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DISEÑO ESTRUCTURAL

PROYECTO

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

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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

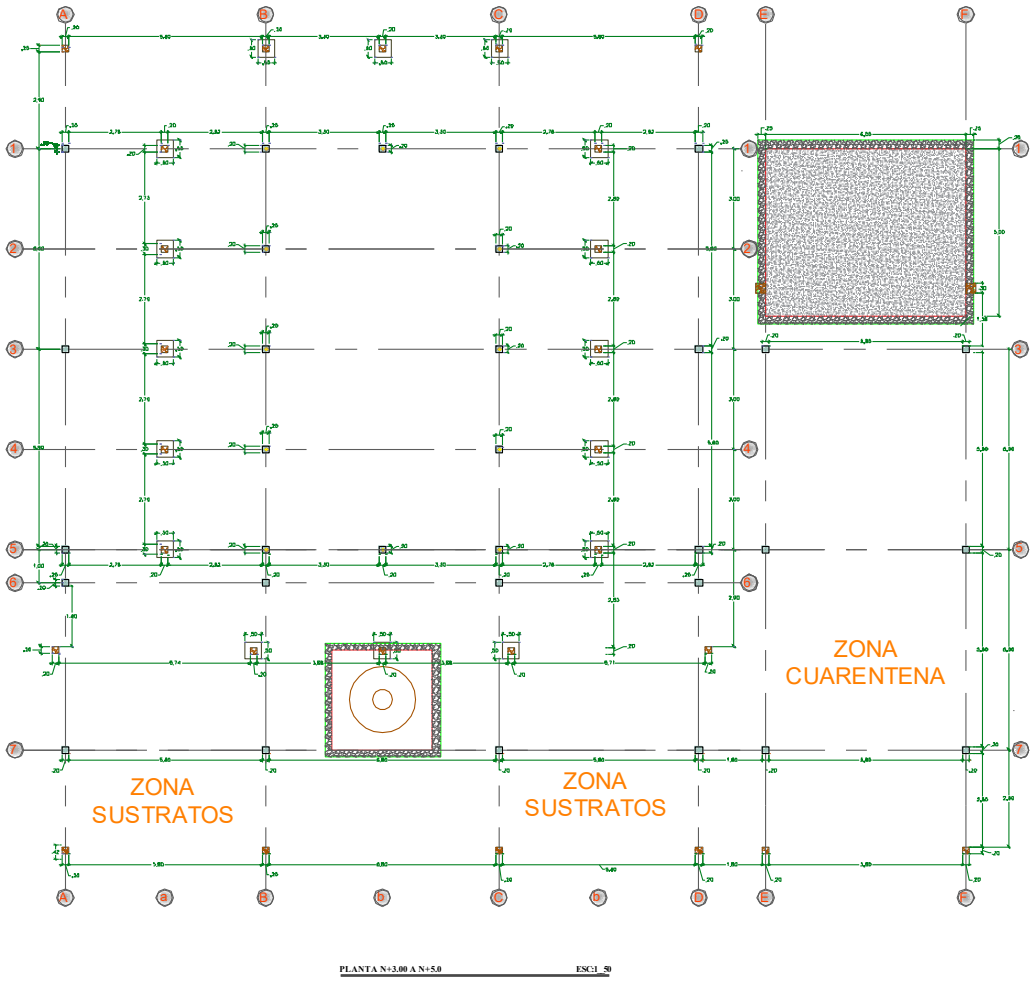


Ilustración 2 Planta Estructural Nivel 1

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	INTERMEDIO
Coeficiente de Aceleración (Aa)	0,20
Coeficiente de velocidad (Av)	0,20
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)	1,70
Fv (Coef. De sitio para Zona de periodos intermedios)	3,1

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 INVERNADERO	TUBO 2" (Ø60.2 x3.0mm) - TUBO 2" (Ø60.2 x2.0mm)	ASTM A 500 GRADO C
ARCOS INVERNADERO	TUBO 2" (Ø60.2 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

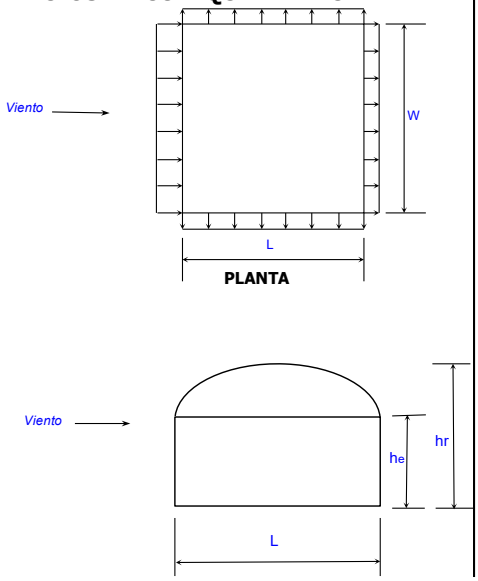
Para el presente proyecto no se considerará la carga de granizo, con la hipótesis de que esta condición no será muy probable que ocurra como carga importante, dado que la materialidad del plástico y la pendiente de la cubierta no permitían su acumulación.

