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DISEÑO ESTRUCTURAL

PROYECTO

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

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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

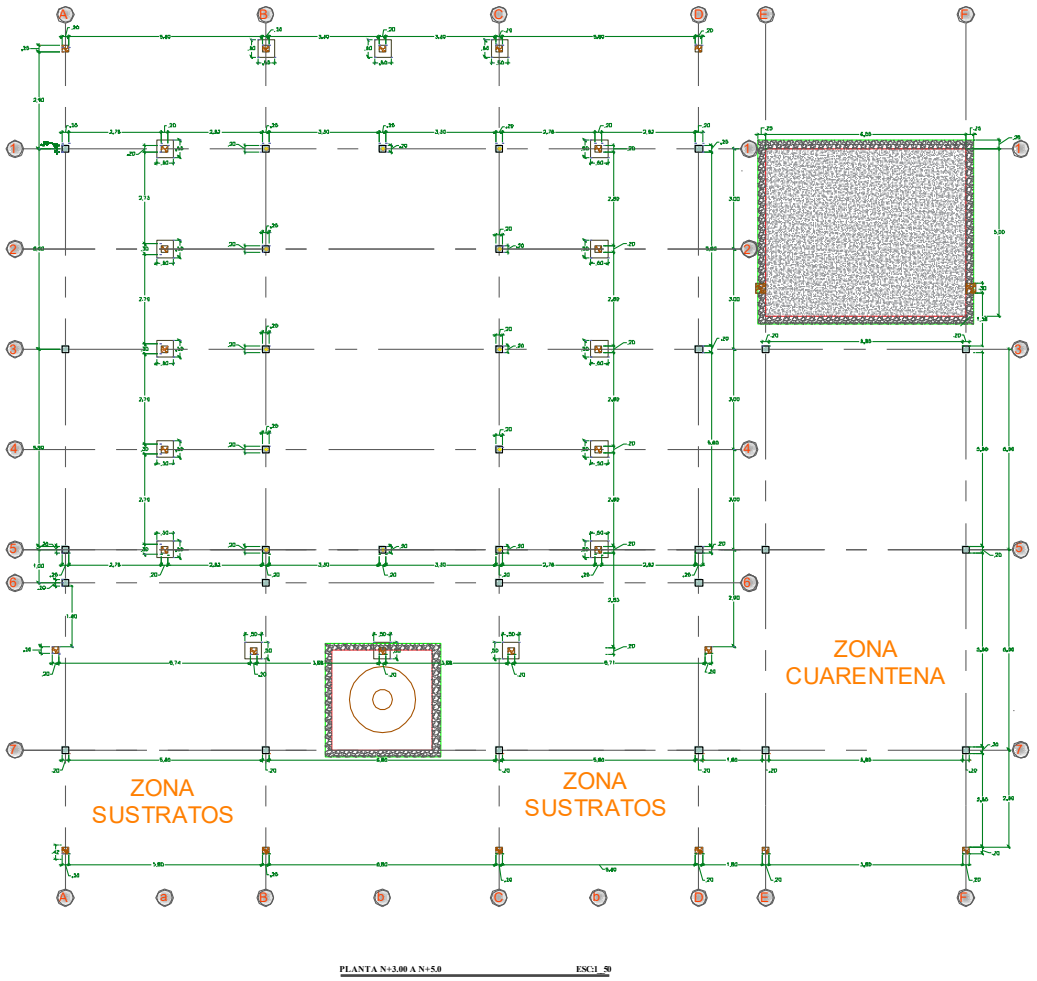


Ilustración 2 Planta Estructural Nivel 1

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

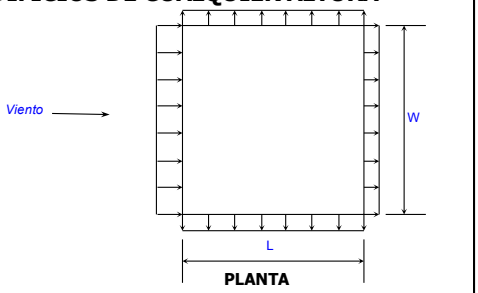
Para el presente proyecto no se considerará la carga de granizo, con la hipótesis de que esta condición no será muy probable que ocurra como carga importante, dado que la materialidad del plástico y la pendiente de la cubierta no permitían su acumulación.

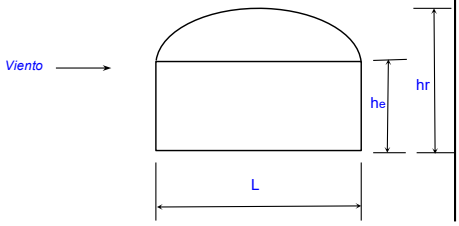
8.4 Avalúo de Cargas de Viento en Cubierta

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 =	12.00	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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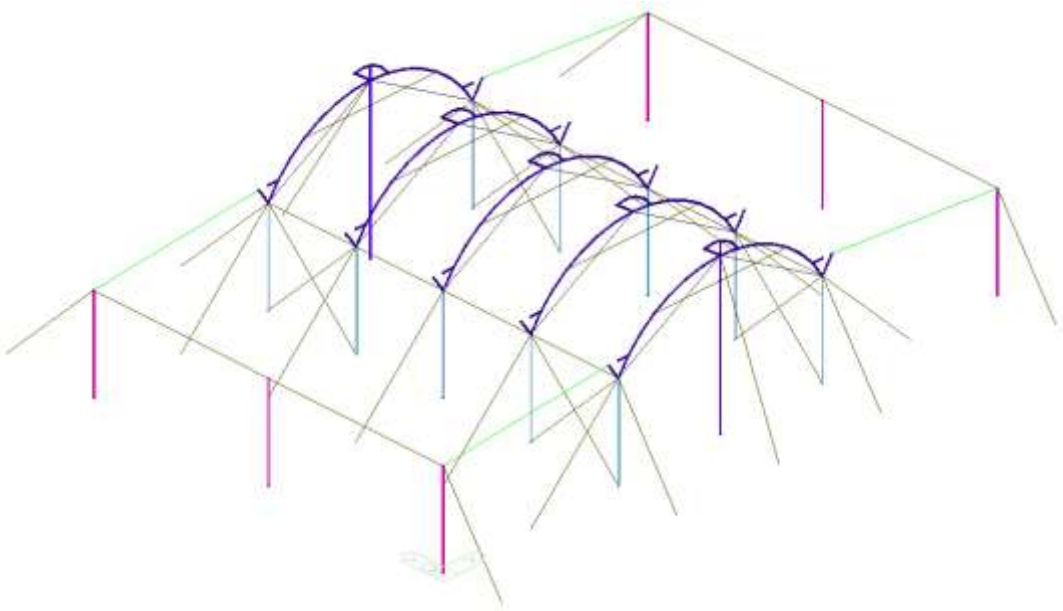
Carga de Viento Normal a la Cumbrera Para el SPRVF en Edificios de Cualquier Altura							
	Superficie	z (m)	Kz	qz (kN/m^2)	Cp	p = Presión Neta (kN/m^2)	
						GCp - (+)GCp	GCp - (-)GCpi
	MURO A BARLOVENTO	0	0,85	0,26	0,80	0,13	0,23
		5,00	0,87	0,27	0,80	0,13	0,23
		5,40	0,88	0,27	0,80	0,14	0,23
		z = 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.

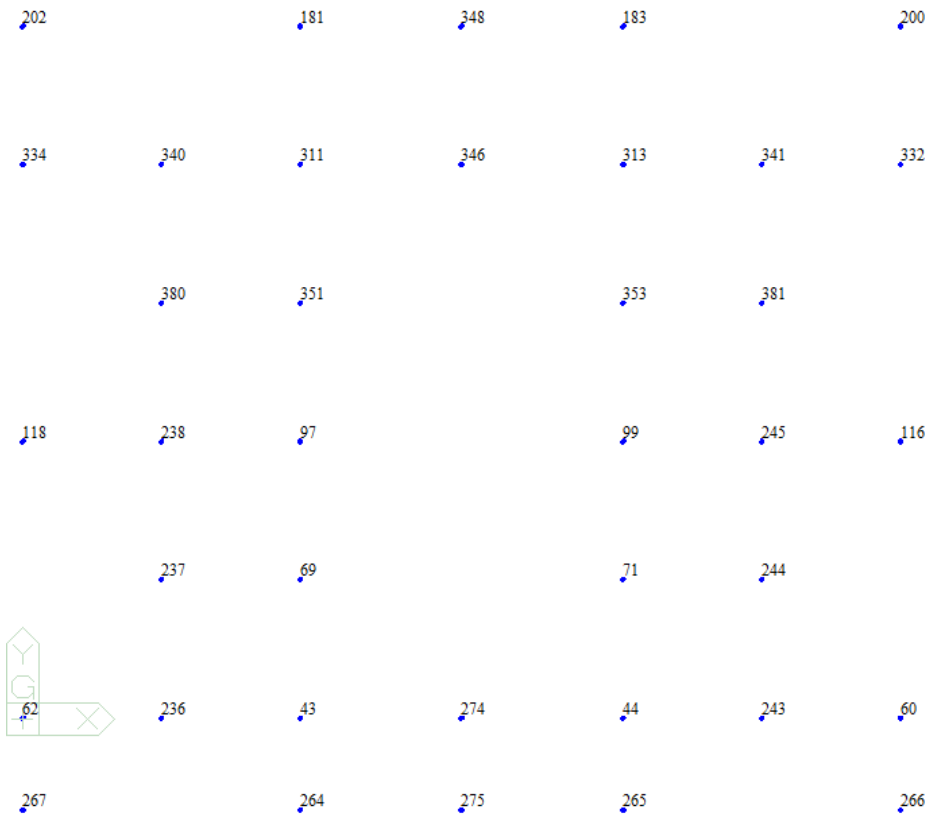
Como por evaluación por procedimiento analístico las cargas de vientos son inferiores a 0.40 kN/m2, se trabajará con este valor mínimo.

