.2
214	213	214	-	-	A500-50	Tub 3.5" x 2mm	60.2
215	214	215	-	-	A500-50	Tub 3.5" x 2mm	60.2
216	215	216	-	-	A500-50	Tub 3.5" x 2mm	60.2
217	216	217	-	-	A500-50	Tub 3.5" x 2mm	60.2
218	217	218	-	-	A500-50	Tub 3.5" x 2mm	60.2
219	218	219	-	-	A500-50	Tub 3.5" x 2mm	60.2
220	219	220	-	-	A500-50	Tub 3.5" x 2mm	60.2
221	220	221	-	-	A500-50	Tub 3.5" x 2mm	60.2
222	221	222	-	-	A500-50	Tub 3.5" x 2mm	60.2
223	222	223	-	-	A500-50	Tub 3.5" x 2mm	60.2
224	223	224	-	-	A500-50	Tub 3.5" x 2mm	60.2
225	224	301	-	-	A500-50	Tub 3.5" x 2mm	30.1
226	208	302	-	-	A500-50	Tub 3.5" x 2mm	30.1
227	208	303	-	-	A500-50	Tub 2" x 2mm	29.92
228	210	304	-	-	A500-50	Tub 2" x 2mm	29.92
229	227	228	-	-	A500-50	Tub 2" x 2mm	300
230	229	230	-	-	A500-50	Tub 2" x 2mm	300
231	219	231	-	-	A500-50	Tub 3.5" x 2mm	33.05
232	231	232	-	-	A500-50	Tub 3.5" x 2mm	33.05
233	233	234	-	-	A500-50	Tub 3.5" x 2mm	33.05
234	232	235	-	-	A500-50	Tub 3.5" x 2mm	10.71
235	233	235	-	-	A500-50	Tub 3.5" x 2mm	22.44
236	218	234	-	-	A500-50	Tub 3.5" x 2mm	68.6
318	56	250	-	-	A500-50	Tub 3.5" x 2mm	35
319	84	251	-	-	A500-50	Tub 3.5" x 2mm	35
320	112	252	-	-	A500-50	Tub 3.5" x 2mm	35
321	140	253	-	-	A500-50	Tub 3.5" x 2mm	35
322	168	254	-	-	A500-50	Tub 3.5" x 2mm	35
323	196	255	-	-	A500-50	Tub 3.5" x 2mm	35
324	224	256	-	-	A500-50	Tub 3.5" x 2mm	35
325	45	257	-	-	A500-50	Tub 3.5" x 2mm	35

326	72	258	-	-	A500-50	Tub 3.5" x 2mm	35
327	100	259	-	-	A500-50	Tub 3.5" x 2mm	35
328	128	260	-	-	A500-50	Tub 3.5" x 2mm	35
329	156	261	-	-	A500-50	Tub 3.5" x 2mm	35
330	184	262	-	-	A500-50	Tub 3.5" x 2mm	35
331	212	263	-	-	A500-50	Tub 3.5" x 2mm	35
382	24	307	-	-	A500-50	Tub 3.5" x 2mm	69.43
383	24	63	-	-	A500-50	Tub 3.5" x 2mm	41
386	273	306	-	-	A500-50	Tub 3.5" x 2mm	430.6
387	218	235	-	-	A500-50	Tub 3.5" x 2mm	41
396	277	4	-	-	A500-50	Tub 3.5" x 2mm	30.1
397	278	45	-	-	A500-50	Tub 3.5" x 2mm	30.1
398	279	57	-	-	A500-50	Tub 2" x 2mm	29.92
399	280	58	-	-	A500-50	Tub 2" x 2mm	29.92
400	281	70	-	-	A500-50	Tub 3.5" x 2mm	30.1
401	282	72	-	-	A500-50	Tub 3.5" x 2mm	30.1
402	283	85	-	-	A500-50	Tub 2" x 2mm	29.92
403	284	86	-	-	A500-50	Tub 2" x 2mm	29.92
404	285	98	-	-	A500-50	Tub 3.5" x 2mm	30.1
405	286	100	-	-	A500-50	Tub 3.5" x 2mm	30.1
406	287	113	-	-	A500-50	Tub 2" x 2mm	29.92
407	288	114	-	-	A500-50	Tub 2" x 2mm	29.92
408	289	126	-	-	A500-50	Tub 3.5" x 2mm	30.1
409	290	128	-	-	A500-50	Tub 3.5" x 2mm	30.1
410	291	141	-	-	A500-50	Tub 2" x 2mm	29.92
411	292	142	-	-	A500-50	Tub 2" x 2mm	29.92
412	293	154	-	-	A500-50	Tub 3.5" x 2mm	30.1
413	294	156	-	-	A500-50	Tub 3.5" x 2mm	30.1
414	295	169	-	-	A500-50	Tub 2" x 2mm	29.92
415	296	170	-	-	A500-50	Tub 2" x 2mm	29.92
416	297	182	-	-	A500-50	Tub 3.5" x 2mm	30.1
417	298	184	-	-	A500-50	Tub 3.5" x 2mm	30.1
418	299	197	-	-	A500-50	Tub 2" x 2mm	29.92
419	300	198	-	-	A500-50	Tub 2" x 2mm	29.92
420	301	210	-	-	A500-50	Tub 3.5" x 2mm	30.1
421	302	212	-	-	A500-50	Tub 3.5" x 2mm	30.1
422	303	225	-	-	A500-50	Tub 2" x 2mm	29.92
423	304	226	-	-	A500-50	Tub 2" x 2mm	29.92
459	306	218	-	-	A500-50	Tub 3.5" x 2mm	69.43
464	307	274	-	-	A500-50	Tub 3.5" x 2mm	430.6

*** TRUSS MEMBER DATA

NO	NODAL CONNECTIVITY I	J	MATERIAL	SECTION	TENSION / COMPRESSION	SECTION AREA I	J	LENGTH
268	236	3	A500-50	Tensor 1/~	T	0.3167	-	424.3
269	237	68	A500-50	Tensor 1/~	T	0.3167	-	424.3
270	238	96	A500-50	Tensor 1/~	T	0.3167	-	424.3
271	239	124	A500-50	Tensor 1/~	T	0.3167	-	424.3
272	240	152	A500-50	Tensor 1/~	T	0.3167	-	424.3
273	241	180	A500-50	Tensor 1/~	T	0.3167	-	424.3
274	242	208	A500-50	Tensor 1/~	T	0.3167	-	424.3
275	243	4	A500-50	Tensor 1/~	T	0.3167	-	424.3
276	244	70	A500-50	Tensor 1/~	T	0.3167	-	424.3
277	245	98	A500-50	Tensor 1/~	T	0.3167	-	424.3
278	246	126	A500-50	Tensor 1/~	T	0.3167	-	424.3
279	247	154	A500-50	Tensor 1/~	T	0.3167	-	424.3
280	248	182	A500-50	Tensor 1/~	T	0.3167	-	424.3
281	249	210	A500-50	Tensor 1/~	T	0.3167	-	424.3
282	61	117	A500-50	Tensor 1/~	T	0.3167	-	600
284	117	173	A500-50	Tensor 1/~	T	0.3167	-	600
286	173	229	A500-50	Tensor 1/~	T	0.3167	-	600