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

General

ELEVACIÓN

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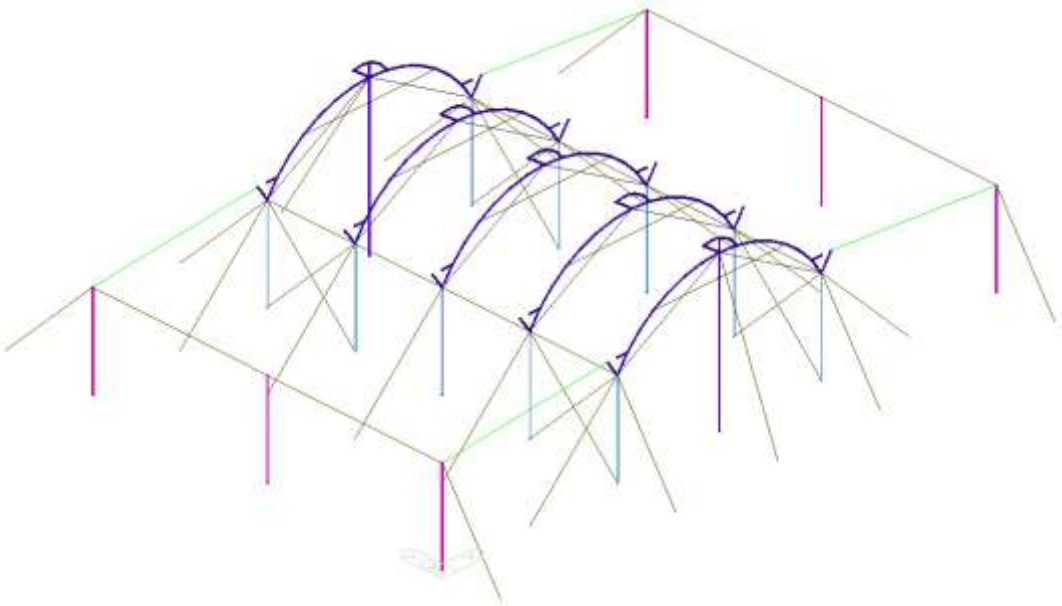
Carga de Viento Normal a la Cumbrera Para el SPRVF en Edificios de Cualquier Altura							
	Superficie	z (m)	Kz	qz (kN/m^2)	Cp	p = Presión Neta (kN/m^2)	
						GCp - (+)GCp	GCp - (-)GCpi
	MURO A BARLOVENTO	0	0,85	0,26	0,80	0,13	0,23
		5,00	0,87	0,27	0,80	0,13	0,23
		5,40	0,88	0,27	0,80	0,14	0,23
	z =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

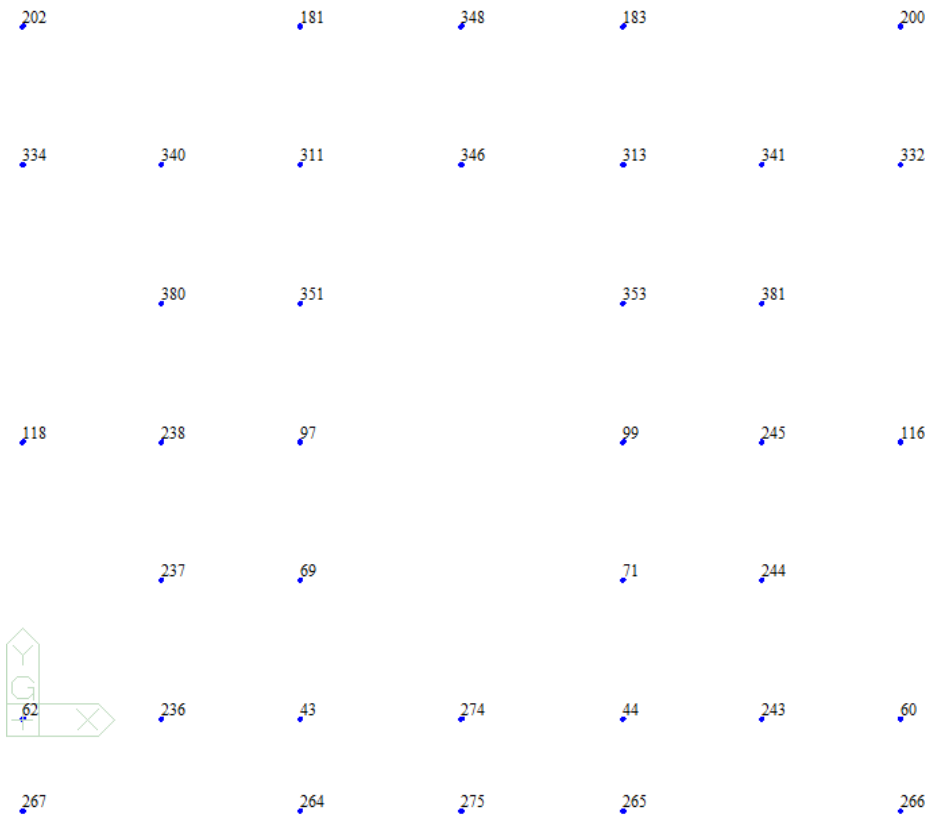
Como por evaluación por procedimiento analístico las cargas de vientos son inferiores a 0.40 kN/m2, se trabajará con este valor mínimo.