9. ELABORACIÓN DE MODELO ESTRUCTURAL EN SOFTWARE

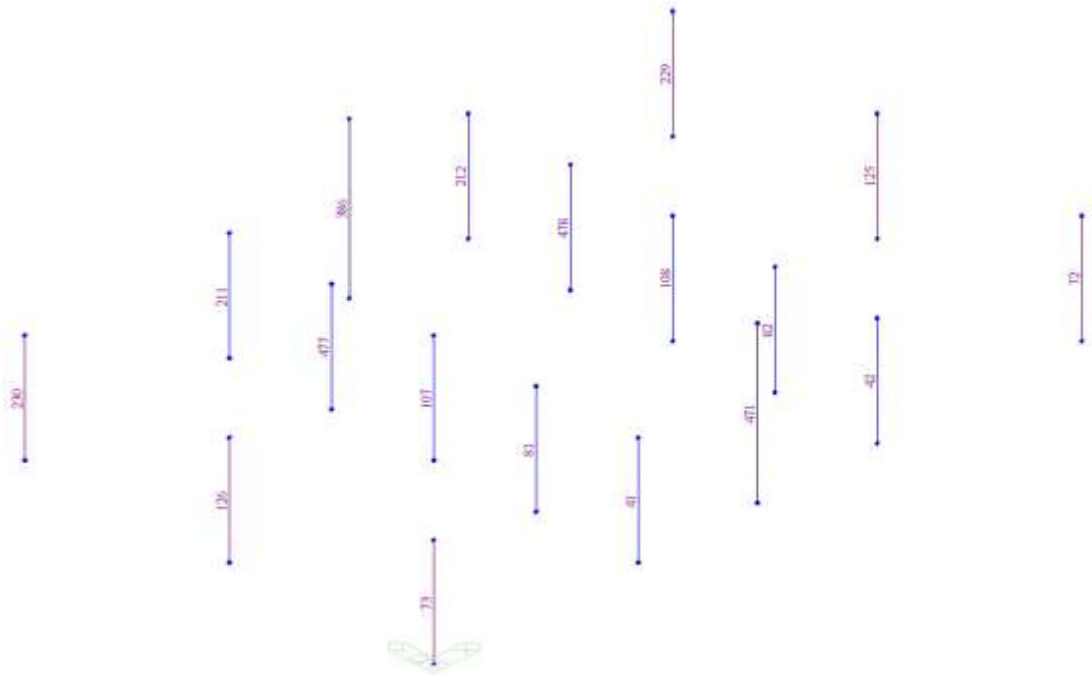


10. NUMERACIÓN DE ELEMENTOS Y NODOS

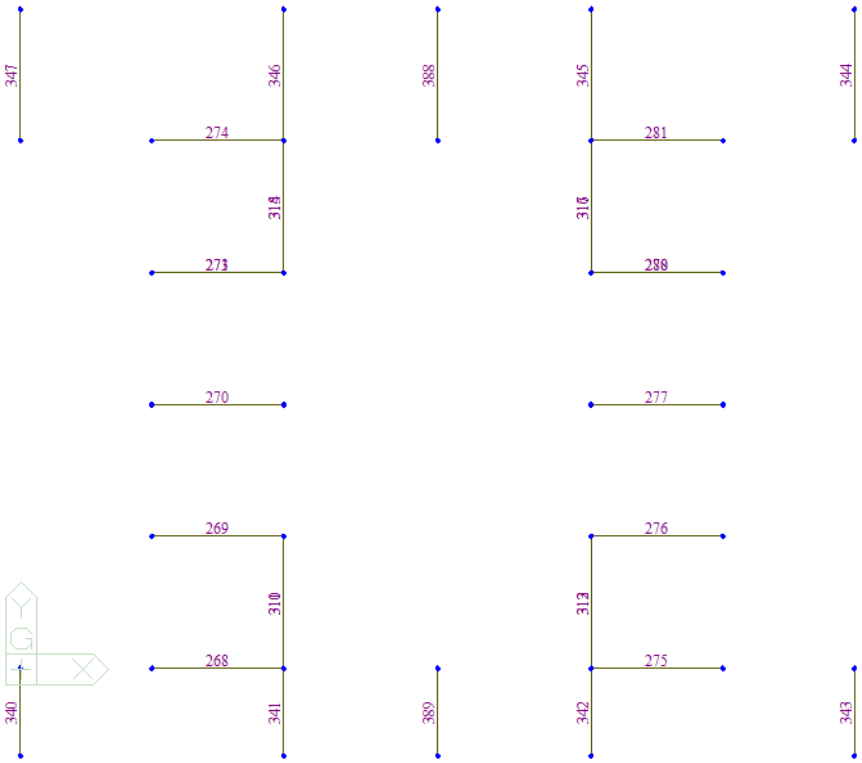
10.1 Apoyos de Cimentación



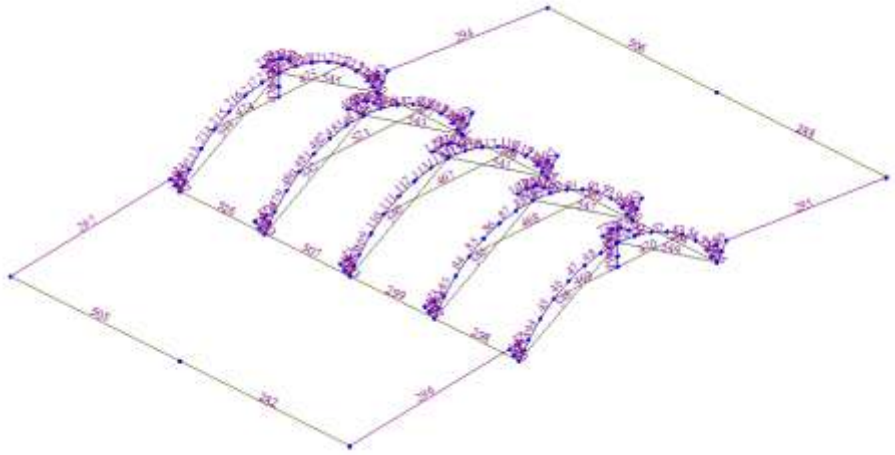
10.2 Numeración de Columnas



10.3 Numeración de Elementos Diagonales

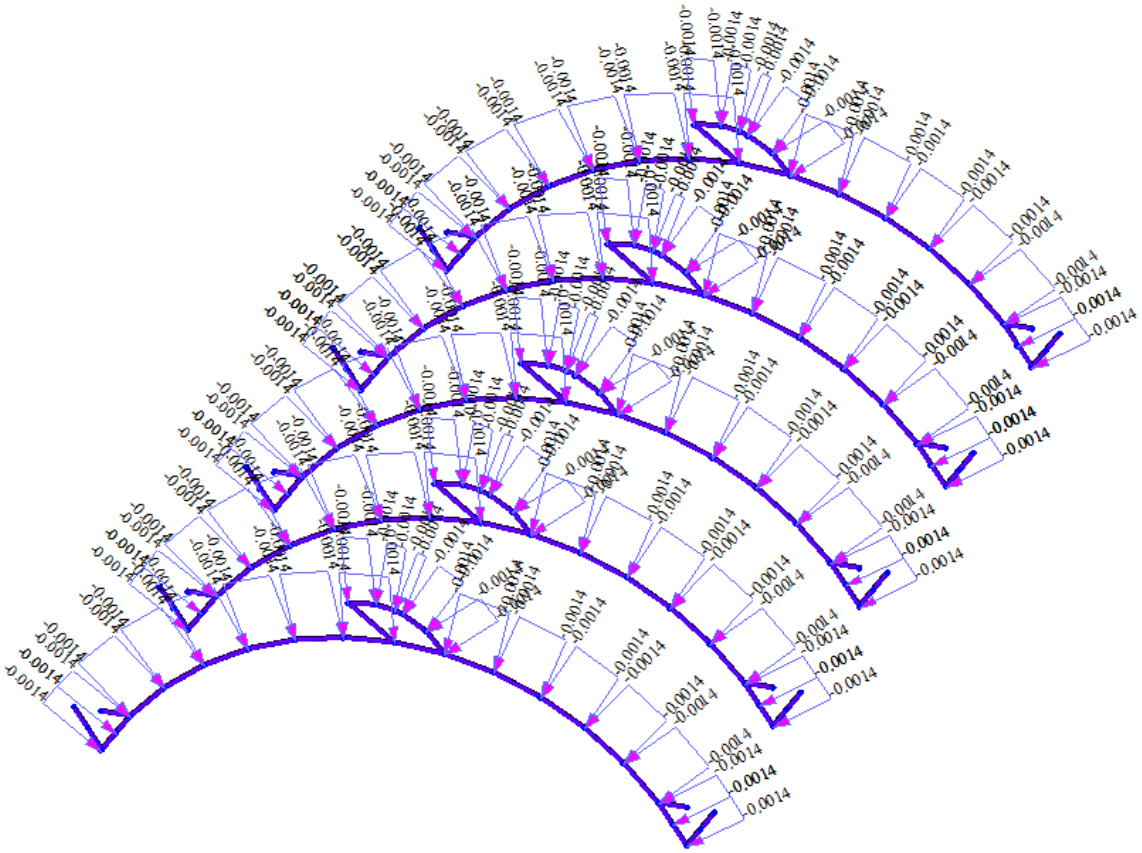


10.4 Numeración de Elementos Nivel Cubierta

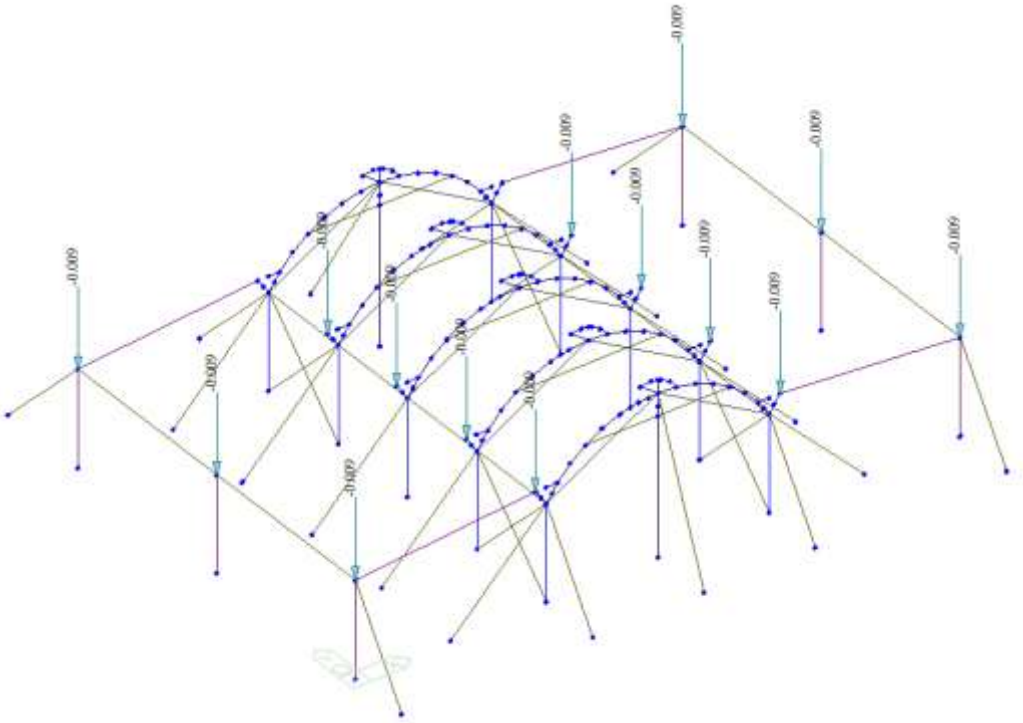


11. ASIGNACIÓN DE CARGAS EN MODELO

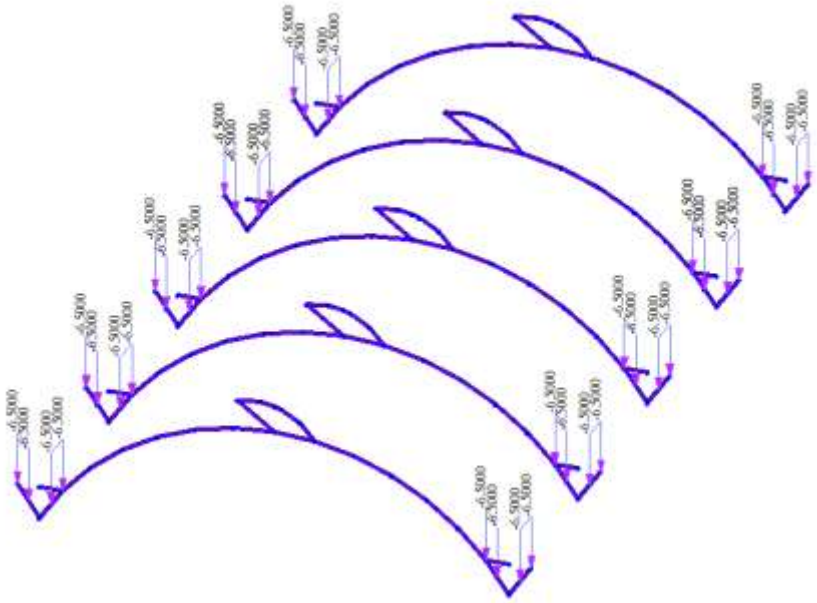
11.1 Cargas Muertas Cubierta (kN/ml)



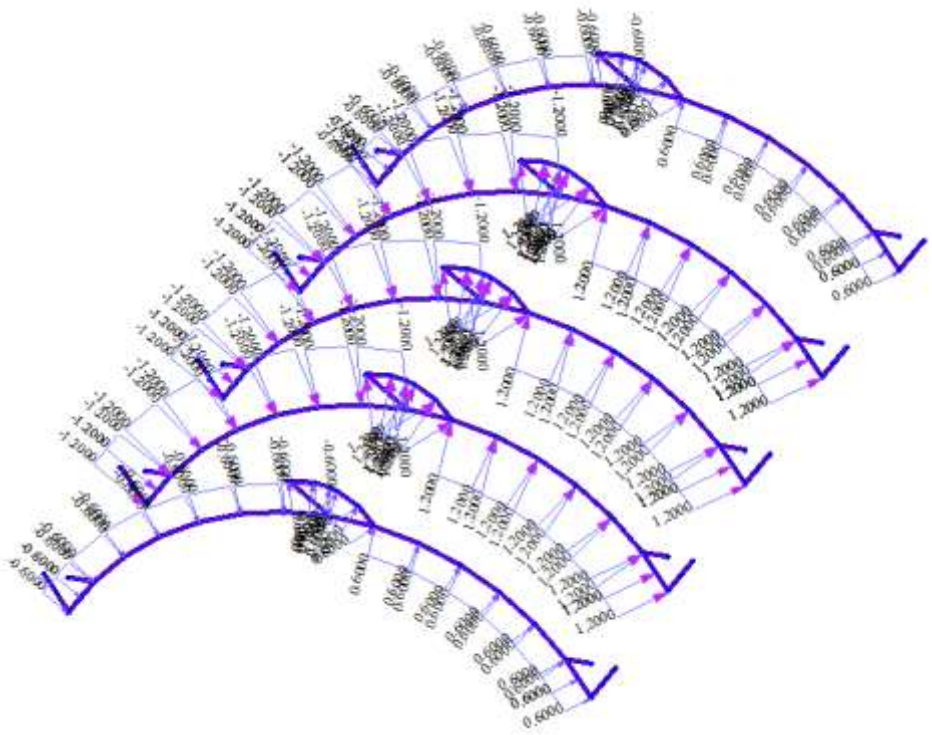
11.2 Cargas Muertas Cubierta (kN)



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.