288	59	115	A500-50 Tensor 1/~	T	0.3167	-	600
290	115	171	A500-50 Tensor 1/~	T	0.3167	-	600
292	171	227	A500-50 Tensor 1/~	T	0.3167	-	600
294	226	227	A500-50 Tensor 1/~	T	0.08042	-	568.5
295	58	59	A500-50 Tensor 1/~	T	0.08042	-	568.5
296	61	57	A500-50 Tensor 1/~	T	0.08042	-	568.5
297	229	225	A500-50 Tensor 1/~	T	0.08042	-	568.5
298	3	68	A416-250(~ Tensor 1/~	T	0.3167	-	300
299	68	96	A416-250(~ Tensor 1/~	T	0.3167	-	300
300	96	124	A416-250(~ Tensor 1/~	T	0.3167	-	300
301	124	152	A416-250(~ Tensor 1/~	T	0.3167	-	300
302	152	180	A416-250(~ Tensor 1/~	T	0.3167	-	300
303	180	208	A416-250(~ Tensor 1/~	T	0.3167	-	300
304	4	70	A416-250(~ Tensor 1/~	T	0.3167	-	300
305	70	98	A416-250(~ Tensor 1/~	T	0.3167	-	300
306	98	126	A416-250(~ Tensor 1/~	T	0.3167	-	300
307	126	154	A416-250(~ Tensor 1/~	T	0.3167	-	300
308	154	182	A416-250(~ Tensor 1/~	T	0.3167	-	300
309	182	210	A416-250(~ Tensor 1/~	T	0.3167	-	300
310	43	68	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
311	69	3	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
312	44	70	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
313	71	4	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
314	209	180	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
315	181	208	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
316	211	182	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
317	183	210	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
340	267	61	A416-250(~ Tensor 1/~	T	0.3167	-	360.6
341	264	3	A416-250(~ Tensor 1/~	T	0.3167	-	360.6
342	265	4	A416-250(~ Tensor 1/~	T	0.3167	-	360.6
343	266	59	A416-250(~ Tensor 1/~	T	0.3167	-	360.6
344	270	227	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
345	269	210	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
346	268	208	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
347	271	229	A416-250(~ Tensor 1/~	T	0.3167	-	424.3
388	276	218	A416-250(~ Tensor 1/~	N	0.3167	-	583.1
389	275	24	A416-250(~ Tensor 1/~	N	0.3167	-	538.5
454	130	138	A416-250(~ Tensor 1/~	T	0.3167	-	454.3
455	158	166	A416-250(~ Tensor 1/~	T	0.3167	-	454.3
456	186	194	A416-250(~ Tensor 1/~	T	0.3167	-	454.3
457	214	306	A416-250(~ Tensor 1/~	T	0.3167	-	227.1
458	306	222	A416-250(~ Tensor 1/~	T	0.3167	-	227.1
460	102	110	A416-250(~ Tensor 1/~	T	0.3167	-	454.3
461	74	82	A416-250(~ Tensor 1/~	T	0.3167	-	454.3
462	47	307	A416-250(~ Tensor 1/~	T	0.3167	-	227.1
463	307	54	A416-250(~ Tensor 1/~	T	0.3167	-	227.1
465	124	134	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
466	126	134	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
467	96	106	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
468	98	106	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
469	68	78	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
470	70	78	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
471	3	24	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
472	4	24	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
473	152	162	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
474	154	162	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
475	180	190	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
476	182	190	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
477	208	218	A416-250(~ Tensor 5mm	T	0.1963	-	403.1
478	210	218	A416-250(~ Tensor 5mm	T	0.1963	-	403.1

*** TOTAL WEIGHT / VOLUME / SURFACE AREA SUMMARY

SECTION NO	SECION NAME	SURFACE AREA	VOLUME	WEIGHT	FRAME NUMBER	TRUSS NUMBER
1	Tub 3.5" x 2mm	7.149e+05	7.149e+04	5.511	188	0
2	Tensor 1/4"	4.783e+04	7593	0.5853	0	59
3	Tensor 5mm	8865	1108	0.08543	0	14
4	Tub 2" x 2mm	1.18e+05	1.18e+04	0.9096	36	0
5	Tensor 1/8"	2286	182.9	0.0141	0	4

*** LOAD DATA

; Self Weight, Nodal Load, Specified Displacement, Beam Load, Floor Load, Finishing Material Load,

System Temperature, Nodal Temperature, Element Temperature, Beam Section Temperature,
Wind Load, Static Seismic Load, Time History Analysis Data

[LOAD CASE : Peso Propio]

** SELF WEIGHT DATA

; X=0, Y=0, Z=-1

[LOAD CASE : Carga Muerta Sobre Impuesta]

** NODAL LOAD DATA

NODE	FX	FY	FZ	MX	MY	MZ
57	0	0	-0.009	0	0	0
58	0	0	-0.009	0	0	0
59	0	0	-0.009	0	0	0
61	0	0	-0.009	0	0	0
85	0	0	-0.009	0	0	0
86	0	0	-0.009	0	0	0
113	0	0	-0.009	0	0	0
114	0	0	-0.009	0	0	0
115	0	0	-0.009	0	0	0
117	0	0	-0.009	0	0	0
141	0	0	-0.009	0	0	0
142	0	0	-0.009	0	0	0
169	0	0	-0.009	0	0	0
170	0	0	-0.009	0	0	0
171	0	0	-0.009	0	0	0
173	0	0	-0.009	0	0	0
197	0	0	-0.009	0	0	0
198	0	0	-0.009	0	0	0
225	0	0	-0.009	0	0	0
226	0	0	-0.009	0	0	0
227	0	0	-0.009	0	0	0
229	0	0	-0.009	0	0	0

** BEAM LOAD DATA

MEMBER	TYPE	DIR.	PROJ.	D1	P1	D2	P2	D3	P3	D4	P4
44	Uniform Load	LZ	NO	0	-1.4e-05	1	-1.4e-05	0	0	0	0
45	Uniform Load	LZ	NO	0	-1.4e-05	1	-1.4e-05	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

```
0
    46          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    47          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    48          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    49          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    51          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    52          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    53          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    54          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    55          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    56          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    69          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    74          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    75          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    77          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    78          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    79          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    83          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    84          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    85          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    86          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    87          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    88          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    90          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    91          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    92          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    93          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    94          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    95          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
    96          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
   101          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
   102          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
0
   103          Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0         0         0
```

PROJECT TITLE : INVERNADERO TIPO 1

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

```
0
   104         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   105         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   109         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   110         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   111         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   112         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   113         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   114         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   116         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   117         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   118         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   119         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   120         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   121         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   122         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   127         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   128         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   129         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   130         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   131         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   135         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   136         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   137         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   138         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   139         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   140         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   142         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   143         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   144         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   145         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   146         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
0
   147         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0     0
```

PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

```
0
   148         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   153         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   154         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   155         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   156         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   157         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   161         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   162         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   163         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   164         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   165         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   166         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   168         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   169         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   170         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   171         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   172         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   173         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   174         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   179         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   180         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   181         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   182         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   183         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   187         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   188         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   189         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   190         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   191         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   192         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   194         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
0
   195         Uniform Load     LZ    NO     0 -1.4e-05     1 -1.4e-05     0        0      0
```

PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

```
0
   196          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   197          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   198          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   199          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   200          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   205          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   206          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   207          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   208          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   209          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   213          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   214          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   215          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   216          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   217          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   218          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   220          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   221          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   222          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   223          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   224          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   225          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   226          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   231          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   232          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   233          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   234          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   235          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   396          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   397          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   400          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
0
   401          Uniform Load     LZ     NO      0 -1.4e-05      1 -1.4e-05      0         0         0
```

```
     0
        404          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        405          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        408          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        409          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        412          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        413          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        416          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        417          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        420          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0
        421          Uniform Load     LZ    NO      0 -1.4e-05     1 -1.4e-05     0         0      0
     0


 [ LOAD CASE : EX (Sismo Reducido) ]


 ** STATIC SEISMIC LOAD DATA : CODE , NSR-10

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* MASS GENERATION DATA FOR LATERAL ANALYSIS OF BUILDING         [UNIT: kN, cm]
_____________________________________________________________
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STORY NAME	TRANSLATIONAL MASS (X-DIR)	TRANSLATIONAL MASS (Y-DIR)	ROTATIONAL MASS	CENTER OF MASS (X-COORD)	CENTER OF MASS (Y-COORD)
Roof	0.0	0.0	0.0	0.0	0.0
14F	0.0	0.0	0.0	0.0	0.0
13F	0.0	0.0	0.0	0.0	0.0
12F	0.0	0.0	0.0	0.0	0.0
11F	0.0	0.0	0.0	0.0	0.0
10F	0.0	0.0	0.0	0.0	0.0
9F	0.0	0.0	0.0	0.0	0.0
8F	0.0	0.0	0.0	0.0	0.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.0	0.0			

```
* ADDITIONAL MASSES FOR THE CALCULATION OF EQUIVALENT SEISMIC FORCE
_____________________________________________________________________