9. ELABORACIÓN DE MODELO ESTRUCTURAL EN SOFTWARE

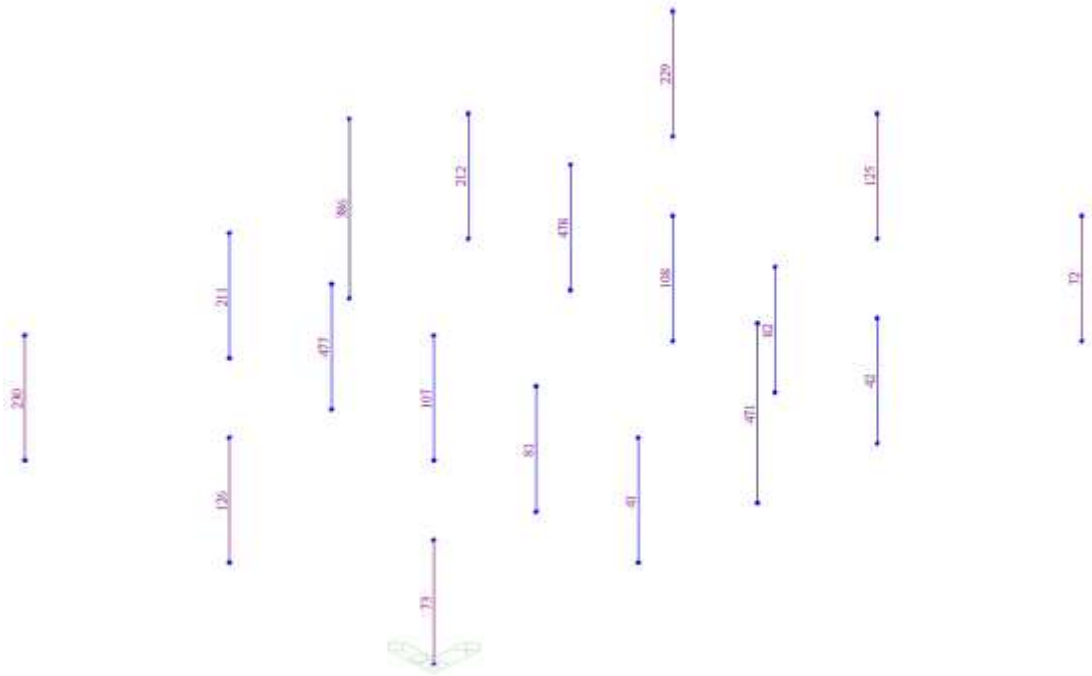


10. NUMERACIÓN DE ELEMENTOS Y NODOS

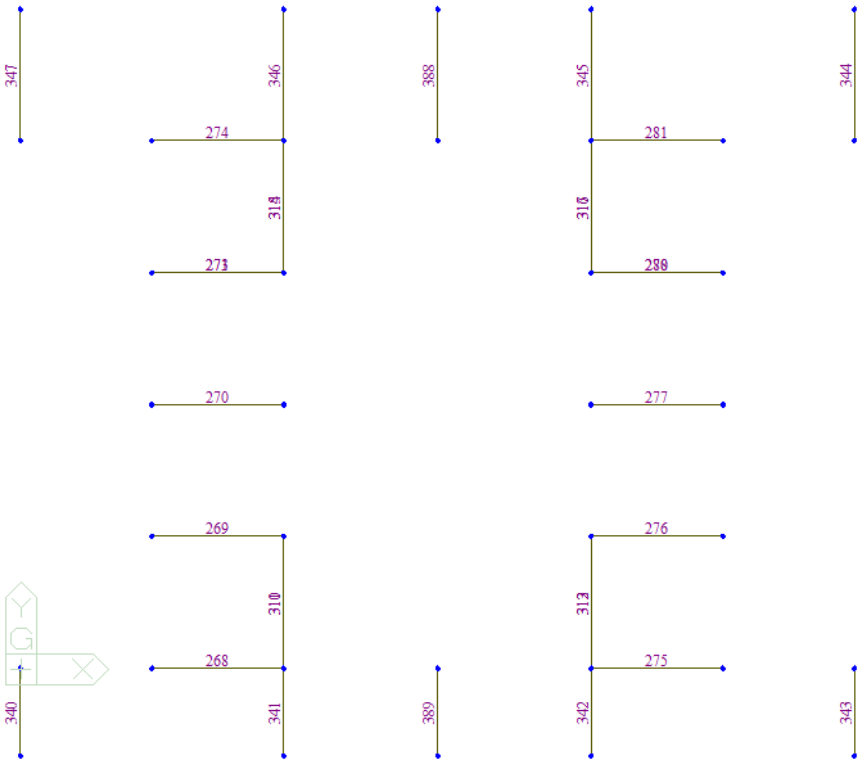
10.1 Apoyos de Cimentación



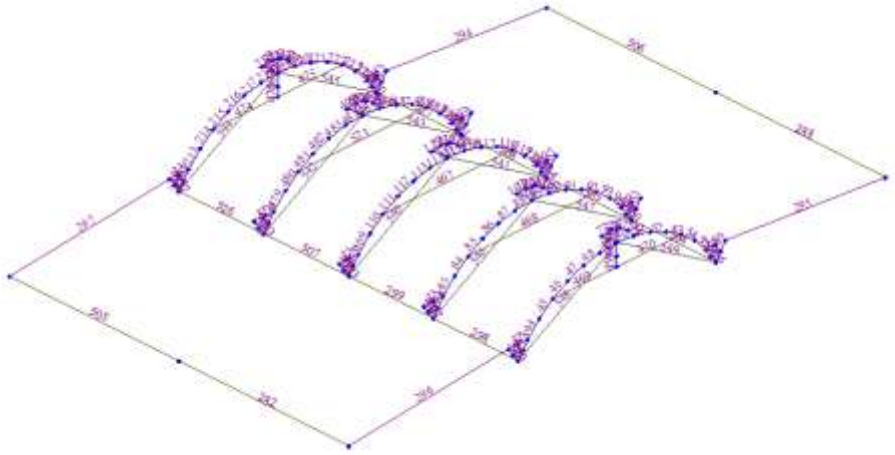