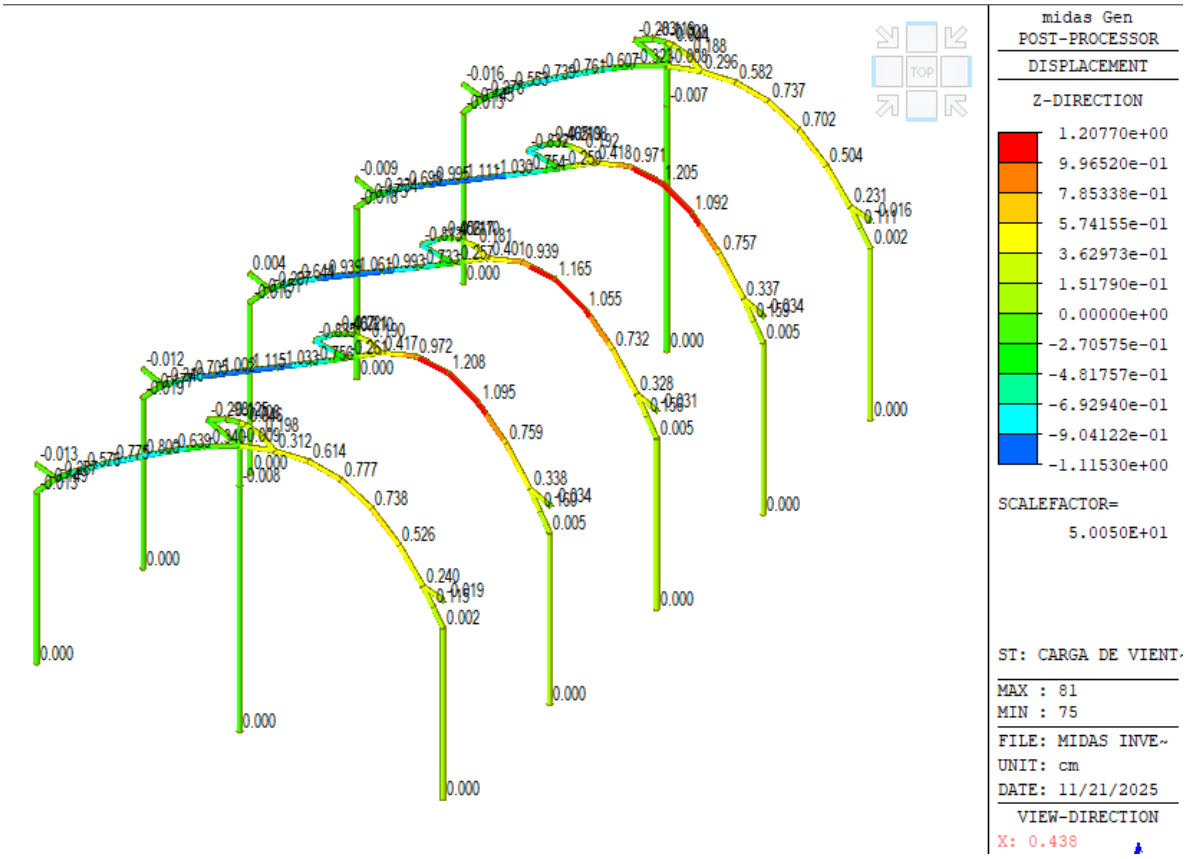
12.1 Chequeo Derivas Eje X y Y

Drift(Combined)

	Load Case	Story	Story Height (cm)	P-Delta Incremental Factor (ad)	Allowable Story Drift Ratio	Maximum Drift of All Vertical Elements					Drift at the Center of Mass				
						Node	Story Drift (cm)	Modified Drift (cm)	Story Drift Ratio	Remark	Story Drift (cm)	Modified Drift (cm)	Drift Factor (Maximum/Current)	Story Drift Ratio	Remark
	RMC,Not Used, Cd=1, Ie=1, Scale Factor=1, Allowable Ratio=0.015														
	Sismo X	13F	3.41	-	0.015	0	0	0	0	OK	0.0046	0.0046	0	0.0014	OK
	Sismo X	12F	16.95	-	0.015	0	0	0	0	OK	0.0089	0.0089	0	0.0005	OK
	Sismo X	11F	20.64	-	0.015	0	0	0	0	OK	0.0302	0.0302	0	0.0015	OK
	Sismo X	8F	13.28	-	0.015	0	0	0	0	OK	0.1799	0.1799	0	0.0135	OK
	Sismo X	7F	21.82	-	0.015	0	0	0	0	OK	0.0064	0.0064	0	0.0003	OK
	Sismo X	6F	29.87	-	0.015	0	0	0	0	OK	0.005	0.005	0	0.0002	OK
	Sismo X	5F	37.27	-	0.015	0	0	0	0	OK	0.0179	0.0179	0	0.0005	OK
	Sismo X	4F	43.84	-	0.015	0	0	0	0	OK	0.0285	0.0285	0	0.0007	OK
	Sismo X	3F	24.73	-	0.015	0	0	0	0	OK	0.0195	0.0195	0	0.0008	OK
	Sismo X	2F	24.73	-	0.015	0	0	0	0	OK	0.0197	0.0197	0	0.0008	OK
	Sismo X	1F	300	-	0.015	62	1.2993	1.2993	0.0043	OK	0.1057	0.1057	12.2934	0.0004	OK
	Sismo Y	13F	3.41	1	0.015	0	0	0	0	OK	0.0021	0.0021	0	0.0006	OK
	Sismo Y	12F	16.95	1	0.015	0	0	0	0	OK	0.0068	0.0068	0	0.0004	OK
	Sismo Y	11F	20.64	1	0.015	0	0	0	0	OK	0.0037	0.0037	0	0.0002	OK
	Sismo Y	7F	21.82	1	0.015	0	0	0	0	OK	0.0066	0.0066	0	0.0003	OK
	Sismo Y	6F	29.87	1	0.015	0	0	0	0	OK	0.0132	0.0132	0	0.0004	OK
	Sismo Y	5F	37.27	1	0.015	0	0	0	0	OK	0.025	0.025	0	0.0007	OK
	Sismo Y	4F	43.84	1	0.015	0	0	0	0	OK	0.0417	0.0417	0	0.001	OK
	Sismo Y	3F	24.73	1	0.015	0	0	0	0	OK	0.0233	0.0233	0	0.0009	OK
	Sismo Y	2F	24.73	1	0.015	0	0	0	0	OK	0.0213	0.0213	0	0.0009	OK
	Sismo Y	1F	300	1	0.015	330	0.1021	0.1021	0.0003	OK	0.0827	0.0827	1.2346	0.0003	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 1.3 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

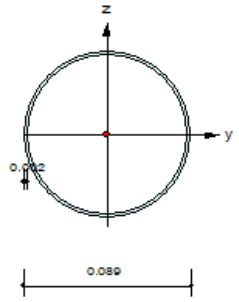
14. DISEÑO DE ELEMENTOS

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	Well 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

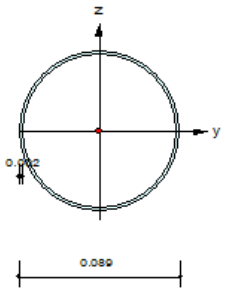
Vrz/Vcz = 0.010 < 1.000 ..... O.K

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

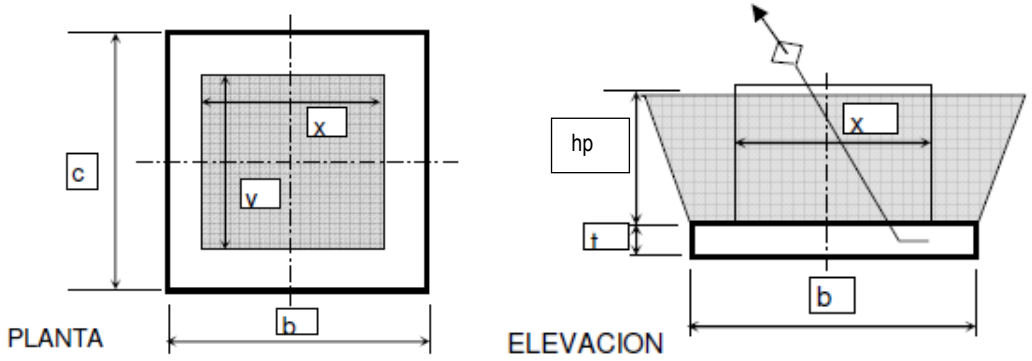
7.516	0.000		A500-50	344738	20	424.264			
282	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1692	34,8	OK
12.250	0.000		A500-50	344738	20	300.000			
283	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1420	34,8	OK
10.281	0.000		A500-50	344738	20	300.000			
284	2	0	Tensor 1/4"	Tensor 1/4"	20	300.000	-0,1152	34,8	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 4.7 kN en el eje "X" y de 4.69 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

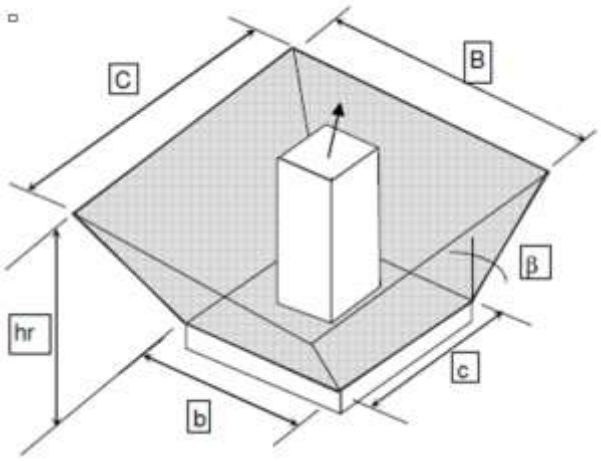
El peso de la estructura de concreto está dado por lo siguiente:

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:

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

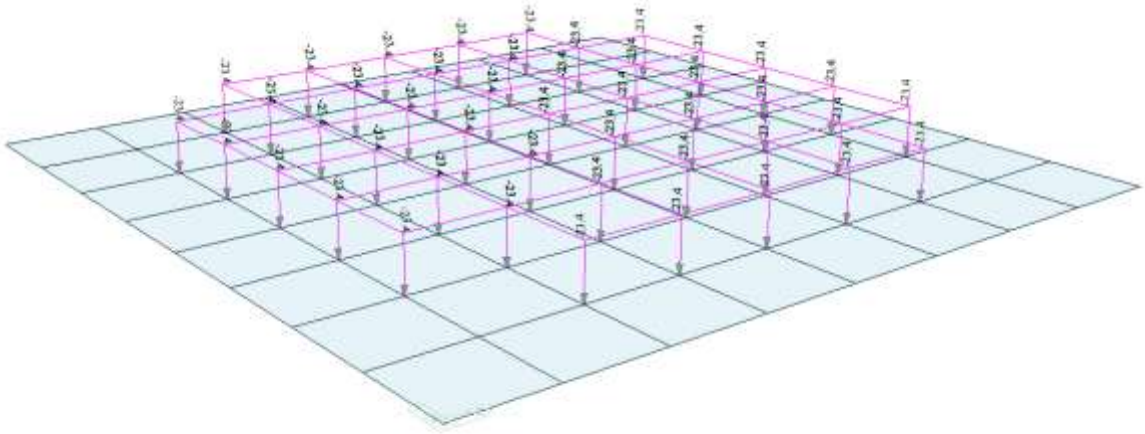
$$F.S.= (3.71\ kN + 2.376\ kN) / 4.69$$

$$F.S.= 1.3$$

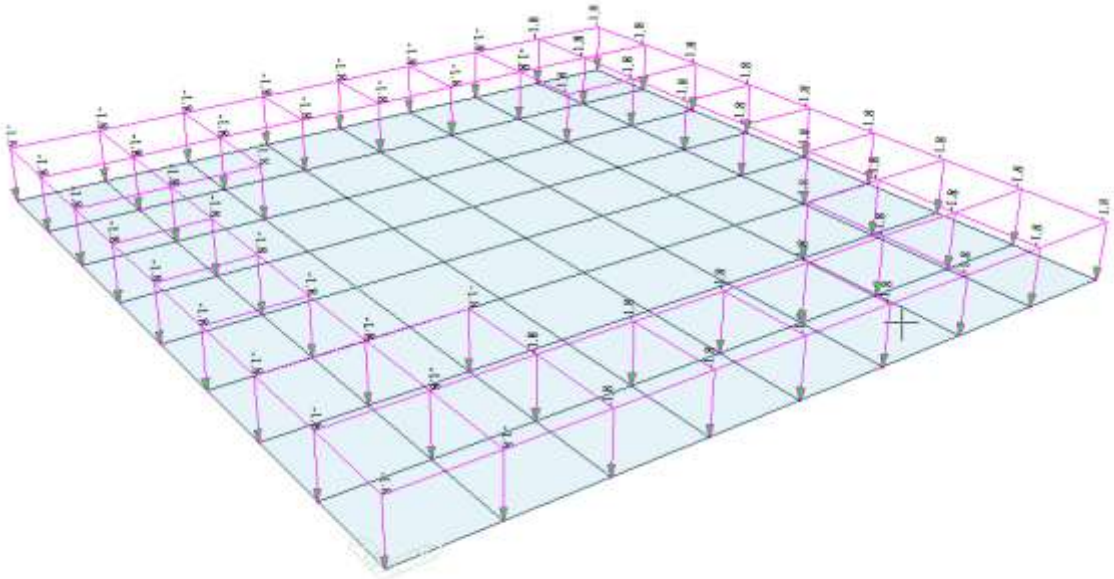
16. DISEÑO DE PLACA DE CIMENTACIÓN PARA TANQUE 5000 Litros