  Note. The following masses are between two adjacent stories or on the
  nodes released from floor rigid diaphragm by *Diaphragm Disconnect command.
  The masses are proportionally distributed to upper/lower stories according
  to their vertical locations. For dynamic analysis, however, floor masses
  and masses on vertical elements remain at their original locations.
```

STORY NAME	TRANSLATIONAL MASS (X-DIR)	(Y-DIR)
Roof	0.00008622	0.00008622
14F	0.00022363	0.00022363
13F	0.00006775	0.00006775
12F	0.00010193	0.00010193
11F	0.00039226	0.00039226
10F	0.0	0.0
9F	0.00042187	0.00042187
8F	0.00037368	0.00037368
7F	0.00037304	0.00037304
6F	0.0006662	0.0006662
5F	0.00037105	0.00037105
4F	0.00068375	0.00068375
3F	0.00030453	0.00030453
2F	0.00185723	0.00185723
1F	0.00160053	0.00160053
TOTAL :	0.00752368	0.00752368

* EQUIVALENT SEISMIC LOAD IN ACCORDANCE WITH NSR-10 [UNIT: kN, cm]

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.25000
Effective Peak Velocity (Av)	: 0.25000
Site Coefficient at Short Periods (Fa)	: 1.45000
Site Coefficient at 1 s Period (Fv)	: 3.00000
Importance Factor (I)	: 1.10
Period Coefficient for Upper Limit (Cu)	: 1.2000
Fundamental Period Associated with X-dir. (Tx)	: 0.2794
Fundamental Period Associated with Y-dir. (Ty)	: 0.2794
Basic Ductility Factor for X-dir. (Rx0)	: 1.50000
Basic Ductility Factor for Y-dir. (Ry0)	: 1.50000
Reduction Factor of Irregularity for X-dir. (Phix)	: 0.90000
Reduction Factor of Irregularity for Y-dir. (Phiy)	: 0.90000
Ductility Factor for X-dir. (Rx)	: 1.35000
Ductility Factor for X-dir. (Rx)	: 1.35000
Total Effective Weight For X-dir. Seismic Loads (Wx)	: 5.808236
Total Effective Weight For Y-dir. Seismic Loads (Wy)	: 5.808236
Scale Factor For X-directional Seismic Loads	: 1.00
Scale Factor For Y-directional Seismic Loads	: 0.00
Accidental Eccentricity For X-direction (Ex)	: Positive
Accidental Eccentricity For Y-direction (Ey)	: Positive
Torsional Amplification for Accidental Eccentricity	: Consider
Torsional Amplification for Inherent Eccentricity	: Do not Consider
Total Base Shear Of Model For X-direction	: 4.288952
Total Base Shear Of Model For Y-direction	: 0.000000
Summation Of Wi*Hi^k Of Model For X-direction	: 2296.928640
Summation Of Wi*Hi^k Of Model For Y-direction	: 0.000000

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ECCENTRICITY RELATED DATA
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X - D I R E C T I O N A L L O A D Y - D I R E C T I O N A L L O A D

PROJECT TITLE : INVERNADERO TIPO 1

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

STORY NAME	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR
Roof	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-90.0	0.0	1.0	0.0	2.75	0.0	1.0	0.0
13F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
10F	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
9F	-90.0	0.0	1.0	0.0	6.0037318	0.0	1.0	0.0
8F	-90.0	0.0	1.0	0.0	11.875617	0.0	1.0	0.0
7F	-90.0	0.0	1.0	0.0	17.486705	0.0	1.0	0.0
6F	-90.0	0.0	1.0	0.0	22.713773	0.0	1.0	0.0
5F	-90.0	0.0	1.0	0.0	27.442029	0.0	1.0	0.0
4F	-90.0	0.0	1.0	0.0	38.367639	0.0	1.0	0.0
3F	-90.0	0.0	1.0	0.0	36.683819	0.0	1.0	0.0
2F	-90.0	0.0	1.0	0.0	95.0	0.0	1.0	0.0
G.L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The accidental amplification factors are automatically set to 1.0 when torsional amplification effect
to accidental eccentricity is not considered.
The inherent amplification factors are automatically set to 0 when torsional amplification effect
to inherent eccentricity is not considered.
The inherent amplification factors are all set to 'the input value - 1.0'.(This is to exclude the true
inherent torsion)

** Story Force , Seismic Force x Scale Factor + Added Force

S E I S M I C L O A D G E N E R A T I O N D A T A X - D I R E C T I O N

STORY NAME	STORY WEIGHT	STORY LEVEL	SEISMIC FORCE	ADDED FORCE	STORY FORCE	STORY SHEAR	OVERTURN. MOMENT	ACCIDENT. TORSION	INHERENT TORSION	TOTAL TORSION

PROJECT TITLE : INVERNADERO TIPO 1

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

Roof	0.084543	544.62	0.085975	0.0	0.085975	0.0	0.0	7.737768	0.0	7.737768
14F	0.219296	541.0	0.22153	0.0	0.22153	0.085975	0.311203	19.9377	0.0	19.9377
13F	0.066439	537.59	0.066692	0.0	0.066692	0.307505	1.359941	6.002314	0.0	6.002314
12F	0.09995	520.641	0.097168	0.0	0.097168	0.374198	7.701921	8.745136	0.0	8.745136
11F	0.384653	500.0	0.359122	0.0	0.359122	0.471366	17.43153	32.32101	0.0	32.32101
10F	0.0	497.77	0.0	0.0	0.0	0.830488	19.28384	0.0	0.0	0.0
9F	0.413682	495.539	0.382779	0.0	0.382779	0.830488	21.13615	34.45013	0.0	34.45013
8F	0.366433	482.255	0.32997	0.0	0.32997	1.213267	37.25363	29.6973	0.0	29.6973
7F	0.365801	460.439	0.3145	0.0	0.3145	1.543237	70.92121	28.30496	0.0	28.30496
6F	0.653275	430.57	0.525222	0.0	0.525222	1.857737	126.4099	47.26999	0.0	47.26999
5F	0.363856	393.304	0.267215	0.0	0.267215	2.382959	215.2127	24.04939	0.0	24.04939
4F	0.670485	349.46	0.437512	0.0	0.437512	2.650174	331.4074	39.37605	0.0	39.37605
3F	0.298625	324.73	0.181073	0.0	0.181073	3.087686	407.7655	16.29653	0.0	16.29653
2F	1.8212	300.0	1.020193	0.0	1.020193	3.268759	488.6015	91.8174	0.0	91.8174
G.L.	--	0.0	--	--	--	4.288952	1775.287	---	---	--

S E I S M I C L O A D G E N E R A T I O N D A T A Y - D I R E C T I O N

STORY NAME	STORY WEIGHT	STORY LEVEL	SEISMIC FORCE	ADDED FORCE	STORY FORCE	STORY SHEAR	OVERTURN. MOMENT	ACCIDENT. TORSION	INHERENT TORSION	TOTAL TORSION
Roof	0.084543	544.62	0.085975	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.219296	541.0	0.22153	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.066439	537.59	0.066692	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.09995	520.641	0.097168	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.384653	500.0	0.359122	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10F	0.0	497.77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9F	0.413682	495.539	0.382779	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.366433	482.255	0.32997	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.365801	460.439	0.3145	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.653275	430.57	0.525222	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
        5F 0.363856 393.304 0.267215      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        4F 0.670485  349.46 0.437512      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        3F 0.298625  324.73 0.181073      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        2F   1.8212   300.0 1.020193      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
     G.L.     --        0.0    --       --       --         0.0      0.0    ---      ---       --
-
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================================================
 COMMENTS ABOUT TORSION
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If torsional amplification effects are considered :
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----
Accidental Torsion , Story Force * Accidental Eccentricity * Amp. Factor for Accidental Eccentricit
y
Inherent Torsion   , Story Force * Inherent Eccentricity * Amp. Factor for Inherent Eccentricity

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If torsional amplification effects are not considered :
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----
Accidental Torsion , Story Force * Accidental Eccentricity
Inherent Torsion   , 0

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The inherent torsion above is the additional torsion due to torsional amplification effect.
The true inherent torsion is considered automatically in analysis stage when the seismic force is
applied to the structure.
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 [ LOAD CASE : EY (Sismo Reducido) ]


 ** STATIC SEISMIC LOAD DATA : CODE , NSR-10

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* MASS GENERATION DATA FOR LATERAL ANALYSIS OF BUILDING         [UNIT: kN, cm]
_____________________________________________________________

    STORY       TRANSLATIONAL MASS      ROTATIONAL   CENTER OF MASS
    NAME        (X-DIR)      (Y-DIR)    MASS         (X-COORD)    (Y-COORD)
 -----------  -----------  -----------  -----------  -----------  -----------
        Roof          0.0          0.0          0.0          0.0          0.0
         14F          0.0          0.0          0.0          0.0          0.0
         13F          0.0          0.0          0.0          0.0          0.0
         12F          0.0          0.0          0.0          0.0          0.0
         11F          0.0          0.0          0.0          0.0          0.0
         10F          0.0          0.0          0.0          0.0          0.0
```

9F	0.0	0.0	0.0	0.0	0.0
8F	0.0	0.0	0.0	0.0	0.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.0	0.0			

* ADDITIONAL MASSES FOR THE CALCULATION OF EQUIVALENT SEISMIC FORCE

Note. The following masses are between two adjacent stories or on the nodes released from floor rigid diaphragm by *Diaphragm Disconnect command. The masses are proportionally distributed to upper/lower stories according to their vertical locations. For dynamic analysis, however, floor masses and masses on vertical elements remain at their original locations.