10.2 Numeración de Columnas



10.3 Numeración de Elementos Diagonales

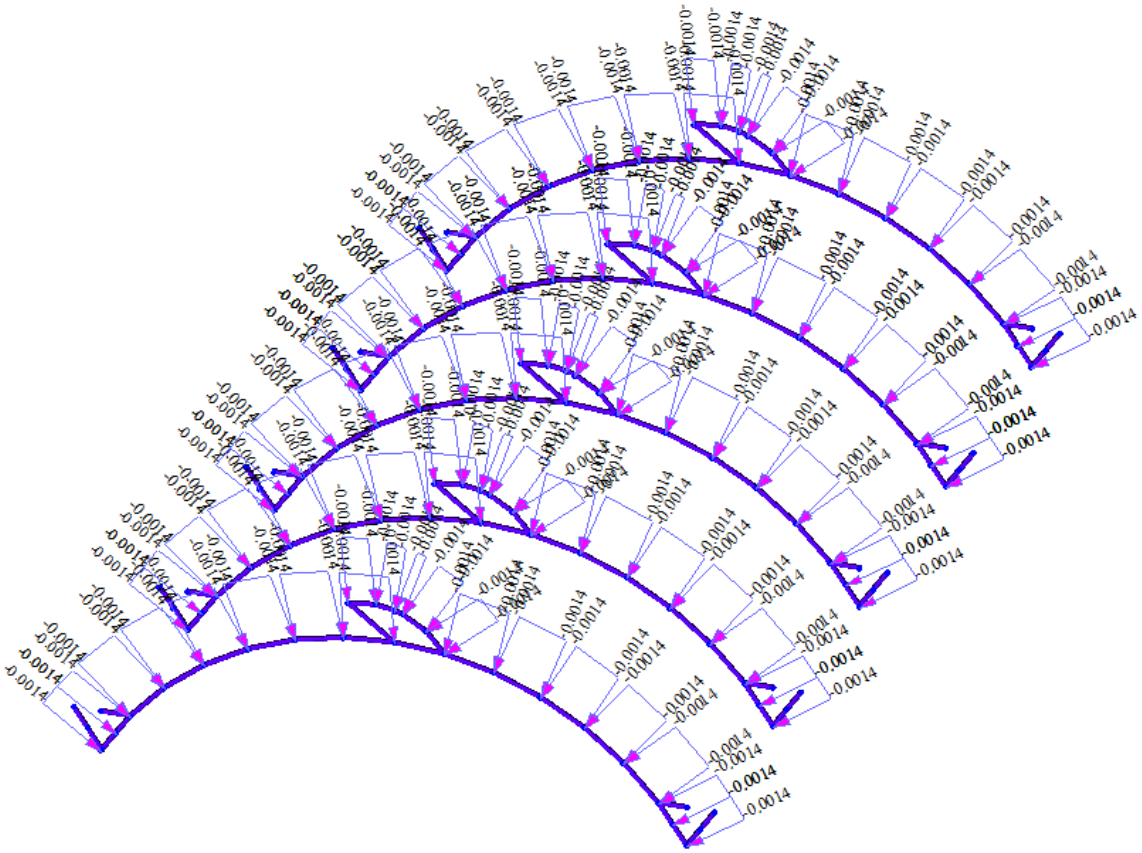


10.4 Numeración de Elementos Nivel Cubierta

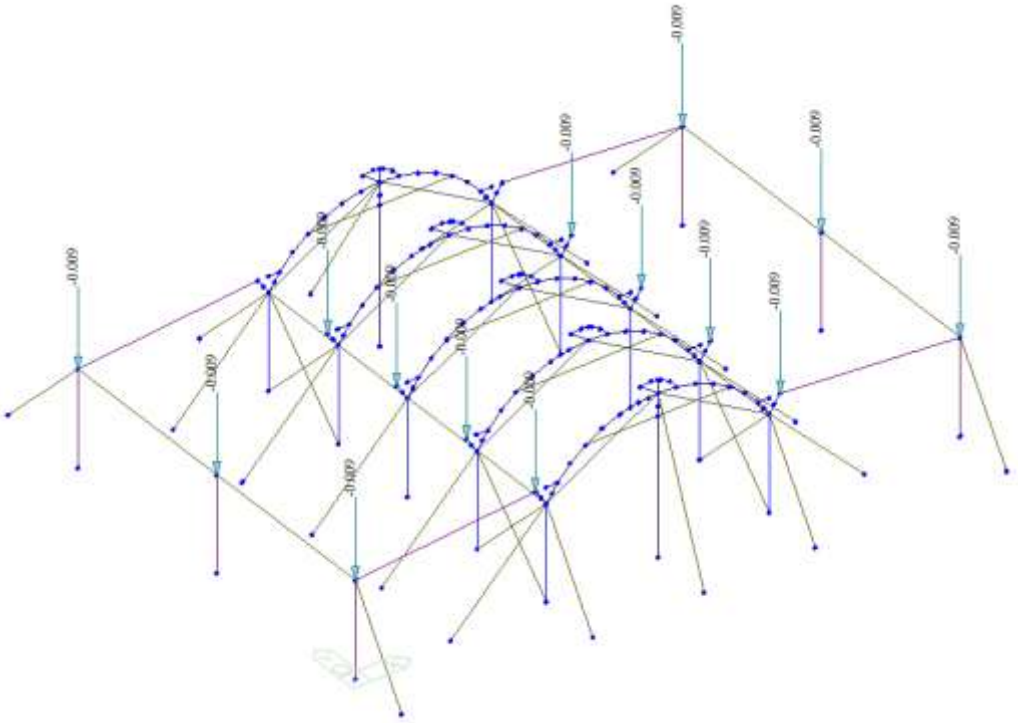


11. ASIGNACIÓN DE CARGAS EN MODELO