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

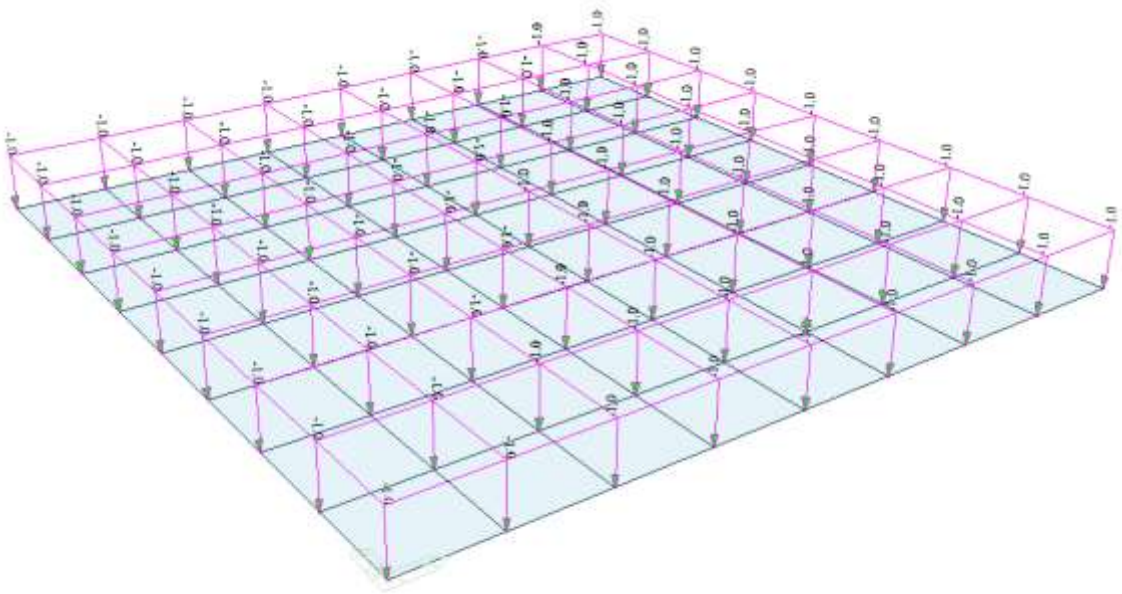
- CARGA MUERTA: Peso propio de placa E=0.12m
- CARGA FLUIDOS: Carga de tanque 5000 lts – 23.4 kN/m2



- CARGA VIVA= 1.8 kN/m2

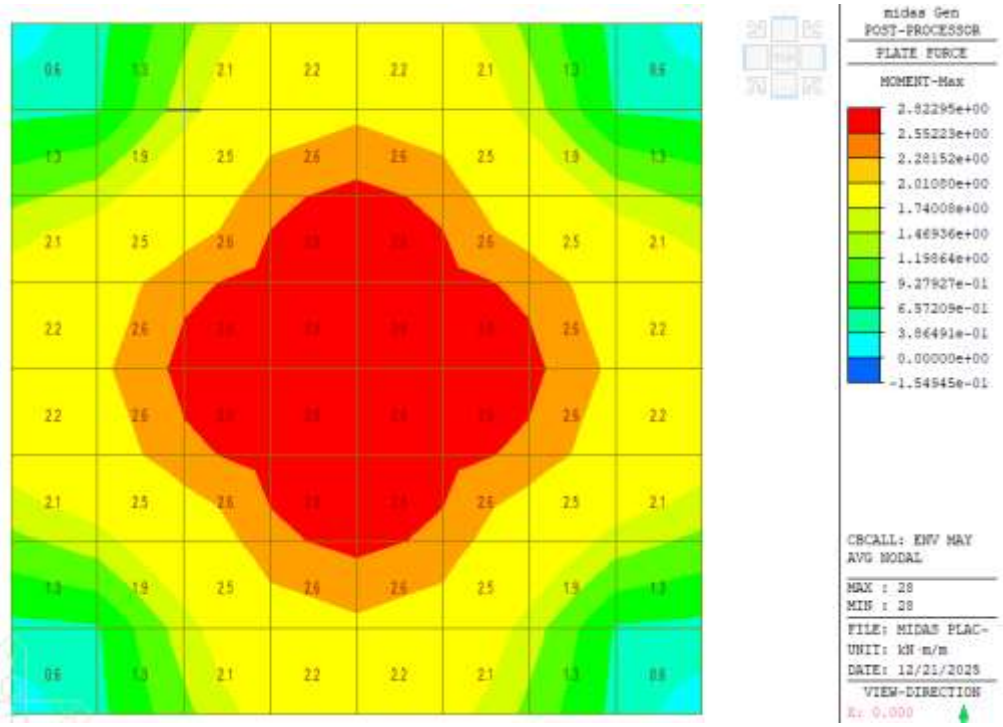


- CARGA GRANIZO= 1.0 kN/m2

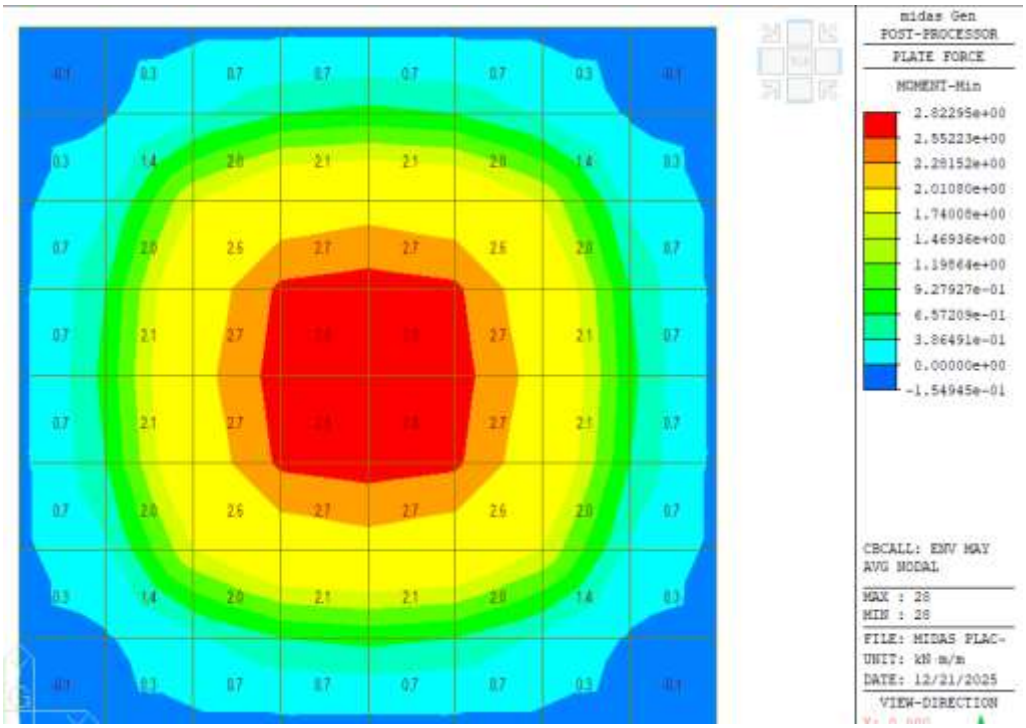


Con el fin de realizar el modelo con condiciones del terreno se utilizaron resortes equivalentes a arcillas blandas, una condición conservadora ante la cantidad de posibles suelos que se puedan encontrar dentro de los municipios. El valor utilizado como reacción de la subrasante en esta ocasión es de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

- DISEÑO DE ACERO DE REFUERZO



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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

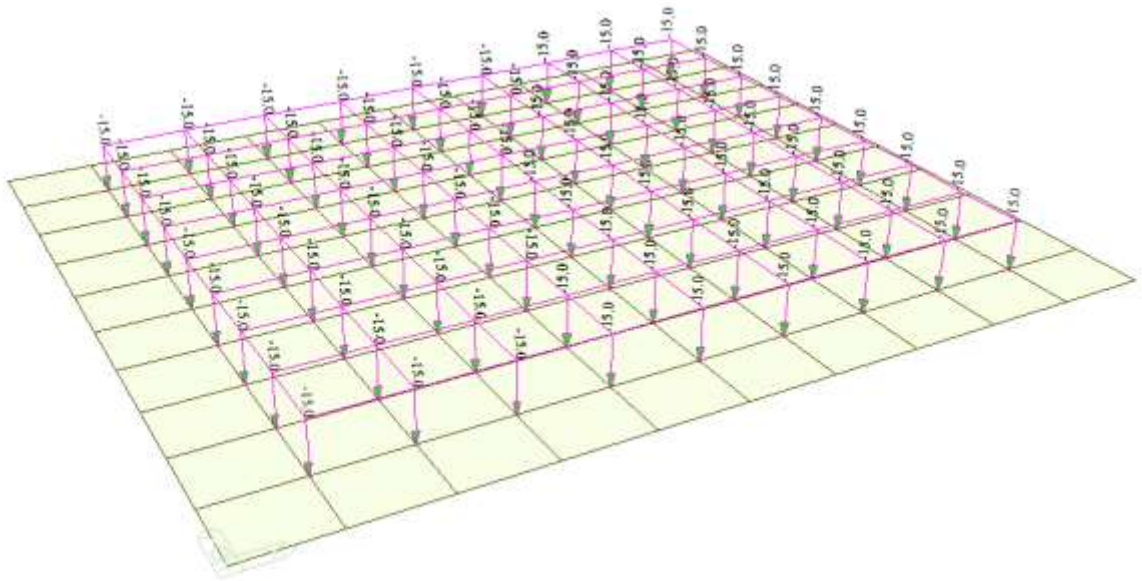
Para la losa de 10 cm, incluir malla electrosoldada de 6 mm cada 0.15m en cada dirección.

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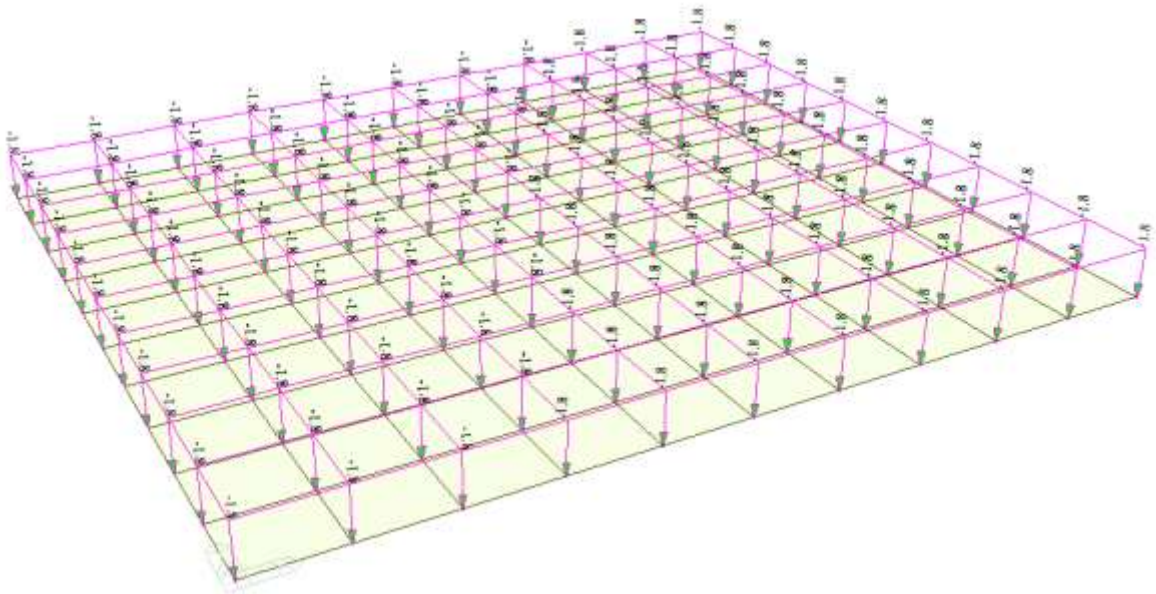
17. DISEÑO DE PLACA DE CIMENTACIÓN PARA CUARTO DE ALMACENAMIENTO

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

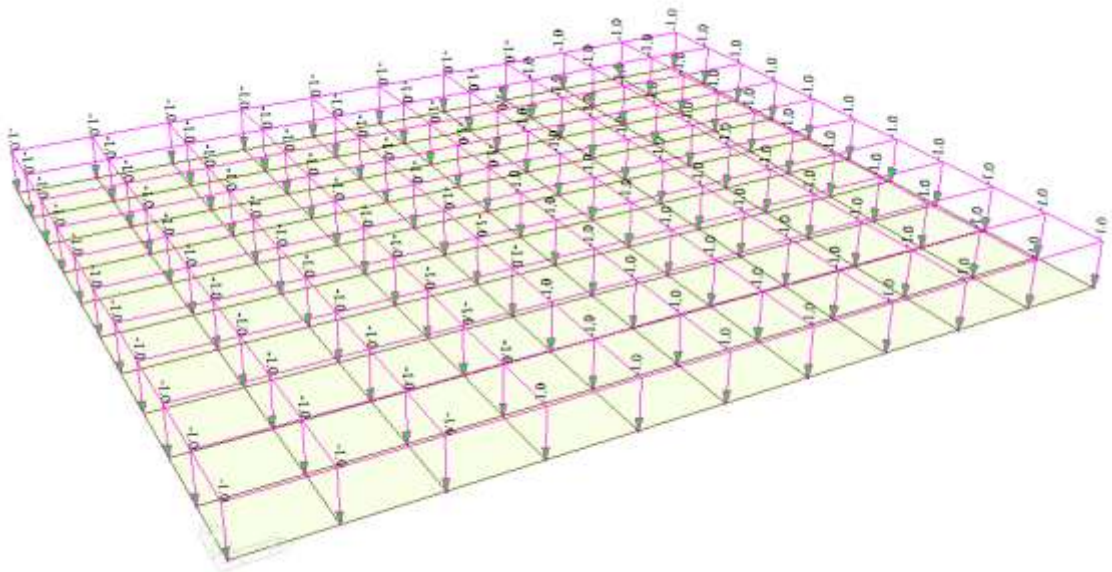
- CARGA MUERTA: Peso propio de placa E=0.12m, más una carga de 15 kN/m2 que considera el peso de la estructura prefabricada y almacenamiento.