STORY NAME	TRANSLATIONAL MASS (X-DIR)	(Y-DIR)
Roof	0.00008622	0.00008622
14F	0.00022363	0.00022363
13F	0.00006775	0.00006775
12F	0.00010193	0.00010193
11F	0.00039226	0.00039226
10F	0.0	0.0
9F	0.00042187	0.00042187
8F	0.00037368	0.00037368
7F	0.00037304	0.00037304
6F	0.0006662	0.0006662
5F	0.00037105	0.00037105
4F	0.00068375	0.00068375
3F	0.00030453	0.00030453
2F	0.00185723	0.00185723
1F	0.00160053	0.00160053
TOTAL :	0.00752368	0.00752368

* EQUIVALENT SEISMIC LOAD IN ACCORDANCE WITH NSR-10 [UNIT: kN, cm]

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.25000
Effective Peak Velocity (Av)	: 0.25000
Site Coefficient at Short Periods (Fa)	: 1.45000
Site Coefficient at 1 s Period (Fv)	: 3.00000
Importance Factor (I)	: 1.10
Period Coefficient for Upper Limit (Cu)	: 1.2000
Fundamental Period Associated with X-dir. (Tx)	: 0.2794
Fundamental Period Associated with Y-dir. (Ty)	: 0.2794
Basic Ductility Factor for X-dir. (Rx0)	: 1.50000
Basic Ductility Factor for Y-dir. (Ry0)	: 1.50000
Reduction Factor of Irregularity for X-dir. (Phix)	: 0.90000
Reduction Factor of Irregularity for Y-dir. (Phiy)	: 0.90000
Ductility Factor for X-dir. (Rx)	: 1.35000
Ductility Factor for X-dir. (Rx)	: 1.35000
Total Effective Weight For X-dir. Seismic Loads (Wx)	: 5.808236
Total Effective Weight For Y-dir. Seismic Loads (Wy)	: 5.808236

```
  Scale Factor For X-directional Seismic Loads            : 0.00
  Scale Factor For Y-directional Seismic Loads            : 1.00

  Accidental Eccentricity For X-direction (Ex)            : Positive
  Accidental Eccentricity For Y-direction (Ey)            : Positive

  Torsional Amplification for Accidental Eccentricity     : Consider
  Torsional Amplification for Inherent Eccentricity       : Do not Consider

  Total Base Shear Of Model For X-direction               : 0.000000
  Total Base Shear Of Model For Y-direction               : 4.288952
  Summation Of Wi*Hi^k Of Model For X-direction           : 0.000000
  Summation Of Wi*Hi^k Of Model For Y-direction           : 2296.928640
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 ECCENTRICITY RELATED DATA
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STORY NAME	X-DIRECTIONAL LOAD ACCIDENTAL ECCENT.	X-DIRECTIONAL LOAD INHERENT ECCENT.	X-DIRECTIONAL LOAD ACCIDENTAL AMP.FACTOR	X-DIRECTIONAL LOAD INHERENT AMP.FACTOR	Y-DIRECTIONAL LOAD ACCIDENTAL ECCENT.	Y-DIRECTIONAL LOAD INHERENT ECCENT.	Y-DIRECTIONAL LOAD ACCIDENTAL AMP.FACTOR	Y-DIRECTIONAL LOAD INHERENT AMP.FACTOR
Roof	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-90.0	0.0	1.0	0.0	2.75	0.0	1.0	0.0
13F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
10F	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
9F	-90.0	0.0	1.0	0.0	6.0037318	0.0	1.0	0.0
8F	-90.0	0.0	1.0	0.0	11.875617	0.0	1.0	0.0
7F	-90.0	0.0	1.0	0.0	17.486705	0.0	1.0	0.0
6F	-90.0	0.0	1.0	0.0	22.713773	0.0	1.0	0.0
5F	-90.0	0.0	1.0	0.0	27.442029	0.0	1.0	0.0
4F	-90.0	0.0	1.0	0.0	38.367639	0.0	1.0	0.0
3F	-90.0	0.0	1.0	0.0	36.683819	0.0	1.0	0.0
2F	-90.0	0.0	1.0	0.0	95.0	0.0	1.0	0.0
G.L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
The accidental amplification factors are automatically set to 1.0 when torsional amplification effe
ct
to accidental eccentricity is not considered.
The inherent amplification factors are automatically set to 0 when torsional amplification effect
to inherent eccentricity is not considered.
The inherent amplification factors are all set to 'the input value - 1.0'.(This is to exclude the t
rue
inherent torsion)
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** Story Force , Seismic Force x Scale Factor + Added Force

S E I S M I C L O A D G E N E R A T I O N D A T A X - D I R E C T I O N

STORY NAME	STORY WEIGHT	STORY LEVEL	SEISMIC FORCE	ADDED FORCE	STORY FORCE	STORY SHEAR	OVERTURN. MOMENT	ACCIDENT. TORSION	INHERENT TORSION	TOTAL TORSION
Roof	0.084543	544.62	0.085975	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.219296	541.0	0.22153	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.066439	537.59	0.066692	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.09995	520.641	0.097168	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.384653	500.0	0.359122	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10F	0.0	497.77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9F	0.413682	495.539	0.382779	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.366433	482.255	0.32997	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.365801	460.439	0.3145	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.653275	430.57	0.525222	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5F	0.363856	393.304	0.267215	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4F	0.670485	349.46	0.437512	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3F	0.298625	324.73	0.181073	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2F	1.8212	300.0	1.020193	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G.L.	--	0.0	--	--	--	0.0	0.0	---	---	--

S E I S M I C L O A D G E N E R A T I O N D A T A Y - D I R E C T I O N

STORY NAME	STORY WEIGHT	STORY LEVEL	SEISMIC FORCE	ADDED FORCE	STORY FORCE	STORY SHEAR	OVERTURN. MOMENT	ACCIDENT. TORSION	INHERENT TORSION	TOTAL TORSION

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----
      Roof 0.084543  544.62 0.085975      0.0 0.085975      0.0       0.0       0.0       0.0
 0.0
       14F 0.219296   541.0  0.22153      0.0  0.22153 0.085975  0.311203  0.609208       0.0  0.60
9208
       13F 0.066439  537.59 0.066692      0.0 0.066692 0.307505  1.359941       0.0       0.0
 0.0
       12F  0.09995 520.641 0.097168      0.0 0.097168 0.374198  7.701921       0.0       0.0
 0.0
       11F 0.384653   500.0 0.359122      0.0 0.359122 0.471366  17.43153       0.0       0.0
 0.0
       10F      0.0  497.77      0.0      0.0      0.0 0.830488  19.28384       0.0       0.0
 0.0
        9F 0.413682 495.539 0.382779      0.0 0.382779 0.830488  21.13615  2.298104       0.0  2.29
8104
        8F 0.366433 482.255  0.32997      0.0  0.32997 1.213267  37.25363  3.918597       0.0  3.91
8597
        7F 0.365801 460.439   0.3145      0.0   0.3145 1.543237  70.92121  5.499561       0.0  5.49
9561
        6F 0.653275  430.57 0.525222      0.0 0.525222 1.857737  126.4099  11.92978       0.0  11.9
2978
        5F 0.363856 393.304 0.267215      0.0 0.267215 2.382959  215.2127  7.332935       0.0  7.33
2935
        4F 0.670485  349.46 0.437512      0.0 0.437512 2.650174  331.4074  16.78629       0.0  16.7
8629
        3F 0.298625  324.73 0.181073      0.0 0.181073 3.087686  407.7655  6.642435       0.0  6.64
2435
        2F   1.8212   300.0 1.020193      0.0 1.020193 3.268759  488.6015  96.91837       0.0  96.9
1837
      G.L.    --        0.0    --       --       --    4.288952  1775.287    ---       ---       --
-
-------------------------------------------------------------------------------------------------
----

================================================
 COMMENTS ABOUT TORSION
================================================

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----
If torsional amplification effects are considered :
-------------------------------------------------------------------------------------------------
----
Accidental Torsion , Story Force * Accidental Eccentricity * Amp. Factor for Accidental Eccentricit
y
Inherent Torsion   , Story Force * Inherent Eccentricity * Amp. Factor for Inherent Eccentricity

-------------------------------------------------------------------------------------------------
----
If torsional amplification effects are not considered :
-------------------------------------------------------------------------------------------------
----
Accidental Torsion , Story Force * Accidental Eccentricity
Inherent Torsion   , 0

-------------------------------------------------------------------------------------------------
----
The inherent torsion above is the additional torsion due to torsional amplification effect.
The true inherent torsion is considered automatically in analysis stage when the seismic force is
applied to the structure.
-------------------------------------------------------------------------------------------------
----
```