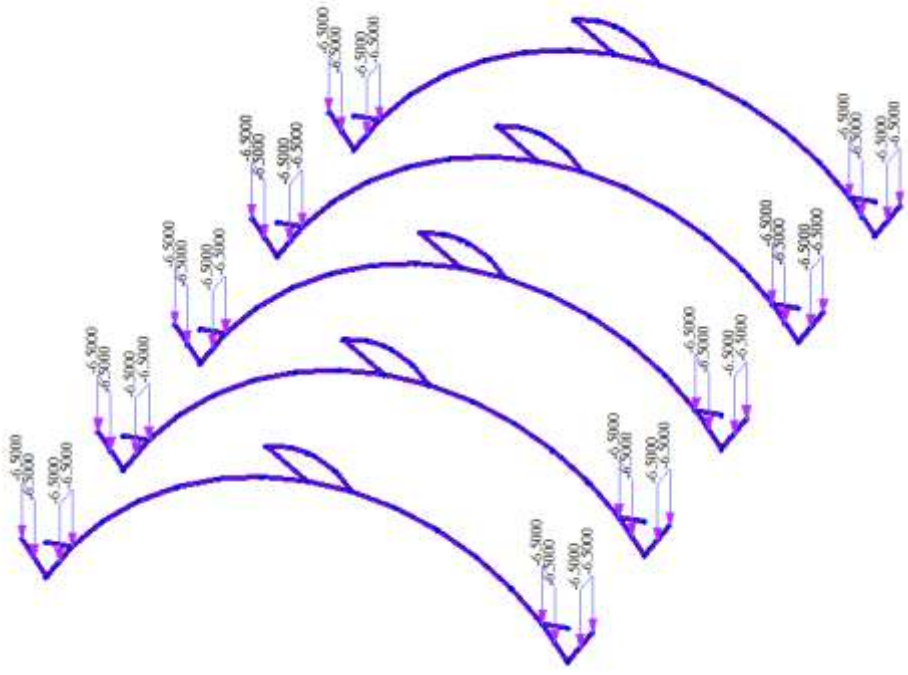
11.1 Cargas Muertas Cubierta (kN/ml)



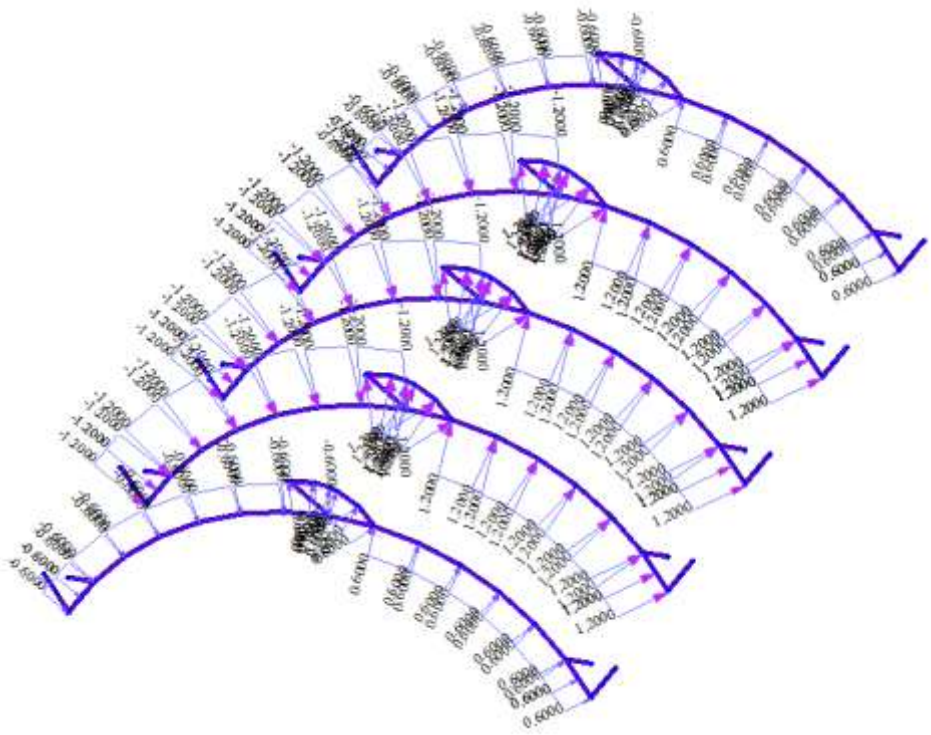
11.2 Cargas Muertas Cubierta (kN)



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.