- CARGA VIVA= 1.8 kN/m2

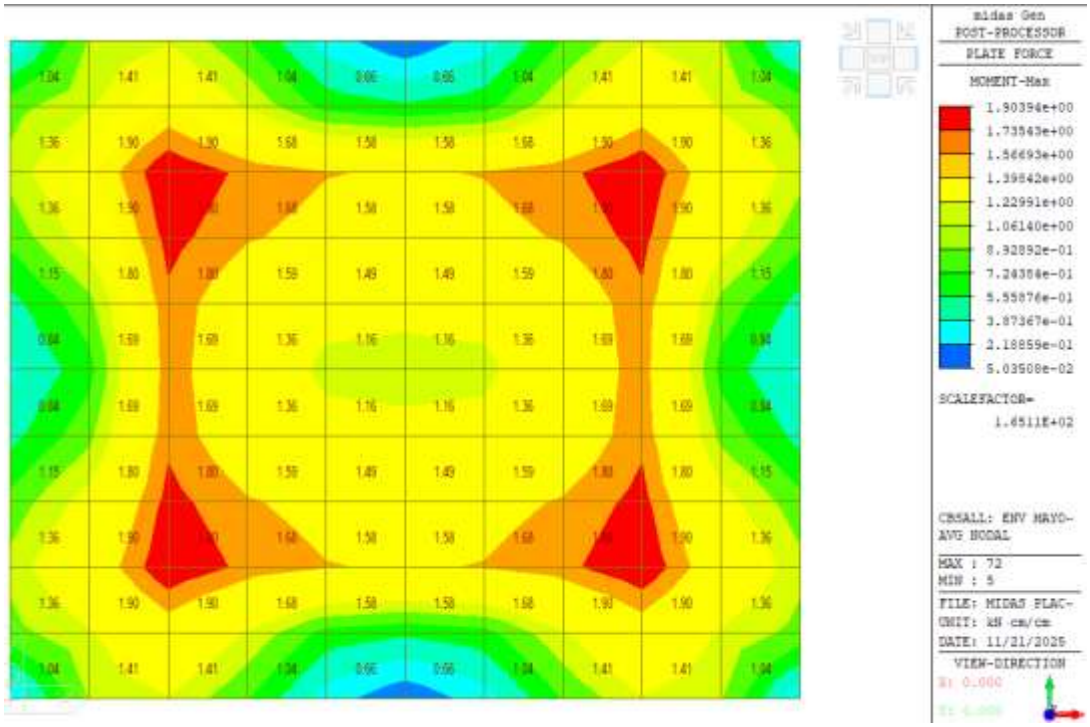


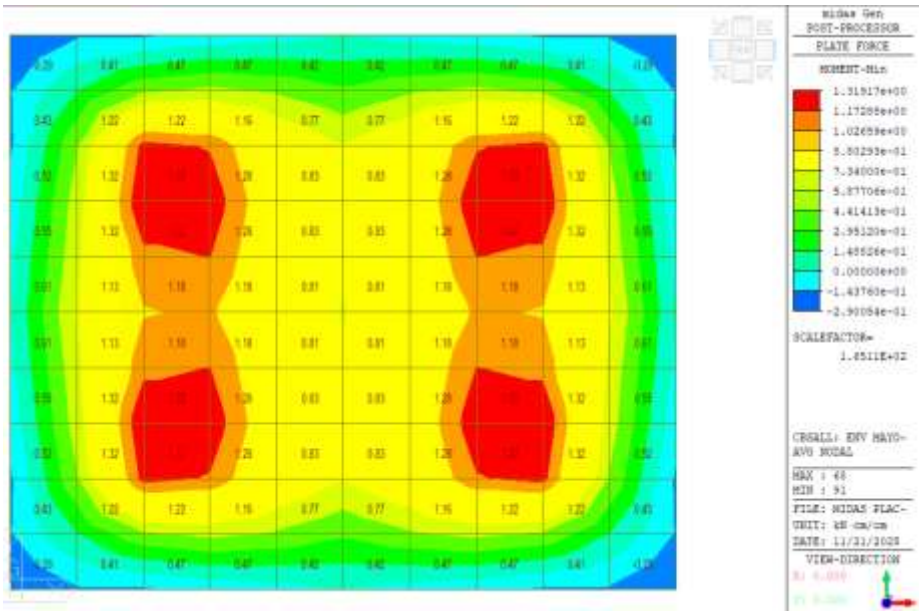
- CARGA GRANIZO= 1.0 kN/m2



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 2

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

*** PROJECT INFORMATION

Project Name : INVERNADERO TIPO 2
Date : 2025/12/21

*** CONTROL DATA

Panel Zone Effect : Do not Calculate
Unit System : KN, M
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+08	7.558e+07	6.5e-06	0.3	77.09
2	A500-50	STEEL	1.999e+08	7.69e+07	6.5e-06	0.3	77.09

NO	NAME	TYPE	STRENGTH OF DESIGN MATERIAL STEEL	CONCRETE	MAIN REBAR	SUB REBAR
1	A416-250(Normal)	STEEL	1.465e+06	-	-	-
2	A500-50	STEEL	3.447e+05	-	-	-

*** STORY DATA

NAME	LEVEL	HEIGHT	FLOOR DIAPHRAGM

Roof	5.446	0.000	Do not consider
14F	5.410	0.036	Do not consider
13F	5.376	0.034	Do not consider
12F	5.206	0.169	Do not consider
11F	5.000	0.206	Do not consider
10F	4.978	0.022	Do not consider
9F	4.955	0.022	Do not consider
8F	4.823	0.133	Do not consider
7F	4.604	0.218	Do not consider
6F	4.306	0.299	Do not consider
5F	3.933	0.373	Do not consider
4F	3.495	0.438	Do not consider
3F	3.247	0.247	Consider
2F	3.000	0.247	Do not consider
1F	0.000	3.000	Do not consider

*** NODE DATA

NO	X	Y	Z	TEMPERATURE
3	6	0	3	0
4	13	0	3	0
24	9.5	0	5	0
43	6	0	0	0
44	13	0	0	0
45	6.343	0	3.495	0
46	6.756	0	3.933	0
47	7.229	0	4.306	0
48	7.751	0	4.604	0
49	8.312	0	4.823	0
50	8.9	0	4.955	0
51	10.1	0	4.955	0
52	10.69	0	4.823	0
53	11.25	0	4.604	0
54	11.77	0	4.306	0
55	12.24	0	3.933	0
56	12.66	0	3.495	0
57	5.663	0	3.495	0
58	13.34	0	3.495	0
59	19	0	3	0
60	19	0	0	0
61	0	0	3	0
62	0	0	0	0
63	9.5	0	5.41	0
64	8.95	0	5.41	0
65	9.885	0	5.206	0
66	9.602	0	5.376	0
67	9.279	0	5.446	0
68	6	3	3	0
69	6	3	0	0
70	13	3	3	0
71	13	3	0	0
72	6.343	3	3.495	0
73	6.756	3	3.933	0
74	7.229	3	4.306	0
75	7.751	3	4.604	0
76	8.312	3	4.823	0
77	8.9	3	4.955	0
78	9.5	3	5	0
79	10.1	3	4.955	0
80	10.69	3	4.823	0
81	11.25	3	4.604	0

82	11.77	3	4.306	0
83	12.24	3	3.933	0
84	12.66	3	3.495	0
85	5.663	3	3.495	0
86	13.34	3	3.495	0
91	9.885	3	5.206	0
92	9.602	3	5.376	0
93	9.279	3	5.446	0
94	8.95	3	5.41	0
95	9.5	3	5.41	0
96	6	6	3	0
97	6	6	0	0
98	13	6	3	0
99	13	6	0	0
100	6.343	6	3.495	0
101	6.756	6	3.933	0
102	7.229	6	4.306	0
103	7.751	6	4.604	0
104	8.312	6	4.823	0
105	8.9	6	4.955	0
106	9.5	6	5	0
107	10.1	6	4.955	0
108	10.69	6	4.823	0
109	11.25	6	4.604	0
110	11.77	6	4.306	0
111	12.24	6	3.933	0
112	12.66	6	3.495	0
113	5.663	6	3.495	0
114	13.34	6	3.495	0
115	19	6	3	0
116	19	6	0	0
117	0	6	3	0
118	0	6	0	0
119	9.885	6	5.206	0
120	9.602	6	5.376	0
121	9.279	6	5.446	0
122	8.95	6	5.41	0
123	9.5	6	5.41	0
124	6	9	3	0
125	6	9	0	0
126	13	9	3	0
127	13	9	0	0
128	6.343	9	3.495	0
129	6.756	9	3.933	0
130	7.229	9	4.306	0
131	7.751	9	4.604	0
132	8.312	9	4.823	0
133	8.9	9	4.955	0
134	9.5	9	5	0
135	10.1	9	4.955	0
136	10.69	9	4.823	0
137	11.25	9	4.604	0
138	11.77	9	4.306	0
139	12.24	9	3.933	0
140	12.66	9	3.495	0
141	5.663	9	3.495	0
142	13.34	9	3.495	0
147	9.885	9	5.206	0
148	9.602	9	5.376	0
149	9.279	9	5.446	0
150	8.95	9	5.41	0
151	9.5	9	5.41	0
181	6	15	0	0
183	13	15	0	0

PROJECT TITLE : INVERNADERO TIPO 2

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

236	3	0	0	0
237	3	3	0	0
238	3	6	0	0
239	3	9	0	0
243	16	0	0	0
244	16	3	0	0
245	16	6	0	0
246	16	9	0	0
250	13.01	0	3.495	0
251	13.01	3	3.495	0
252	13.01	6	3.495	0
253	13.01	9	3.495	0
257	5.993	0	3.495	0
258	5.993	3	3.495	0
259	5.993	6	3.495	0
260	5.993	9	3.495	0
264	6	-2	0	0
265	13	-2	0	0
266	19	-2	0	0
267	0	-2	0	0
274	9.5	0	0	0
275	9.5	-2	0	0
277	12.83	0	3.247	0
278	6.172	0	3.247	0
279	5.832	0	3.247	0
280	13.17	0	3.247	0
281	12.83	3	3.247	0
282	6.172	3	3.247	0
283	5.832	3	3.247	0
284	13.17	3	3.247	0
285	12.83	6	3.247	0
286	6.172	6	3.247	0
287	5.832	6	3.247	0
288	13.17	6	3.247	0
289	12.83	9	3.247	0
290	6.172	9	3.247	0
291	5.832	9	3.247	0
292	13.17	9	3.247	0
305	9.2	0	4.978	0
307	9.5	0	4.306	0
308	6	12	3	0
309	6	12	0	0
310	13	12	3	0
311	13	12	0	0
312	6.343	12	3.495	0
313	6.756	12	3.933	0
314	7.229	12	4.306	0
315	7.751	12	4.604	0
316	8.312	12	4.823	0
317	8.9	12	4.955	0
318	9.5	12	5	0
319	10.1	12	4.955	0
320	10.69	12	4.823	0
321	11.25	12	4.604	0
322	11.77	12	4.306	0
323	12.24	12	3.933	0
324	12.66	12	3.495	0
325	12.83	12	3.247	0
326	6.172	12	3.247	0
327	5.832	12	3.247	0
328	13.17	12	3.247	0
329	19	12	3	0
330	19	12	0	0
331	0	12	3	0

332	0	12	0	0
333	9.885	12	5.206	0
334	9.602	12	5.376	0
335	9.279	12	5.446	0
336	8.95	12	5.41	0
337	9.5	12	5.41	0
338	3	12	0	0
339	16	12	0	0
340	13.34	12	3.495	0
341	5.663	12	3.495	0
342	13.01	12	3.495	0
343	5.993	12	3.495	0
344	19	15	0	0
345	0	15	0	0
346	9.5	12	0	0
347	9.5	12	4.306	0
348	9.5	15	0	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
181	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	111000	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
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
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
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
309	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
311	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
330	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
332	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
338	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
339	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
344	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
345	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
346	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
348	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