[LOAD CASE : Sismo X]

** STATIC SEISMIC LOAD DATA : CODE , NSR-10

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* MASS GENERATION DATA FOR LATERAL ANALYSIS OF BUILDING [UNIT: kN, cm]

STORY NAME	TRANSLATIONAL MASS (X-DIR)	TRANSLATIONAL MASS (Y-DIR)	ROTATIONAL MASS	CENTER OF MASS (X-COORD)	CENTER OF MASS (Y-COORD)
Roof	0.0	0.0	0.0	0.0	0.0
14F	0.0	0.0	0.0	0.0	0.0
13F	0.0	0.0	0.0	0.0	0.0
12F	0.0	0.0	0.0	0.0	0.0
11F	0.0	0.0	0.0	0.0	0.0
10F	0.0	0.0	0.0	0.0	0.0
9F	0.0	0.0	0.0	0.0	0.0
8F	0.0	0.0	0.0	0.0	0.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.0	0.0			

* ADDITIONAL MASSES FOR THE CALCULATION OF EQUIVALENT SEISMIC FORCE

Note. The following masses are between two adjacent stories or on the nodes released from floor rigid diaphragm by *Diaphragm Disconnect command. The masses are proportionally distributed to upper/lower stories according to their vertical locations. For dynamic analysis, however, floor masses and masses on vertical elements remain at their original locations.

STORY NAME	TRANSLATIONAL MASS (X-DIR)	TRANSLATIONAL MASS (Y-DIR)
Roof	0.00008622	0.00008622
14F	0.00022363	0.00022363
13F	0.00006775	0.00006775
12F	0.00010193	0.00010193
11F	0.00039226	0.00039226
10F	0.0	0.0
9F	0.00042187	0.00042187
8F	0.00037368	0.00037368
7F	0.00037304	0.00037304
6F	0.0006662	0.0006662
5F	0.00037105	0.00037105
4F	0.00068375	0.00068375
3F	0.00030453	0.00030453
2F	0.00185723	0.00185723
1F	0.00160053	0.00160053
TOTAL :	0.00752368	0.00752368

* EQUIVALENT SEISMIC LOAD IN ACCORDANCE WITH NSR-10 [UNIT: kN, cm]

```
  Site Class                                          : E
  Effective Peak Acceleration(Aa)                     : 0.25000
  Effective Peak Velocity (Av)                        : 0.25000
  Site Coefficient at Short Periods (Fa)              : 1.45000
  Site Coefficient at 1 s Period (Fv)                 : 1.00000
  Importance Factor (I)                               : 1.00
  Period Coefficient for Upper Limit (Cu)             : 1.2000
  Fundamental Period Associated with X-dir. (Tx)      : 0.2794
  Fundamental Period Associated with Y-dir. (Ty)      : 0.2794
  Basic Ductility Factor for X-dir. (Rx0)             : 1.00000
  Basic Ductility Factor for Y-dir. (Ry0)             : 1.00000
  Reduction Factor of Irregularity for X-dir. (Phix)  : 1.00000
  Reduction Factor of Irregularity for Y-dir. (Phiy)  : 1.00000
  Ductility Factor for X-dir. (Rx)                    : 1.00000
  Ductility Factor for X-dir. (Rx)                    : 1.00000
  Total Effective Weight For X-dir. Seismic Loads (Wx)  : 5.808236
  Total Effective Weight For Y-dir. Seismic Loads (Wy)  : 5.808236

  Scale Factor For X-directional Seismic Loads        : 1.00
  Scale Factor For Y-directional Seismic Loads        : 0.00

  Accidental Eccentricity For X-direction (Ex)        : Positive
  Accidental Eccentricity For Y-direction (Ey)        : Positive

  Torsional Amplification for Accidental Eccentricity  : Consider
  Torsional Amplification for Inherent Eccentricity    : Do not Consider

  Total Base Shear Of Model For X-direction           : 5.263714
  Total Base Shear Of Model For Y-direction           : 0.000000
  Summation Of Wi*Hi^k Of Model For X-direction       : 2296.928640
  Summation Of Wi*Hi^k Of Model For Y-direction       : 0.000000
```

```
============================
 ECCENTRICITY RELATED DATA
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	X-DIRECTIONAL LOAD				Y-DIRECTIONAL LOAD			
STORY NAME	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR
Roof	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-90.0	0.0	1.0	0.0	2.75	0.0	1.0	0.0
13F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
10F	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
9F	-90.0	0.0	1.0	0.0	6.0037318	0.0	1.0	0.0

```
        8F       -90.0        0.0        1.0        0.0     11.875617        0.0        1.0
 0.0
        7F       -90.0        0.0        1.0        0.0     17.486705        0.0        1.0
 0.0
        6F       -90.0        0.0        1.0        0.0     22.713773        0.0        1.0
 0.0
        5F       -90.0        0.0        1.0        0.0     27.442029        0.0        1.0
 0.0
        4F       -90.0        0.0        1.0        0.0     38.367639        0.0        1.0
 0.0
        3F       -90.0        0.0        1.0        0.0     36.683819        0.0        1.0
 0.0
        2F       -90.0        0.0        1.0        0.0          95.0        0.0        1.0
 0.0
       G.L         0.0        0.0        0.0        0.0           0.0        0.0        0.0
 0.0
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----
The accidental amplification factors are automatically set to 1.0 when torsional amplification effe
ct
to accidental eccentricity is not considered.
The inherent amplification factors are automatically set to 0 when torsional amplification effect
to inherent eccentricity is not considered.
The inherent amplification factors are all set to 'the input value - 1.0'.(This is to exclude the t
rue
inherent torsion)
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----


  ** Story Force , Seismic Force x Scale Factor + Added Force


          S E I S M I C   L O A D   G E N E R A T I O N   D A T A   X - D I R E C T I O N

     STORY    STORY    STORY   SEISMIC    ADDED    STORY    STORY   OVERTURN. ACCIDENT. INHERENT   TOTA
L
     NAME     WEIGHT   LEVEL   FORCE      FORCE    FORCE    SHEAR   MOMENT    TORSION   TORSION    TORS
ION
---------- -------- ------- -------- -------- -------- -------- --------- --------- --------- -----
----
      Roof 0.084543   544.62 0.105515      0.0 0.105515      0.0       0.0  9.496352       0.0  9.49
6352
       14F 0.219296    541.0 0.271878      0.0 0.271878 0.105515  0.381931    24.469       0.0    24
.469
       13F 0.066439   537.59  0.08185      0.0  0.08185 0.377393  1.669019  7.366477       0.0  7.36
6477
       12F  0.09995 520.641 0.119252      0.0 0.119252 0.459243  9.452358  10.73267       0.0  10.7
3267
       11F 0.384653    500.0 0.440741      0.0 0.440741 0.578494  21.39324  39.66669       0.0  39.6
6669
       10F      0.0   497.77      0.0      0.0      0.0 1.019235  23.66653       0.0       0.0
 0.0
        9F 0.413682 495.539 0.469775      0.0 0.469775 1.019235  25.93982  42.27971       0.0  42.2
7971
        8F 0.366433 482.255 0.404963      0.0 0.404963  1.48901  45.72036  36.44668       0.0  36.4
4668
        7F 0.365801 460.439 0.385977      0.0 0.385977 1.893973  87.03967   34.7379       0.0   34.
7379
        6F 0.653275  430.57 0.644591      0.0 0.644591  2.27995  155.1394  58.01317       0.0  58.0
1317
```