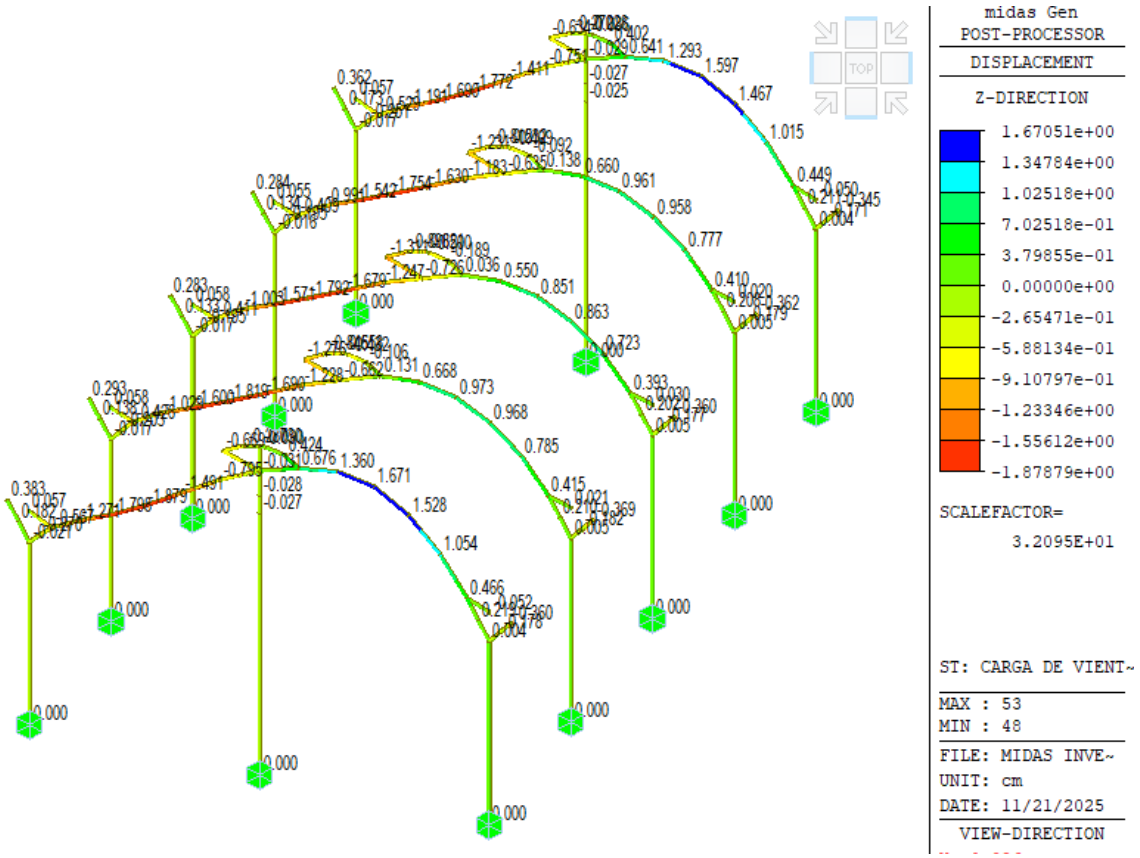
12.1 Chequeo Derivas Eje X y Y

Drift(Combined)

	Load Case	Story	Story Height (m)	P-Delta Incremental Factor (ad)	Allowable Story Drift Ratio	Maximum Drift of All Vertical Elements					Drift at the Center of Mass				
						Node	Story Drift (m)	Modified Drift (m)	Story Drift Ratio	Remark	Story Drift (m)	Modified Drift (m)	Drift Factor (Maximum/Current)	Story Drift Ratio	Remark
	RMC,Not Used, Cd=1, Ie=1, Scale Factor=1, Allowable Ratio=0.015														
	Sismo X	13F	0.03	-	0.015	0	0	0	0	OK	0	0	0	0.0005	OK
	Sismo X	12F	0.17	-	0.015	0	0	0	0	OK	0	0	0	0.0003	OK
	Sismo X	11F	0.21	-	0.015	0	0	0	0	OK	0	0	0	0.0001	OK
	Sismo X	7F	0.22	-	0.015	0	0	0	0	OK	0.0001	0.0001	0	0.0005	OK
	Sismo X	6F	0.3	-	0.015	308	0.0002	0.0002	0.0008	OK	0.0001	0.0001	4.4421	0.0002	OK
	Sismo X	5F	0.37	-	0.015	0	0	0	0	OK	0.0001	0.0001	0	0.0003	OK
	Sismo X	4F	0.44	-	0.015	0	0	0	0	OK	0.0003	0.0003	0	0.0006	OK
	Sismo X	3F	0.25	-	0.015	0	0	0	0	OK	0.0001	0.0001	0	0.0004	OK
	Sismo X	2F	0.25	-	0.015	0	0	0	0	OK	0.0005	0.0005	0	0.0021	OK
	Sismo X	1F	3	-	0.015	62	0.0126	0.0126	0.0042	OK	0.0017	0.0017	7.5486	0.0006	OK
	Sismo Y	13F	0.03	1	0.015	0	0	0	0	OK	0.0001	0.0001	0	0.0016	OK
	Sismo Y	12F	0.17	1	0.015	0	0	0	0	OK	0.0001	0.0001	0	0.0006	OK
	Sismo Y	11F	0.21	1	0.015	0	0	0	0	OK	0.0002	0.0002	0	0.0008	OK
	Sismo Y	7F	0.22	1	0.015	0	0	0	0	OK	0	0	0	0.0002	OK
	Sismo Y	6F	0.3	1	0.015	347	0.0002	0.0002	0.0007	OK	0	0	7.4262	0.0001	OK
	Sismo Y	5F	0.37	1	0.015	0	0	0	0	OK	0.0002	0.0002	0	0.0005	OK
	Sismo Y	4F	0.44	1	0.015	0	0	0	0	OK	0.0005	0.0005	0	0.0011	OK
	Sismo Y	3F	0.25	1	0.015	0	0	0	0	OK	0.0003	0.0003	0	0.0014	OK
	Sismo Y	2F	0.25	1	0.015	0	0	0	0	OK	0.0002	0.0002	0	0.0009	OK
	Sismo Y	1F	3	1	0.015	127	0.0014	0.0014	0.0005	OK	0.0009	0.0009	1.5493	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 1.88 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