*** FLOOR DIAPHRAGM / RIGID LINK DATA

MASTER	DDDRRR	NODES OF SAME DISPLACEMENT
3F Floor Diaphragm	277to292 325to328	

*** SECTION PROPERTY DATA

NO	NAME	SHAPE	H	B	tw	tf1	r1
1	Tub 3.5" x 2mm	P	0.089	0.002	0	0	0
2	Tensor 1/4"	SR	0.00635	0	0	0	0
3	Tensor 5mm	SR	0.005	0	0	0	0
4	Tub 2" x 2mm	P	0.06	0.002	0	0	0
5	Tensor 1/8"	SR	0.0032	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	0.0005466	1.035e-06	5.175e-07	5.175e-07	0.5	0.5
2	Tensor 1/4"	3.167e-05	1.596e-10	7.981e-11	7.981e-11	0.9	0.9
3	Tensor 5mm	1.963e-05	6.136e-11	3.068e-11	3.068e-11	0.9	0.9
4	Tub 2" x 2mm	0.0003644	3.068e-07	1.534e-07	1.534e-07	0.5	0.5
5	Tensor 1/8"	8.042e-06	1.029e-11	5.147e-12	5.147e-12	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	1.163e-05	1.163e-05	1.163e-05	1.163e-05
2	Tensor 1/4"	2.514e-08	2.514e-08	2.514e-08	2.514e-08
3	Tensor 5mm	1.227e-08	1.227e-08	1.227e-08	1.227e-08
4	Tub 2" x 2mm	5.114e-06	5.114e-06	5.114e-06	5.114e-06
5	Tensor 1/8"	3.217e-09	3.217e-09	3.217e-09	3.217e-09

*** BEAM MEMBER DATA

NO	NODAL CONNECTIVITY		BEAM END RELEASE		MATERIAL	SECTION	LENGTH
	I	J	I	J			

41	3	43	-	-	A500-50	Tub 3.5" x 2mm	3
42	4	44	-	-	A500-50	Tub 3.5" x 2mm	3
44	45	46	-	-	A500-50	Tub 3.5" x 2mm	0.602
45	46	47	-	-	A500-50	Tub 3.5" x 2mm	0.602
46	47	48	-	-	A500-50	Tub 3.5" x 2mm	0.602
47	48	49	-	-	A500-50	Tub 3.5" x 2mm	0.602
48	49	50	-	-	A500-50	Tub 3.5" x 2mm	0.602
49	50	24	-	-	A500-50	Tub 3.5" x 2mm	0.602
50	24	51	-	-	A500-50	Tub 3.5" x 2mm	0.602
51	51	52	-	-	A500-50	Tub 3.5" x 2mm	0.602
52	52	53	-	-	A500-50	Tub 3.5" x 2mm	0.602
53	53	54	-	-	A500-50	Tub 3.5" x 2mm	0.602
54	54	55	-	-	A500-50	Tub 3.5" x 2mm	0.602
55	55	56	-	-	A500-50	Tub 3.5" x 2mm	0.602
56	56	277	-	-	A500-50	Tub 3.5" x 2mm	0.301
69	3	278	-	-	A500-50	Tub 3.5" x 2mm	0.301
70	3	279	-	-	A500-50	Tub 2" x 2mm	0.2992
71	4	280	-	-	A500-50	Tub 2" x 2mm	0.2992
72	59	60	-	-	A500-50	Tub 2" x 2mm	3
73	61	62	-	-	A500-50	Tub 2" x 2mm	3
74	51	65	-	-	A500-50	Tub 3.5" x 2mm	0.3305
75	65	66	-	-	A500-50	Tub 3.5" x 2mm	0.3305
77	67	64	-	-	A500-50	Tub 3.5" x 2mm	0.3305
78	66	63	-	-	A500-50	Tub 3.5" x 2mm	0.1071
79	67	63	-	-	A500-50	Tub 3.5" x 2mm	0.2244
80	24	64	-	-	A500-50	Tub 3.5" x 2mm	0.686
81	68	69	-	-	A500-50	Tub 3.5" x 2mm	3
82	70	71	-	-	A500-50	Tub 3.5" x 2mm	3
83	72	73	-	-	A500-50	Tub 3.5" x 2mm	0.602
84	73	74	-	-	A500-50	Tub 3.5" x 2mm	0.602
85	74	75	-	-	A500-50	Tub 3.5" x 2mm	0.602
86	75	76	-	-	A500-50	Tub 3.5" x 2mm	0.602
87	76	77	-	-	A500-50	Tub 3.5" x 2mm	0.602
88	77	78	-	-	A500-50	Tub 3.5" x 2mm	0.602
89	78	79	-	-	A500-50	Tub 3.5" x 2mm	0.602
90	79	80	-	-	A500-50	Tub 3.5" x 2mm	0.602
91	80	81	-	-	A500-50	Tub 3.5" x 2mm	0.602
92	81	82	-	-	A500-50	Tub 3.5" x 2mm	0.602
93	82	83	-	-	A500-50	Tub 3.5" x 2mm	0.602
94	83	84	-	-	A500-50	Tub 3.5" x 2mm	0.602
95	84	281	-	-	A500-50	Tub 3.5" x 2mm	0.301
96	68	282	-	-	A500-50	Tub 3.5" x 2mm	0.301
97	68	283	-	-	A500-50	Tub 2" x 2mm	0.2992
98	70	284	-	-	A500-50	Tub 2" x 2mm	0.2992
101	79	91	-	-	A500-50	Tub 3.5" x 2mm	0.3305
102	91	92	-	-	A500-50	Tub 3.5" x 2mm	0.3305
103	93	94	-	-	A500-50	Tub 3.5" x 2mm	0.3305
104	92	95	-	-	A500-50	Tub 3.5" x 2mm	0.1071
105	93	95	-	-	A500-50	Tub 3.5" x 2mm	0.2244
106	78	94	-	-	A500-50	Tub 3.5" x 2mm	0.686
107	96	97	-	-	A500-50	Tub 3.5" x 2mm	3
108	98	99	-	-	A500-50	Tub 3.5" x 2mm	3
109	100	101	-	-	A500-50	Tub 3.5" x 2mm	0.602
110	101	102	-	-	A500-50	Tub 3.5" x 2mm	0.602
111	102	103	-	-	A500-50	Tub 3.5" x 2mm	0.602
112	103	104	-	-	A500-50	Tub 3.5" x 2mm	0.602
113	104	105	-	-	A500-50	Tub 3.5" x 2mm	0.602
114	105	106	-	-	A500-50	Tub 3.5" x 2mm	0.602
115	106	107	-	-	A500-50	Tub 3.5" x 2mm	0.602
116	107	108	-	-	A500-50	Tub 3.5" x 2mm	0.602
117	108	109	-	-	A500-50	Tub 3.5" x 2mm	0.602
118	109	110	-	-	A500-50	Tub 3.5" x 2mm	0.602
119	110	111	-	-	A500-50	Tub 3.5" x 2mm	0.602

120	111	112	-	-	A500-50	Tub 3.5" x 2mm	0.602
121	112	285	-	-	A500-50	Tub 3.5" x 2mm	0.301
122	96	286	-	-	A500-50	Tub 3.5" x 2mm	0.301
123	96	287	-	-	A500-50	Tub 2" x 2mm	0.2992
124	98	288	-	-	A500-50	Tub 2" x 2mm	0.2992
125	115	116	-	-	A500-50	Tub 2" x 2mm	3
126	117	118	-	-	A500-50	Tub 2" x 2mm	3
127	107	119	-	-	A500-50	Tub 3.5" x 2mm	0.3305
128	119	120	-	-	A500-50	Tub 3.5" x 2mm	0.3305
129	121	122	-	-	A500-50	Tub 3.5" x 2mm	0.3305
130	120	123	-	-	A500-50	Tub 3.5" x 2mm	0.1071
131	121	123	-	-	A500-50	Tub 3.5" x 2mm	0.2244
132	106	122	-	-	A500-50	Tub 3.5" x 2mm	0.686
133	124	125	-	-	A500-50	Tub 3.5" x 2mm	3
134	126	127	-	-	A500-50	Tub 3.5" x 2mm	3
135	128	129	-	-	A500-50	Tub 3.5" x 2mm	0.602
136	129	130	-	-	A500-50	Tub 3.5" x 2mm	0.602
137	130	131	-	-	A500-50	Tub 3.5" x 2mm	0.602
138	131	132	-	-	A500-50	Tub 3.5" x 2mm	0.602
139	132	133	-	-	A500-50	Tub 3.5" x 2mm	0.602
140	133	134	-	-	A500-50	Tub 3.5" x 2mm	0.602
141	134	135	-	-	A500-50	Tub 3.5" x 2mm	0.602
142	135	136	-	-	A500-50	Tub 3.5" x 2mm	0.602
143	136	137	-	-	A500-50	Tub 3.5" x 2mm	0.602
144	137	138	-	-	A500-50	Tub 3.5" x 2mm	0.602
145	138	139	-	-	A500-50	Tub 3.5" x 2mm	0.602
146	139	140	-	-	A500-50	Tub 3.5" x 2mm	0.602
147	140	289	-	-	A500-50	Tub 3.5" x 2mm	0.301
148	124	290	-	-	A500-50	Tub 3.5" x 2mm	0.301
149	124	291	-	-	A500-50	Tub 2" x 2mm	0.2992
150	126	292	-	-	A500-50	Tub 2" x 2mm	0.2992
153	135	147	-	-	A500-50	Tub 3.5" x 2mm	0.3305
154	147	148	-	-	A500-50	Tub 3.5" x 2mm	0.3305
155	149	150	-	-	A500-50	Tub 3.5" x 2mm	0.3305
156	148	151	-	-	A500-50	Tub 3.5" x 2mm	0.1071
157	149	151	-	-	A500-50	Tub 3.5" x 2mm	0.2244
158	134	150	-	-	A500-50	Tub 3.5" x 2mm	0.686
211	308	309	-	-	A500-50	Tub 3.5" x 2mm	3
212	310	311	-	-	A500-50	Tub 3.5" x 2mm	3
213	312	313	-	-	A500-50	Tub 3.5" x 2mm	0.602
214	313	314	-	-	A500-50	Tub 3.5" x 2mm	0.602
215	314	315	-	-	A500-50	Tub 3.5" x 2mm	0.602
216	315	316	-	-	A500-50	Tub 3.5" x 2mm	0.602
217	316	317	-	-	A500-50	Tub 3.5" x 2mm	0.602
218	317	318	-	-	A500-50	Tub 3.5" x 2mm	0.602
219	318	319	-	-	A500-50	Tub 3.5" x 2mm	0.602
220	319	320	-	-	A500-50	Tub 3.5" x 2mm	0.602
221	320	321	-	-	A500-50	Tub 3.5" x 2mm	0.602
222	321	322	-	-	A500-50	Tub 3.5" x 2mm	0.602
223	322	323	-	-	A500-50	Tub 3.5" x 2mm	0.602
224	323	324	-	-	A500-50	Tub 3.5" x 2mm	0.602
225	324	325	-	-	A500-50	Tub 3.5" x 2mm	0.301
226	308	326	-	-	A500-50	Tub 3.5" x 2mm	0.301
227	308	327	-	-	A500-50	Tub 2" x 2mm	0.2992
228	310	328	-	-	A500-50	Tub 2" x 2mm	0.2992
229	329	330	-	-	A500-50	Tub 2" x 2mm	3
230	331	332	-	-	A500-50	Tub 2" x 2mm	3
231	319	333	-	-	A500-50	Tub 3.5" x 2mm	0.3305
232	333	334	-	-	A500-50	Tub 3.5" x 2mm	0.3305
233	335	336	-	-	A500-50	Tub 3.5" x 2mm	0.3305
234	334	337	-	-	A500-50	Tub 3.5" x 2mm	0.1071
235	335	337	-	-	A500-50	Tub 3.5" x 2mm	0.2244
236	318	336	-	-	A500-50	Tub 3.5" x 2mm	0.686
318	56	250	-	-	A500-50	Tub 3.5" x 2mm	0.35

319	84	251	-	-	A500-50	Tub 3.5" x 2mm	0.35
320	112	252	-	-	A500-50	Tub 3.5" x 2mm	0.35
321	140	253	-	-	A500-50	Tub 3.5" x 2mm	0.35
324	324	342	-	-	A500-50	Tub 3.5" x 2mm	0.35
325	45	257	-	-	A500-50	Tub 3.5" x 2mm	0.35
326	72	258	-	-	A500-50	Tub 3.5" x 2mm	0.35
327	100	259	-	-	A500-50	Tub 3.5" x 2mm	0.35
328	128	260	-	-	A500-50	Tub 3.5" x 2mm	0.35
331	312	343	-	-	A500-50	Tub 3.5" x 2mm	0.35
382	24	307	-	-	A500-50	Tub 3.5" x 2mm	0.6943
383	24	63	-	-	A500-50	Tub 3.5" x 2mm	0.41
386	346	347	-	-	A500-50	Tub 3.5" x 2mm	4.306
387	318	337	-	-	A500-50	Tub 3.5" x 2mm	0.41
396	277	4	-	-	A500-50	Tub 3.5" x 2mm	0.301
397	278	45	-	-	A500-50	Tub 3.5" x 2mm	0.301
398	279	57	-	-	A500-50	Tub 2" x 2mm	0.2992
399	280	58	-	-	A500-50	Tub 2" x 2mm	0.2992
400	281	70	-	-	A500-50	Tub 3.5" x 2mm	0.301
401	282	72	-	-	A500-50	Tub 3.5" x 2mm	0.301
402	283	85	-	-	A500-50	Tub 2" x 2mm	0.2992
403	284	86	-	-	A500-50	Tub 2" x 2mm	0.2992
404	285	98	-	-	A500-50	Tub 3.5" x 2mm	0.301
405	286	100	-	-	A500-50	Tub 3.5" x 2mm	0.301
406	287	113	-	-	A500-50	Tub 2" x 2mm	0.2992
407	288	114	-	-	A500-50	Tub 2" x 2mm	0.2992
408	289	126	-	-	A500-50	Tub 3.5" x 2mm	0.301
409	290	128	-	-	A500-50	Tub 3.5" x 2mm	0.301
410	291	141	-	-	A500-50	Tub 2" x 2mm	0.2992
411	292	142	-	-	A500-50	Tub 2" x 2mm	0.2992
420	325	310	-	-	A500-50	Tub 3.5" x 2mm	0.301
421	326	312	-	-	A500-50	Tub 3.5" x 2mm	0.301
422	327	341	-	-	A500-50	Tub 2" x 2mm	0.2992
423	328	340	-	-	A500-50	Tub 2" x 2mm	0.2992
459	347	318	-	-	A500-50	Tub 3.5" x 2mm	0.6943
464	307	274	-	-	A500-50	Tub 3.5" x 2mm	4.306