```
         5F 0.363856 393.304 0.327946      0.0 0.327946 2.924541  264.1246  29.51517       0.0  29.5
1517
         4F 0.670485  349.46 0.536946      0.0 0.536946 3.252487  406.7273  48.32516       0.0  48.3
2516
         3F 0.298625  324.73 0.222225      0.0 0.222225 3.789433  500.4395  20.00029       0.0  20.0
0029
         2F   1.8212   300.0 1.252055      0.0 1.252055 4.011658  599.6473   112.685       0.0   112
.685
       G.L.     --         0.0    --       --       --    5.263714  2178.761    ---       ---        --
-
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```

S E I S M I C L O A D G E N E R A T I O N D A T A Y - D I R E C T I O N

```
     STORY    STORY    STORY  SEISMIC    ADDED    STORY    STORY   OVERTURN. ACCIDENT. INHERENT   TOTA
L
     NAME     WEIGHT   LEVEL  FORCE      FORCE    FORCE    SHEAR   MOMENT    TORSION   TORSION    TORS
ION
---------- -------- ------- -------- -------- -------- -------- --------- --------- --------- -----
----
      Roof 0.084543  544.62 0.105515      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       14F 0.219296   541.0 0.271878      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       13F 0.066439  537.59  0.08185      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       12F  0.09995 520.641 0.119252      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       11F 0.384653   500.0 0.440741      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       10F      0.0  497.77      0.0      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        9F 0.413682 495.539 0.469775      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        8F 0.366433 482.255 0.404963      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        7F 0.365801 460.439 0.385977      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        6F 0.653275  430.57 0.644591      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        5F 0.363856 393.304 0.327946      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        4F 0.670485  349.46 0.536946      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        3F 0.298625  324.73 0.222225      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        2F   1.8212   300.0 1.252055      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
      G.L.     --         0.0    --       --       --          0.0       0.0    ---       ---        --
-
-------------------------------------------------------------------------------------------------------
----

================================================
 COMMENTS ABOUT TORSION
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----
If torsional amplification effects are considered :
-------------------------------------------------------------------------------------------------------
----
```

```
Accidental Torsion , Story Force * Accidental Eccentricity * Amp. Factor for Accidental Eccentricit
y
Inherent Torsion   , Story Force * Inherent Eccentricity * Amp. Factor for Inherent Eccentricity

--------------------------------------------------------------------------------------------------
----
If torsional amplification effects are not considered :
--------------------------------------------------------------------------------------------------
----
Accidental Torsion , Story Force * Accidental Eccentricity
Inherent Torsion   , 0

--------------------------------------------------------------------------------------------------
----
The inherent torsion above is the additional torsion due to torsional amplification effect.
The true inherent torsion is considered automatically in analysis stage when the seismic force is
applied to the structure.
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 [ LOAD CASE : Sismo Y ]


 ** STATIC SEISMIC LOAD DATA : CODE , NSR-10

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* MASS GENERATION DATA FOR LATERAL ANALYSIS OF BUILDING         [UNIT: kN, cm]
_____________________________________________________________
```

STORY NAME	TRANSLATIONAL MASS (X-DIR)	TRANSLATIONAL MASS (Y-DIR)	ROTATIONAL MASS	CENTER OF MASS (X-COORD)	CENTER OF MASS (Y-COORD)
Roof	0.0	0.0	0.0	0.0	0.0
14F	0.0	0.0	0.0	0.0	0.0
13F	0.0	0.0	0.0	0.0	0.0
12F	0.0	0.0	0.0	0.0	0.0
11F	0.0	0.0	0.0	0.0	0.0
10F	0.0	0.0	0.0	0.0	0.0
9F	0.0	0.0	0.0	0.0	0.0
8F	0.0	0.0	0.0	0.0	0.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.0	0.0			

```
* ADDITIONAL MASSES FOR THE CALCULATION OF EQUIVALENT SEISMIC FORCE
_____________________________________________________________________

  Note. The following masses are between two adjacent stories or on the
  nodes released from floor rigid diaphragm by *Diaphragm Disconnect command.
  The masses are proportionally distributed to upper/lower stories according
  to their vertical locations. For dynamic analysis, however, floor masses
  and masses on vertical elements remain at their original locations.
```

STORY NAME	TRANSLATIONAL MASS (X-DIR)	(Y-DIR)
Roof	0.00008622	0.00008622
14F	0.00022363	0.00022363
13F	0.00006775	0.00006775
12F	0.00010193	0.00010193
11F	0.00039226	0.00039226
10F	0.0	0.0
9F	0.00042187	0.00042187
8F	0.00037368	0.00037368
7F	0.00037304	0.00037304
6F	0.0006662	0.0006662
5F	0.00037105	0.00037105
4F	0.00068375	0.00068375
3F	0.00030453	0.00030453
2F	0.00185723	0.00185723
1F	0.00160053	0.00160053
TOTAL :	0.00752368	0.00752368

* EQUIVALENT SEISMIC LOAD IN ACCORDANCE WITH NSR-10 [UNIT: kN, cm]

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.25000
Effective Peak Velocity (Av)	: 0.25000
Site Coefficient at Short Periods (Fa)	: 1.45000
Site Coefficient at 1 s Period (Fv)	: 3.00000
Importance Factor (I)	: 1.00
Period Coefficient for Upper Limit (Cu)	: 1.2000
Fundamental Period Associated with X-dir. (Tx)	: 0.2794
Fundamental Period Associated with Y-dir. (Ty)	: 0.2794
Basic Ductility Factor for X-dir. (Rx0)	: 1.00000
Basic Ductility Factor for Y-dir. (Ry0)	: 1.00000
Reduction Factor of Irregularity for X-dir. (Phix)	: 1.00000
Reduction Factor of Irregularity for Y-dir. (Phiy)	: 1.00000
Ductility Factor for X-dir. (Rx)	: 1.00000
Ductility Factor for X-dir. (Rx)	: 1.00000
Total Effective Weight For X-dir. Seismic Loads (Wx)	: 5.808236
Total Effective Weight For Y-dir. Seismic Loads (Wy)	: 5.808236
Scale Factor For X-directional Seismic Loads	: 0.00
Scale Factor For Y-directional Seismic Loads	: 1.00
Accidental Eccentricity For X-direction (Ex)	: Positive
Accidental Eccentricity For Y-direction (Ey)	: Positive
Torsional Amplification for Accidental Eccentricity	: Do not Consider
Torsional Amplification for Inherent Eccentricity	: Do not Consider
Total Base Shear Of Model For X-direction	: 0.000000
Total Base Shear Of Model For Y-direction	: 5.263714
Summation Of Wi*Hi^k Of Model For X-direction	: 0.000000
Summation Of Wi*Hi^k Of Model For Y-direction	: 2296.928640

==========
ECCENTRICITY RELATED DATA
==========

X - D I R E C T I O N A L L O A D Y - D I R E C T I O N A L L O A D

STORY NAME	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR
Roof	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-90.0	0.0	1.0	0.0	2.75	0.0	1.0	0.0
13F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-90.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
10F	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
9F	-90.0	0.0	1.0	0.0	6.0037318	0.0	1.0	0.0
8F	-90.0	0.0	1.0	0.0	11.875617	0.0	1.0	0.0
7F	-90.0	0.0	1.0	0.0	17.486705	0.0	1.0	0.0
6F	-90.0	0.0	1.0	0.0	22.713773	0.0	1.0	0.0
5F	-90.0	0.0	1.0	0.0	27.442029	0.0	1.0	0.0
4F	-90.0	0.0	1.0	0.0	38.367639	0.0	1.0	0.0
3F	-90.0	0.0	1.0	0.0	36.683819	0.0	1.0	0.0
2F	-90.0	0.0	1.0	0.0	95.0	0.0	1.0	0.0
G.L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The accidental amplification factors are automatically set to 1.0 when torsional amplification effect
to accidental eccentricity is not considered.
The inherent amplification factors are automatically set to 0 when torsional amplification effect
to inherent eccentricity is not considered.
The inherent amplification factors are all set to 'the input value - 1.0'.(This is to exclude the true
inherent torsion)