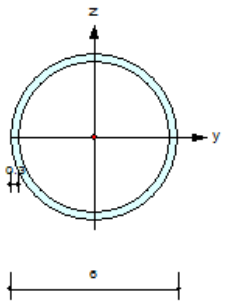
14. DISEÑO DE ELEMENTOS

14.1 Diseño de elementos tubulares 2.0" x 3mm

Se aporta el reporte de diseño del elemento más solicitado.

1. Design Information

Design Code	AISC(14th)-LRFD10
Unit System	kN, cm
Member No	41
Material	A500-50 (No:2)
	(Fy = 34.4738, Es = 19994.8)
Section Name	Tub 2" x 3mm (No:6)
	(Built-up Section).
Member Length	: 300.000



2. Member Forces

Axial Force	Fxx = -8.9291 (LCB: 2, POS:I)
Bending Moments	My = 51.9422, Mz = 1.82443
End Moments	Myi = 51.8847, Myj = -17.124 (for Lb)
	Myi = 51.8847, Myj = -17.124 (for Ly)
	Mzi = 1.81189, Mzj = 9.25333 (for Lz)
Shear Forces	Fyy = 0.02690 (LCB: 3, POS:I)
	Fzz = 0.23003 (LCB: 2, POS:I)

Outer Dia.	6.00000	Wall Thick	0.30000
Area	5.37212	Asz	2.68606
Qyb	8.14500	Qzb	8.14500
Iyy	21.8780	Izz	21.8780
Ybar	3.00000	Zbar	3.00000
Syy	7.29266	Szz	7.29266
ry	2.01804	rz	2.01804

3. Design Parameters

Unbraced Lengths	Ly = 300.000, Lz = 300.000, Lb = 300.000
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 = 148.7 < 200.0 (Memb:41, LCB: 2)..... O.K

Axial Strength

Pr/Pc = 8.9291/37.8637 = 0.236 < 1.000 ..... O.K

Bending Strength

Mry/Mcy = 51.942/302.694 = 0.172 < 1.000 ..... O.K

Mrz/Mcz = 1.824/302.694 = 0.006 < 1.000 ..... O.K

Combined Strength (Compression+Bending)

Pr/Pc = 0.24 > 0.20

Rmax = Pr/Pc + 8/9*SQRT[(Mry/Mcy)^2 + (Mrz/Mcz)^2] = 0.388 < 1.000 ..... O.K

Shear Strength

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

Vrz/Vcz = 0.005 < 1.000 ..... O.K

Torsion Strength

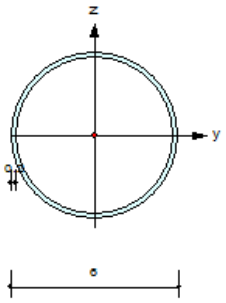
Tr/Tc = 0.633/285.019 = 0.002 < 1.000 ..... O.K

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, cm
Member No	471
Material	A500-50 (No:2)
	(Fy = 34.4738, Es = 19994.8)
Section Name	Tub 2" x 2mm - 2 (No:4)
	(Built-up Section).
Member Length	: 430.570



2. Member Forces

Axial Force	Fxx = -6.9570 (LCB: 2, POS:J)
Bending Moments	My = 25.6363, Mz = 5.64896
End Moments	Myi = -26.236, Myj = 25.6878 (for Lb)
	Myi = -26.236, Myj = 25.6878 (for Ly)
	Mzi = 0.57722, Mzj = 5.50821 (for Lz)
Shear Forces	Fyy = -0.0115 (LCB: 2, POS:I)
	Fzz = 0.12185 (LCB: 3, POS:I)

Outer Dia.	6.00000	Wall Thick	0.20000
Area	3.64425	Asz	1.82212
Qyb	8.42000	Qzb	8.42000
Iyy	15.3423	Izz	15.3423
Ybar	3.00000	Zbar	3.00000
Syy	5.11409	Szz	5.11409
ry	2.05183	rz	2.05183

3. Design Parameters

Unbraced Lengths	Ly = 430.570, Lz = 430.570, Lb = 430.570
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

Axial Strength

Pr/Pc = 6.9570/12.8903 = 0.540 < 1.000 ..... O.K

Bending Strength

Mry/Mcy = 25.636/208.828 = 0.123 < 1.000 ..... O.K

Mrz/Mcz = 5.649/208.828 = 0.027 < 1.000 ..... O.K

Combined Strength (Compression+Bending)