*** 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	3.167e-05	-	4.243
269	237	68	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
270	238	96	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
271	239	124	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
274	338	308	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
275	243	4	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
276	244	70	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
277	245	98	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
278	246	126	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
281	339	310	A500-50	Tensor 1/~	T	3.167e-05	-	4.243
282	61	117	A500-50	Tensor 1/~	T	3.167e-05	-	6
284	117	331	A500-50	Tensor 1/~	T	3.167e-05	-	6
288	59	115	A500-50	Tensor 1/~	T	3.167e-05	-	6
290	115	329	A500-50	Tensor 1/~	T	3.167e-05	-	6
294	340	329	A500-50	Tensor 1/~	T	8.042e-06	-	5.685
295	58	59	A500-50	Tensor 1/~	T	8.042e-06	-	5.685
296	61	57	A500-50	Tensor 1/~	T	8.042e-06	-	5.685
297	331	341	A500-50	Tensor 1/~	T	8.042e-06	-	5.685
298	3	68	A416-250(~	Tensor 1/~	T	3.167e-05	-	3
299	68	96	A416-250(~	Tensor 1/~	T	3.167e-05	-	3
300	96	124	A416-250(~	Tensor 1/~	T	3.167e-05	-	3
303	124	308	A416-250(~	Tensor 1/~	T	3.167e-05	-	3

304	4	70	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
305	70	98	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
306	98	126	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
309	126	310	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
310	43	68	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
311	69	3	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
312	44	70	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
313	71	4	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
314	309	124	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
315	125	308	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
316	311	126	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
317	127	310	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
340	267	61	A416-250(~ Tensor 1/~	T	3.167e-05	-	3.606
341	264	3	A416-250(~ Tensor 1/~	T	3.167e-05	-	3.606
342	265	4	A416-250(~ Tensor 1/~	T	3.167e-05	-	3.606
343	266	59	A416-250(~ Tensor 1/~	T	3.167e-05	-	3.606
344	344	329	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
345	183	310	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
346	181	308	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
347	345	331	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
388	348	318	A416-250(~ Tensor 1/~	N	3.167e-05	-	5.831
389	275	24	A416-250(~ Tensor 1/~	N	3.167e-05	-	5.385
454	130	138	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.543
457	314	347	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
458	347	322	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
460	102	110	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.543
461	74	82	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.543
462	47	307	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
463	307	54	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
465	96	106	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
466	98	106	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
467	124	134	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
468	126	134	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
469	308	318	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
470	310	318	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
471	68	78	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
472	70	78	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
473	3	24	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
474	4	24	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031

*** TOTAL WEIGHT / VOLUME / SURFACE AREA SUMMARY

SECTION NO	SECION NAME	SURFACE AREA	VOLUME	WEIGHT	FRAME NUMBER	TRUSS NUMBER
1	Tub 3.5" x 2mm	52.75	0.05275	4.067	136	0
2	Tensor 1/4"	3.784	0.006007	0.4631	0	47
3	Tensor 5mm	0.6332	0.0007915	0.06102	0	10
4	Tub 2" x 2mm	8.74	0.00874	0.6738	26	0
5	Tensor 1/8"	0.2286	0.0001829	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

** BEAM LOAD DATA

MEMBER	TYPE	DIR.	PROJ.	D1	P1	D2	P2	D3	P3	D4	P4
44	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
45	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
46	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
47	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
48	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
49	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
51	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
52	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
53	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
54	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
55	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
56	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
69	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
74	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
75	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
77	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
78	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 2

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

79	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
83	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
84	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
85	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
86	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
87	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
88	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
90	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
91	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
92	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
93	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
94	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
95	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
96	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
101	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
102	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
103	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
104	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
105	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
109	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
110	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
111	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
112	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
113	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
114	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
116	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
117	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
118	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
119	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
120	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
121	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
122	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 2

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

127	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
128	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
129	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
130	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
131	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
135	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
136	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
137	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
138	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
139	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
140	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
142	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
143	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
144	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
145	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
146	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
147	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
148	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
153	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
154	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
155	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
156	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
157	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
213	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
214	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
215	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
216	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
217	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
218	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
220	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
221	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
222	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0

223	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
224	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
225	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
226	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
231	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
232	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
233	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
234	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
235	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
396	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
397	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
400	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
401	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
404	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
405	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
408	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
409	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
420	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
421	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	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, m]

STORY NAME	TRANSLATIONAL MASS (X-DIR)	(Y-DIR)	ROTATIONAL MASS	CENTER OF 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	0.02175238	0.02175238	0.65290916	9.5	6.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.02175238	0.02175238			

* 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	0.00615823	0.00615823
14F	0.01647734	0.01647734
13F	0.00483951	0.00483951
12F	0.00728051	0.00728051
11F	0.02977359	0.02977359
10F	0.0	0.0
9F	0.0301333	0.0301333
8F	0.02669157	0.02669157
7F	0.02664554	0.02664554
6F	0.05372486	0.05372486
5F	0.0265039	0.0265039
4F	0.04720902	0.04720902
3F	0.0	0.0
2F	0.13398926	0.13398926
1F	0.12356086	0.12356086
TOTAL :	0.5329875	0.5329875

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

```
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)   : 4.228142
Total Effective Weight For Y-dir. Seismic Loads (Wy)   : 4.228142

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
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  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               : 3.122169
  Total Base Shear Of Model For Y-direction               : 0.000000
  Summation Of Wi*Hi^k Of Model For X-direction           : 16.761848
  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			
STORY NAME	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR
Roof	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-0.6	0.0	1.0	0.0	0.0275	0.0	1.0	0.0
13F	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-0.6	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	-0.6	0.0	1.0	0.0	0.0600373	0.0	1.0	0.0
8F	-0.6	0.0	1.0	0.0	0.1187562	0.0	1.0	0.0
7F	-0.6	0.0	1.0	0.0	0.1748671	0.0	1.0	0.0
6F	-0.6	0.0	1.0	0.0	0.2271377	0.0	1.0	0.0
5F	-0.6	0.0	1.0	0.0	0.2744203	0.0	1.0	0.0
4F	-0.6	0.0	1.0	0.0	0.3836764	0.0	1.0	0.0
3F	-0.6	0.0	1.0	0.0	0.3668382	0.0	1.0	0.0
2F	-0.6	0.0	1.0	0.0	0.95	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 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	0.060388	5.4462	0.06126	0.0	0.06126	0.0	0.0	0.036756	0.0	0.036756
14F	0.161577	5.41	0.162821	0.0	0.162821	0.06126	0.002217	0.097693	0.0	0.097693
13F	0.047456	5.3759	0.04752	0.0	0.04752	0.224081	0.00986	0.028512	0.0	0.028512
12F	0.071393	5.20641	0.069235	0.0	0.069235	0.271601	0.055891	0.041541	0.0	0.041541
11F	0.29196	5.0	0.271912	0.0	0.271912	0.340837	0.126244	0.163147	0.0	0.163147
10F	0.0	4.9777	0.0	0.0	0.0	0.612748	0.139911	0.0	0.0	0.0
9F	0.295487	4.95539	0.272741	0.0	0.272741	0.612748	0.153578	0.163645	0.0	0.163645
8F	0.261738	4.82255	0.235113	0.0	0.235113	0.88549	0.271209	0.141068	0.0	0.141068
7F	0.261286	4.60439	0.22409	0.0	0.22409	1.120603	0.515682	0.134454	0.0	0.134454
6F	0.526826	4.3057	0.422518	0.0	0.422518	1.344693	0.917328	0.253511	0.0	0.253511
5F	0.259897	3.93304	0.190399	0.0	0.190399	1.767211	1.575893	0.114239	0.0	0.114239
4F	0.462932	3.4946	0.301334	0.0	0.301334	1.95761	2.434191	0.180801	0.0	0.180801
3F	0.213304	3.2473	0.12902	0.0	0.12902	2.258944	2.992825	0.077412	0.0	0.077412
2F	1.313899	3.0	0.734206	0.0	0.734206	2.387964	3.583366	0.440523	0.0	0.440523
G.L.	--	0.0	--	--	--	3.122169	12.94987	---	---	--

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	0.060388	5.4462	0.06126	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.161577	5.41	0.162821	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
 0.0
       13F 0.047456  5.3759  0.04752      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       12F 0.071393 5.20641 0.069235      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       11F  0.29196     5.0 0.271912      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
       10F      0.0  4.9777      0.0      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        9F 0.295487 4.95539 0.272741      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        8F 0.261738 4.82255 0.235113      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        7F 0.261286 4.60439  0.22409      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        6F 0.526826  4.3057 0.422518      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        5F 0.259897 3.93304 0.190399      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        4F 0.462932  3.4946 0.301334      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        3F 0.213304  3.2473  0.12902      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        2F 1.313899     3.0 0.734206      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) ]
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** STATIC SEISMIC LOAD DATA : CODE , NSR-10

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

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	0.02175238	0.02175238	0.65290916	9.5	6.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.02175238	0.02175238			

* 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	0.00615823	0.00615823
14F	0.01647734	0.01647734
13F	0.00483951	0.00483951
12F	0.00728051	0.00728051
11F	0.02977359	0.02977359
10F	0.0	0.0
9F	0.0301333	0.0301333
8F	0.02669157	0.02669157
7F	0.02664554	0.02664554
6F	0.05372486	0.05372486
5F	0.0265039	0.0265039
4F	0.04720902	0.04720902
3F	0.0	0.0
2F	0.13398926	0.13398926
1F	0.12356086	0.12356086
TOTAL :	0.5329875	0.5329875

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

Site Class : E

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  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)     : 4.228142
  Total Effective Weight For Y-dir. Seismic Loads (Wy)     : 4.228142

  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                : 3.122169
  Summation Of Wi*Hi^k Of Model For X-direction            : 0.000000
  Summation Of Wi*Hi^k Of Model For Y-direction            : 16.761848
-------------------------------------------------------------------------------


============================
 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   ACCIDENTAL INHERENT   ACCIDENTAL INHERENT      ACCIDENTAL INHERENT   ACCIDENTAL INHERE
NT
     NAME    ECCENT.    ECCENT.    AMP.FACTOR AMP.FACTOR    ECCENT.    ECCENT.    AMP.FACTOR AMP.FA
CTOR
----------   ---------- ---------- ---------- ----------    ---------- ---------- ---------- ------
----
      Roof         -0.6        0.0        1.0        0.0           0.0        0.0        1.0
 0.0
       14F         -0.6        0.0        1.0        0.0        0.0275        0.0        1.0
 0.0
       13F         -0.6        0.0        1.0        0.0           0.0        0.0        1.0
 0.0
       12F         -0.6        0.0        1.0        0.0           0.0        0.0        1.0
 0.0
       11F         -0.6        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         -0.6        0.0        1.0        0.0     0.0600373        0.0        1.0
 0.0
        8F         -0.6        0.0        1.0        0.0     0.1187562        0.0        1.0
 0.0
        7F         -0.6        0.0        1.0        0.0     0.1748671        0.0        1.0
 0.0
```

6F	-0.6	0.0	1.0	0.0	0.2271377	0.0	1.0
0.0							
5F	-0.6	0.0	1.0	0.0	0.2744203	0.0	1.0
0.0							
4F	-0.6	0.0	1.0	0.0	0.3836764	0.0	1.0
0.0							
3F	-0.6	0.0	1.0	0.0	0.3668382	0.0	1.0
0.0							
2F	-0.6	0.0	1.0	0.0	0.95	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	0.060388	5.4462	0.06126	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.161577	5.41	0.162821	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.047456	5.3759	0.04752	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.071393	5.20641	0.069235	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.29196	5.0	0.271912	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10F	0.0	4.9777	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9F	0.295487	4.95539	0.272741	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.261738	4.82255	0.235113	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.261286	4.60439	0.22409	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.526826	4.3057	0.422518	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5F	0.259897	3.93304	0.190399	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4F	0.462932	3.4946	0.301334	0.0	0.0	0.0	0.0	0.0	0.0	0.0