** Story Force , Seismic Force x Scale Factor + Added Force

S E I S M I C L O A D G E N E R A T I O N D A T A X - D I R E C T I O N

STORY NAME	STORY WEIGHT	STORY LEVEL	SEISMIC FORCE	ADDED FORCE	STORY FORCE	STORY SHEAR	OVERTURN. MOMENT	ACCIDENT. TORSION	INHERENT TORSION	TOTAL TORSION

```
----
      Roof 0.084543  544.62 0.105515      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       14F 0.219296   541.0 0.271878      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       13F 0.066439  537.59  0.08185      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       12F  0.09995 520.641 0.119252      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       11F 0.384653   500.0 0.440741      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       10F      0.0  497.77      0.0      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        9F 0.413682 495.539 0.469775      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        8F 0.366433 482.255 0.404963      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        7F 0.365801 460.439 0.385977      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        6F 0.653275  430.57 0.644591      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        5F 0.363856 393.304 0.327946      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        4F 0.670485  349.46 0.536946      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        3F 0.298625  324.73 0.222225      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        2F   1.8212   300.0 1.252055      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
      G.L.    --        0.0    --       --       --        0.0      0.0    ---      ---       --
-
-------------------------------------------------------------------------------------------------
----


        S E I S M I C   L O A D   G E N E R A T I O N   D A T A   Y - D I R E C T I O N

     STORY    STORY    STORY   SEISMIC    ADDED    STORY    STORY   OVERTURN. ACCIDENT. INHERENT    TOTA
L
     NAME    WEIGHT   LEVEL   FORCE      FORCE    FORCE    SHEAR    MOMENT    TORSION   TORSION    TORS
ION
---------- -------- ------- -------- -------- -------- -------- --------- --------- --------- -----
----
      Roof 0.084543  544.62 0.105515      0.0 0.105515      0.0       0.0       0.0       0.0
 0.0
       14F 0.219296   541.0 0.271878      0.0 0.271878 0.105515  0.381931  0.747664       0.0  0.74
7664
       13F 0.066439  537.59  0.08185      0.0  0.08185 0.377393  1.669019       0.0       0.0
 0.0
       12F  0.09995 520.641 0.119252      0.0 0.119252 0.459243  9.452358       0.0       0.0
 0.0
       11F 0.384653   500.0 0.440741      0.0 0.440741 0.578494  21.39324       0.0       0.0
 0.0
       10F      0.0  497.77      0.0      0.0      0.0 1.019235  23.66653       0.0       0.0
 0.0
        9F 0.413682 495.539 0.469775      0.0 0.469775 1.019235  25.93982    2.8204       0.0    2.
8204
        8F 0.366433 482.255 0.404963      0.0 0.404963  1.48901  45.72036  4.809187       0.0  4.80
9187
        7F 0.365801 460.439 0.385977      0.0 0.385977 1.893973  87.03967  6.749461       0.0  6.74
9461
        6F 0.653275  430.57 0.644591      0.0 0.644591  2.27995  155.1394  14.64109       0.0  14.6
4109
        5F 0.363856 393.304 0.327946      0.0 0.327946 2.924541  264.1246  8.999512       0.0  8.99
```

```
9512
        4F 0.670485  349.46 0.536946      0.0 0.536946 3.252487  406.7273  20.60136       0.0  20.6
0136
        3F 0.298625  324.73 0.222225      0.0 0.222225 3.789433  500.4395  8.152079       0.0  8.15
2079
        2F   1.8212   300.0 1.252055      0.0 1.252055 4.011658  599.6473  118.9453       0.0  118.
9453
      G.L.    --        0.0    --       --       --    5.263714  2178.761    ---       ---       --
-
------------------------------------------------------------------------------------------------------
----

================================================
 COMMENTS ABOUT TORSION
================================================

------------------------------------------------------------------------------------------------------
----
If torsional amplification effects are considered :
------------------------------------------------------------------------------------------------------
----
Accidental Torsion , Story Force * Accidental Eccentricity * Amp. Factor for Accidental Eccentricit
y
Inherent Torsion   , Story Force * Inherent Eccentricity * Amp. Factor for Inherent Eccentricity

------------------------------------------------------------------------------------------------------
----
If torsional amplification effects are not considered :
------------------------------------------------------------------------------------------------------
----
Accidental Torsion , Story Force * Accidental Eccentricity
Inherent Torsion   , 0

------------------------------------------------------------------------------------------------------
----
The inherent torsion above is the additional torsion due to torsional amplification effect.
The true inherent torsion is considered automatically in analysis stage when the seismic force is
applied to the structure.
------------------------------------------------------------------------------------------------------
----


 [ LOAD CASE : Carga de Viento ]

 ** BEAM LOAD DATA

     MEMBER                 TYPE    DIR. PROJ.     D1        P1     D2        P2     D3        P3     D4
    P4
   -------- -------------------- ------ ----- ----- -------- ----- -------- ----- -------- ----- --
------
         44         Uniform Load     LZ    NO      0   -0.006     1   -0.006     0        0      0
     0
         45         Uniform Load     LZ    NO      0   -0.006     1   -0.006     0        0      0
     0
         46         Uniform Load     LZ    NO      0   -0.006     1   -0.006     0        0      0
     0
         47         Uniform Load     LZ    NO      0   -0.006     1   -0.006     0        0      0
     0
         48         Uniform Load     LZ    NO      0   -0.006     1   -0.006     0        0      0
     0
         49         Uniform Load     LZ    NO      0   -0.006     1   -0.006     0        0      0
     0
```

PROJECT TITLE : INVERNADERO TIPO 1

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

51	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
52	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
53	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
54	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
55	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
56	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
69	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
74	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
75	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
77	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
78	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
79	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
83	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
84	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
85	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
86	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
87	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
88	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
90	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
91	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
92	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
93	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
94	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
95	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
96	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
101	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
102	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
103	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
104	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
105	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
109	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
110	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 1

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

111	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
112	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
113	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
114	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
116	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
117	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
118	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
119	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
120	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
121	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
122	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
127	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
128	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
129	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
130	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
131	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
135	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
136	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
137	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
138	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
139	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
140	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
142	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
143	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
144	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
145	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
146	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
147	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
148	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
153	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
154	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
155	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 1

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

156	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
157	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
161	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
162	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
163	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
164	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
165	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
166	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
168	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
169	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
170	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
171	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
172	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
173	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
174	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
179	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
180	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
181	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
182	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
183	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
187	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
188	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
189	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
190	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
191	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
192	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
194	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
195	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
196	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
197	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
198	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
199	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 1

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 1.mdl

200	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
205	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
206	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
207	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
208	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
209	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
213	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
214	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
215	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
216	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
217	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
218	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
220	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
221	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
222	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
223	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
224	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
225	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
226	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
231	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
232	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
233	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
234	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
235	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
396	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
397	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0
400	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
401	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
404	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
405	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
408	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
409	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0

	412	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
	413	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
	416	Uniform Load	LZ	NO	0	0.012	1	0.012	0	0	0	0
	417	Uniform Load	LZ	NO	0	-0.012	1	-0.012	0	0	0	0
	420	Uniform Load	LZ	NO	0	0.006	1	0.006	0	0	0	0
	421	Uniform Load	LZ	NO	0	-0.006	1	-0.006	0	0	0	0

[LOAD CASE : Carga Fluidos]