3F	0.213304	3.2473	0.12902	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2F	1.313899	3.0	0.734206	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
Roof	0.060388	5.4462	0.06126	0.0	0.06126	0.0	0.0	0.0	0.0	0.0
14F	0.161577	5.41	0.162821	0.0	0.162821	0.06126	0.002217	0.004478	0.0	0.004478
13F	0.047456	5.3759	0.04752	0.0	0.04752	0.224081	0.00986	0.0	0.0	0.0
12F	0.071393	5.20641	0.069235	0.0	0.069235	0.271601	0.055891	0.0	0.0	0.0
11F	0.29196	5.0	0.271912	0.0	0.271912	0.340837	0.126244	0.0	0.0	0.0
10F	0.0	4.9777	0.0	0.0	0.0	0.612748	0.139911	0.0	0.0	0.0
9F	0.295487	4.95539	0.272741	0.0	0.272741	0.612748	0.153578	0.016375	0.0	0.016375
8F	0.261738	4.82255	0.235113	0.0	0.235113	0.88549	0.271209	0.027921	0.0	0.027921
7F	0.261286	4.60439	0.22409	0.0	0.22409	1.120603	0.515682	0.039186	0.0	0.039186
6F	0.526826	4.3057	0.422518	0.0	0.422518	1.344693	0.917328	0.09597	0.0	0.09597
5F	0.259897	3.93304	0.190399	0.0	0.190399	1.767211	1.575893	0.052249	0.0	0.052249
4F	0.462932	3.4946	0.301334	0.0	0.301334	1.95761	2.434191	0.115615	0.0	0.115615
3F	0.213304	3.2473	0.12902	0.0	0.12902	2.258944	2.992825	0.047329	0.0	0.047329
2F	1.313899	3.0	0.734206	0.0	0.734206	2.387964	3.583366	0.697495	0.0	0.697495
G.L.	--	0.0	--	--	--	3.122169	12.94987	---	---	--

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COMMENTS ABOUT TORSION
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If torsional amplification effects are considered :

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

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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, m]

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	0.02175238	0.02175238	0.65290916	9.5	6.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.02175238	0.02175238			

* 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	0.00615823	0.00615823

14F	0.01647734	0.01647734
13F	0.00483951	0.00483951
12F	0.00728051	0.00728051
11F	0.02977359	0.02977359
10F	0.0	0.0
9F	0.0301333	0.0301333
8F	0.02669157	0.02669157
7F	0.02664554	0.02664554
6F	0.05372486	0.05372486
5F	0.0265039	0.0265039
4F	0.04720902	0.04720902
3F	0.0	0.0
2F	0.13398926	0.13398926
1F	0.12356086	0.12356086
TOTAL :	0.5329875	0.5329875

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

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)	: 4.228142
Total Effective Weight For Y-dir. Seismic Loads (Wy)	: 4.228142
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	: 3.831753
Total Base Shear Of Model For Y-direction	: 0.000000
Summation Of Wi*Hi^k Of Model For X-direction	: 16.761848
Summation Of Wi*Hi^k Of Model For Y-direction	: 0.000000

ECCENTRICITY RELATED DATA

	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.FA

PROJECT TITLE : INVERNADERO TIPO 2

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

CTOR

Roof	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-0.6	0.0	1.0	0.0	0.0275	0.0	1.0	0.0
13F	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-0.6	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	-0.6	0.0	1.0	0.0	0.0600373	0.0	1.0	0.0
8F	-0.6	0.0	1.0	0.0	0.1187562	0.0	1.0	0.0
7F	-0.6	0.0	1.0	0.0	0.1748671	0.0	1.0	0.0
6F	-0.6	0.0	1.0	0.0	0.2271377	0.0	1.0	0.0
5F	-0.6	0.0	1.0	0.0	0.2744203	0.0	1.0	0.0
4F	-0.6	0.0	1.0	0.0	0.3836764	0.0	1.0	0.0
3F	-0.6	0.0	1.0	0.0	0.3668382	0.0	1.0	0.0
2F	-0.6	0.0	1.0	0.0	0.95	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	0.060388	5.4462	0.075183	0.0	0.075183	0.0	0.0	0.04511	0.0	0.04511
14F	0.161577	5.41	0.199826	0.0	0.199826	0.075183	0.002721	0.119896	0.0	0.11

13F	0.047456	5.3759	0.05832	0.0	0.05832	0.275009	0.0121	0.034992	0.0	0.034992	
12F	0.071393	5.20641	0.08497	0.0	0.08497	0.333329	0.068594	0.050982	0.0	0.050982	
11F	0.29196	5.0	0.33371	0.0	0.33371	0.418299	0.154936	0.200226	0.0	0.200226	
10F	0.0	4.9777	0.0	0.0	0.0	0.752009	0.171709	0.0	0.0	0.0	
9F	0.295487	4.95539	0.334728	0.0	0.334728	0.752009	0.188482	0.200837	0.0	0.200837	
8F	0.261738	4.82255	0.288548	0.0	0.288548	1.086737	0.332848	0.173129	0.0	0.173129	
7F	0.261286	4.60439	0.27502	0.0	0.27502	1.375285	0.632883	0.165012	0.0	0.165012	
6F	0.526826	4.3057	0.518545	0.0	0.518545	1.650305	1.125812	0.311127	0.0	0.311127	
5F	0.259897	3.93304	0.233671	0.0	0.233671	2.16885	1.93405	0.140203	0.0	0.140203	
4F	0.462932	3.4946	0.369819	0.0	0.369819	2.402521	2.987416	0.221892	0.0	0.221892	
3F	0.213304	3.2473	0.158342	0.0	0.158342	2.772341	3.673012	0.095005	0.0	0.095005	
2F	1.313899	3.0	0.90107	0.0	0.90107	2.930683	4.397767	0.540642	0.0	0.540642	
G.L.	--	0.0	--	--	--	3.831753	15.89303	---	---	--	

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	0.060388	5.4462	0.075183	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.161577	5.41	0.199826	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.047456	5.3759	0.05832	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.071393	5.20641	0.08497	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.29196	5.0	0.33371	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10F	0.0	4.9777	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9F	0.295487	4.95539	0.334728	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.261738	4.82255	0.288548	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.261286	4.60439	0.27502	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.526826	4.3057	0.518545	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5F	0.259897	3.93304	0.233671	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4F	0.462932	3.4946	0.369819	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3F	0.213304	3.2473	0.158342	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
 0.0
       2F 1.313899     3.0  0.90107      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 :
-------------------------------------------------------------------------------------------------
----
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, m]
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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	0.02175238	0.02175238	0.65290916	9.5	6.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.02175238	0.02175238			

* 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	0.00615823	0.00615823
14F	0.01647734	0.01647734
13F	0.00483951	0.00483951
12F	0.00728051	0.00728051
11F	0.02977359	0.02977359
10F	0.0	0.0
9F	0.0301333	0.0301333
8F	0.02669157	0.02669157
7F	0.02664554	0.02664554
6F	0.05372486	0.05372486
5F	0.0265039	0.0265039
4F	0.04720902	0.04720902
3F	0.0	0.0
2F	0.13398926	0.13398926
1F	0.12356086	0.12356086
TOTAL :	0.5329875	0.5329875

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

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) : 4.228142
Total Effective Weight For Y-dir. Seismic Loads (Wy) : 4.228142

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               : 3.831753
  Summation Of Wi*Hi^k Of Model For X-direction           : 0.000000
  Summation Of Wi*Hi^k Of Model For Y-direction           : 16.761848
-------------------------------------------------------------------------------


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

	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	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
14F	-0.6	0.0	1.0	0.0	0.0275	0.0	1.0	0.0
13F	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
12F	-0.6	0.0	1.0	0.0	0.0	0.0	1.0	0.0
11F	-0.6	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	-0.6	0.0	1.0	0.0	0.0600373	0.0	1.0	0.0
8F	-0.6	0.0	1.0	0.0	0.1187562	0.0	1.0	0.0
7F	-0.6	0.0	1.0	0.0	0.1748671	0.0	1.0	0.0
6F	-0.6	0.0	1.0	0.0	0.2271377	0.0	1.0	0.0
5F	-0.6	0.0	1.0	0.0	0.2744203	0.0	1.0	0.0
4F	-0.6	0.0	1.0	0.0	0.3836764	0.0	1.0	0.0
3F	-0.6	0.0	1.0	0.0	0.3668382	0.0	1.0	0.0
2F	-0.6	0.0	1.0	0.0	0.95	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 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	0.060388	5.4462	0.075183	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.161577	5.41	0.199826	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.047456	5.3759	0.05832	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.071393	5.20641	0.08497	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.29196	5.0	0.33371	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10F	0.0	4.9777	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9F	0.295487	4.95539	0.334728	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.261738	4.82255	0.288548	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.261286	4.60439	0.27502	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.526826	4.3057	0.518545	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5F	0.259897	3.93304	0.233671	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4F	0.462932	3.4946	0.369819	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3F	0.213304	3.2473	0.158342	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2F	1.313899	3.0	0.90107	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
Roof	0.060388	5.4462	0.075183	0.0	0.075183	0.0	0.0	0.0	0.0	0.0
14F	0.161577	5.41	0.199826	0.0	0.199826	0.075183	0.002721	0.005495	0.0	0.005495

```
       13F 0.047456  5.3759  0.05832      0.0  0.05832 0.275009    0.0121       0.0       0.0
 0.0
       12F 0.071393 5.20641  0.08497      0.0  0.08497 0.333329  0.068594       0.0       0.0
 0.0
       11F  0.29196     5.0  0.33371      0.0  0.33371 0.418299  0.154936       0.0       0.0
 0.0
       10F      0.0  4.9777      0.0      0.0      0.0 0.752009  0.171709       0.0       0.0
 0.0
        9F 0.295487 4.95539 0.334728      0.0 0.334728 0.752009  0.188482  0.020096       0.0  0.02
0096
        8F 0.261738 4.82255 0.288548      0.0 0.288548 1.086737  0.332848  0.034267       0.0  0.03
4267
        7F 0.261286 4.60439  0.27502      0.0  0.27502 1.375285  0.632883  0.048092       0.0  0.04
8092
        6F 0.526826  4.3057 0.518545      0.0 0.518545 1.650305  1.125812  0.117781       0.0  0.11
7781
        5F 0.259897 3.93304 0.233671      0.0 0.233671  2.16885   1.93405  0.064124       0.0  0.06
4124
        4F 0.462932  3.4946 0.369819      0.0 0.369819 2.402521  2.987416  0.141891       0.0  0.14
1891
        3F 0.213304  3.2473 0.158342      0.0 0.158342 2.772341  3.673012  0.058086       0.0  0.05
8086
        2F 1.313899     3.0  0.90107      0.0  0.90107 2.930683  4.397767  0.856017       0.0  0.85
6017
      G.L.    --        0.0    --       --       --    3.831753  15.89303    ---       ---        --
-
--------------------------------------------------------------------------------------------------------
----

================================================
 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
```

PROJECT TITLE : INVERNADERO TIPO 2

MIDAS	Company		Client	
	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

MEMBER	TYPE	DIR.	PROJ.	D1	P1	D2	P2	D3	P3	D4	P4
44	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
45	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
46	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
47	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
48	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
49	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
51	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
52	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
53	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
54	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
55	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
56	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
69	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0	0
74	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
75	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
77	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
78	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
79	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0	0
83	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	0
84	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	0
85	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	0
86	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	0
87	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	0
88	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	0
90	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	0
91	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	0
92	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	0
93	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	0
94	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	0
95	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	0

PROJECT TITLE : INVERNADERO TIPO 2

	Company		Client	
MIDAS	Author	AMAURY URUETA	File Name	Midas Invernadero Tipo 2.mdl

```
0
    96          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   101          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   102          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   103          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   104          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   105          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   109          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   110          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   111          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   112          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   113          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   114          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   116          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   117          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   118          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   119          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   120          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   121          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   122          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   127          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   128          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   129          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   130          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   131          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   135          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   136          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   137          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   138          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   139          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   140          Uniform Load     LZ    NO    0      -1.2     1     -1.2     0       0       0
0
   142          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
0
   143          Uniform Load     LZ    NO    0       1.2     1      1.2     0       0       0
```

0											
	144	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	145	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	146	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	147	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	148	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0											
	153	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	154	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	155	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	156	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	157	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	213	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	214	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	215	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	216	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	217	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	218	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	220	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	221	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	222	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	223	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	224	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	225	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	226	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	231	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	232	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	233	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	234	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	235	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	396	Uniform Load	LZ	NO	0	0.6	1	0.6	0	0	0
0											
	397	Uniform Load	LZ	NO	0	-0.6	1	-0.6	0	0	0
0											
	400	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0											
	401	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0

```
     0
        404          Uniform Load     LZ     NO      0       1.2      1       1.2      0         0      0
     0
        405          Uniform Load     LZ     NO      0      -1.2      1      -1.2      0         0      0
     0
        408          Uniform Load     LZ     NO      0       1.2      1       1.2      0         0      0
     0
        409          Uniform Load     LZ     NO      0      -1.2      1      -1.2      0         0      0
     0
        420          Uniform Load     LZ     NO      0       0.6      1       0.6      0         0      0
     0
        421          Uniform Load     LZ     NO      0      -0.6      1      -0.6      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      -6.5      1      -6.5      0         0      0
     0
          95          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         121          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         147          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         225          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         397          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         398          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         399          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         401          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         402          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         403          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         405          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         406          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         407          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         409          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         410          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         411          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         421          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         422          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
         423          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
     0
```

*** RESPONSE SPECTRUM FUNCTION DATA

NAME	FUNCTION TYPE	SCALE	GRAVITY	DATA
NSR-10 (U~	Normalized Acc.	1	9.806	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	