** BEAM LOAD DATA

MEMBER	TYPE	DIR.	PROJ.	D1	P1	D2	P2	D3	P3	D4	P4
56	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
95	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
121	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
147	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
173	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
199	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
225	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
397	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
398	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
399	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
401	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
402	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
403	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
405	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
406	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
407	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
409	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
410	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
411	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
413	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0
414	Uniform Load	GZ	NO	0	-0.065	1	-0.065	0	0	0	0

```
     0
        415          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0
        417          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0
        418          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0
        419          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0
        421          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0
        422          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0
        423          Uniform Load     GZ     NO      0    -0.065     1    -0.065     0         0      0
     0


*** RESPONSE SPECTRUM FUNCTION DATA

          NAME          FUNCTION  SCALE  GRAVITY DATA
                           TYPE
   ---------- ---------------- ------ -------- ------------------------------------------------
   NSR-10 (U~ Normalized Acc.      1    980.6 0:0.1 0.1:0.174627 0.2:0.249254 0.3:0.25 0.4:0.25


*** LOAD COMBINATION DATA

 ** STEEL DESIGN
         NO       NAME       TYPE     ACTIVE  DESCRIPTION
   -------- ---------- ---------- ----------  ------------------------------------------
          1      sLCB1        Add     ACTIVE  1.4(D+FP)
          2      sLCB2        Add     ACTIVE  1.2D + 1.0Carga de Viento
          3      sLCB3        Add     ACTIVE  1.2D - 1.0Carga de Viento
          4      sLCB4        Add     ACTIVE  1.2D + 1.0(1.0EX (Sismo Reducido)+0.3EY (
                                              Sismo Reducido))
          5      sLCB5        Add     ACTIVE  1.2D + 1.0(1.0EX (Sismo Reducido)-0.3EY (
                                              Sismo Reducido))
          6      sLCB6        Add     ACTIVE  1.2D + 1.0(1.0EY (Sismo Reducido)+0.3EX (
                                              Sismo Reducido))
          7      sLCB7        Add     ACTIVE  1.2D + 1.0(1.0EY (Sismo Reducido)-0.3EX (
                                              Sismo Reducido))
          8      sLCB8        Add     ACTIVE  1.2D - 1.0(1.0EX (Sismo Reducido)+0.3EY (
                                              Sismo Reducido))
          9      sLCB9        Add     ACTIVE  1.2D - 1.0(1.0EX (Sismo Reducido)-0.3EY (
                                              Sismo Reducido))
         10     sLCB10        Add     ACTIVE  1.2D - 1.0(1.0EY (Sismo Reducido)+0.3EX (
                                              Sismo Reducido))
         11     sLCB11        Add     ACTIVE  1.2D - 1.0(1.0EY (Sismo Reducido)-0.3EX (
                                              Sismo Reducido))
         12     sLCB12        Add     ACTIVE  0.9D + 1.0Carga de Viento
         13     sLCB13        Add     ACTIVE  0.9D - 1.0Carga de Viento
         14     sLCB14        Add     ACTIVE  0.9D + 1.0(1.0EX (Sismo Reducido)+0.3EY (
                                              Sismo Reducido))
         15     sLCB15        Add     ACTIVE  0.9D + 1.0(1.0EX (Sismo Reducido)-0.3EY (
                                              Sismo Reducido))
         16     sLCB16        Add     ACTIVE  0.9D + 1.0(1.0EY (Sismo Reducido)+0.3EX (
                                              Sismo Reducido))
         17     sLCB17        Add     ACTIVE  0.9D + 1.0(1.0EY (Sismo Reducido)-0.3EX (
                                              Sismo Reducido))
         18     sLCB18        Add     ACTIVE  0.9D - 1.0(1.0EX (Sismo Reducido)+0.3EY (
                                              Sismo Reducido))
         19     sLCB19        Add     ACTIVE  0.9D - 1.0(1.0EX (Sismo Reducido)-0.3EY (
                                              Sismo Reducido))
         20     sLCB20        Add     ACTIVE  0.9D - 1.0(1.0EY (Sismo Reducido)+0.3EX (
```

				Sismo Reducido))
21	sLCB21	Add	ACTIVE	0.9D - 1.0(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
22	sLCB22	Add	SERVICE	SERV :(D+FP)
23	sLCB23	Add	SERVICE	SERV :(D+FP) + 0.6Carga de Viento
24	sLCB24	Add	SERVICE	SERV :(D+FP) - 0.6Carga de Viento
25	sLCB25	Add	SERVICE	SERV :(D+FP) + 0.7(1.0EX (Sismo Reducido)+ 0.3EY (Sismo Reducido))
26	sLCB26	Add	SERVICE	SERV :(D+FP) + 0.7(1.0EX (Sismo Reducido)- 0.3EY (Sismo Reducido))
27	sLCB27	Add	SERVICE	SERV :(D+FP) + 0.7(1.0EY (Sismo Reducido)+ 0.3EX (Sismo Reducido))
28	sLCB28	Add	SERVICE	SERV :(D+FP) + 0.7(1.0EY (Sismo Reducido)- 0.3EX (Sismo Reducido))
29	sLCB29	Add	SERVICE	SERV :(D+FP) - 0.7(1.0EX (Sismo Reducido)+ 0.3EY (Sismo Reducido))
30	sLCB30	Add	SERVICE	SERV :(D+FP) - 0.7(1.0EX (Sismo Reducido)- 0.3EY (Sismo Reducido))
31	sLCB31	Add	SERVICE	SERV :(D+FP) - 0.7(1.0EY (Sismo Reducido)+ 0.3EX (Sismo Reducido))
32	sLCB32	Add	SERVICE	SERV :(D+FP) - 0.7(1.0EY (Sismo Reducido)- 0.3EX (Sismo Reducido))
33	sLCB33	Add	SERVICE	SERV :(D+FP) + 0.75(0.6)Carga de Viento
34	sLCB34	Add	SERVICE	SERV :(D+FP) - 0.75(0.6)Carga de Viento
35	sLCB35	Add	SERVICE	SERV :(D+FP) + 0.75(0.7)(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
36	sLCB36	Add	SERVICE	SERV :(D+FP) + 0.75(0.7)(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
37	sLCB37	Add	SERVICE	SERV :(D+FP) + 0.75(0.7)(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
38	sLCB38	Add	SERVICE	SERV :(D+FP) + 0.75(0.7)(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
39	sLCB39	Add	SERVICE	SERV :(D+FP) - 0.75(0.7)(1.0EX (Sismo Reducido)+0.3EY (Sismo Reducido))
40	sLCB40	Add	SERVICE	SERV :(D+FP) - 0.75(0.7)(1.0EX (Sismo Reducido)-0.3EY (Sismo Reducido))
41	sLCB41	Add	SERVICE	SERV :(D+FP) - 0.75(0.7)(1.0EY (Sismo Reducido)+0.3EX (Sismo Reducido))
42	sLCB42	Add	SERVICE	SERV :(D+FP) - 0.75(0.7)(1.0EY (Sismo Reducido)-0.3EX (Sismo Reducido))
43	sLCB43	Add	SERVICE	SERV :0.6D + 0.6Carga de Viento
44	sLCB44	Add	SERVICE	SERV :0.6D - 0.6Carga de Viento
45	sLCB45	Add	SERVICE	SERV :0.6(D+FP) + 0.7(1.0EX (Sismo Reducido)+ 0.3EY (Sismo Reducido))
46	sLCB46	Add	SERVICE	SERV :0.6(D+FP) + 0.7(1.0EX (Sismo Reducido)- 0.3EY (Sismo Reducido))
47	sLCB47	Add	SERVICE	SERV :0.6(D+FP) + 0.7(1.0EY (Sismo Reducido)+ 0.3EX (Sismo Reducido))
48	sLCB48	Add	SERVICE	SERV :0.6(D+FP) + 0.7(1.0EY (Sismo Reducido)- 0.3EX (Sismo Reducido))
49	sLCB49	Add	SERVICE	SERV :0.6(D+FP) - 0.7(1.0EX (Sismo Reducido)+ 0.3EY (Sismo Reducido))
50	sLCB50	Add	SERVICE	SERV :0.6(D+FP) - 0.7(1.0EX (Sismo Reducido)- 0.3EY (Sismo Reducido))
51	sLCB51	Add	SERVICE	SERV :0.6(D+FP) - 0.7(1.0EY (Sismo Reducido)+ 0.3EX (Sismo Reducido))
52	sLCB52	Add	SERVICE	SERV :0.6(D+FP) - 0.7(1.0EY (Sismo Reducido)- 0.3EX (Sismo Reducido))
53	ENV MAY	Envelope	ACTIVE	
54	ENV SERV	Envelope	SERVICE	