Pr/Pc = 0.54 > 0.20

Rmax = Pr/Pc + 8/9*SQRT[(Mry/Mcy)^2 + (Mrz/Mcz)^2] = 0.651 < 1.000 ..... O.K

Shear Strength

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

Vrz/Vcz = 0.004 < 1.000 ..... O.K

Torsion Strength

Tr/Tc = 0.778/196.738 = 0.004 < 1.000 ..... O.K

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	-8.38	34.8	OK
1,213,339	0.000		A500-50	344,738	3	424,264			
269	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	-7.09	34.8	OK
1,027,019	0.000		A500-50	344,738	3	424,264			
270	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	-6.90	34.8	OK
998,441	0.000		A500-50	344,738	3	424,264			
271	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	-7.10	34.8	OK
1,027,993	0.000		A500-50	344,738	3	424,264			
272	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	-6.94	34.8	OK
1,004,425	0.000		A500-50	344,738	3	424,264			
273	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	-7.59	34.8	OK
1,098,875	0.000		A500-50	344,738	3	424,264			
274	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	-7.91	34.8	OK
1,146,024	0.000		A500-50	344,738	3	424,264			
275	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.1135	34.8	OK
16,439	0.000		A500-50	344,738	20	424,264			
276	2	0	Tensor 1/4"	Tensor 1/4"	6	424,264	0.00075	34.8	OK
0.000	0.000		A500-50	344,738	6	424,264			
277	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.0180	34.8	OK
2,610	0.000		A500-50	344,738	20	424,264			
278	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.0458	34.8	OK
6,632	0.000		A500-50	344,738	20	424,264			
279	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.0189	34.8	OK
2,735	0.000		A500-50	344,738	20	424,264			
280	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	0.00000	34.8	OK
0.000	0.000		A500-50	344,738	3	424,264			
281	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.0493	34.8	OK

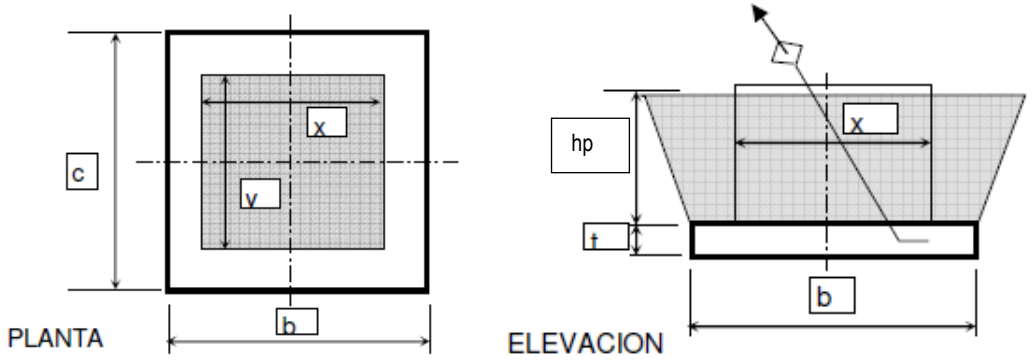
7,138	0.000		A500-50	344,738	20	424,264			
282	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1590	34.8	OK
11,513	0.000		A500-50	344,738	20	300,000			
283	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1335	34.8	OK
9,663	0.000		A500-50	344,738	20	300,000			
284	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1082	34.8	OK
7,835	0.000		A500-50	344,738	20	300,000			
285	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.0825	34.8	OK
5,972	0.000		A500-50	344,738	20	300,000			
286	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.0576	34.8	OK
4,167	0.000		A500-50	344,738	20	300,000			
287	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.0326	34.8	OK
2,361	0.000		A500-50	344,738	20	300,000			
288	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1974	34.8	OK
14,295	0.000		A500-50	344,738	20	300,000			
289	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1642	34.8	OK
11,890	0.000		A500-50	344,738	20	300,000			
290	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1312	34.8	OK
9,496	0.000		A500-50	344,738	20	300,000			
291	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.0990	34.8	OK
7,167	0.000		A500-50	344,738	20	300,000			
292	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.0663	34.8	OK
4,800	0.000		A500-50	344,738	20	300,000			
293	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.0338	34.8	OK
2,449	0.000		A500-50	344,738	20	300,000			
294	5	0	Tensor 1/8"	Tensor 1/8"	9	568,479	-0.0225	8.8	OK
100,482	0.000		A500-50	344,738	9	568,479			
295	5	0	Tensor 1/8"	Tensor 1/8"	18	568,479	-0.0248	8.8	OK
110,457	0.000		A500-50	344,738	18	568,479			
296	5	0	Tensor 1/8"	Tensor 1/8"	3	568,479	-0.0599	8.8	OK
267,267	0.000		A500-50	344,738	3	568,479			
297	5	0	Tensor 1/8"	Tensor 1/8"	3	568,479	-0.0562	8.8	OK
250,641	0.000		A500-50	344,738	3	568,479			
298	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.2918	34.8	OK
21,497	0.000		A416-250(Normal)	146,514	20	300,000			
299	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.8293	34.8	OK
61,094	0.000		A416-250(Normal)	146,514	20	300,000			
300	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.5684	34.8	OK
41,876	0.000		A416-250(Normal)	146,514	20	300,000			
301	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.3329	34.8	OK
24,524	0.000		A416-250(Normal)	146,514	20	300,000			
302	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.1087	34.8	OK
8,009	0.000		A416-250(Normal)	146,514	20	300,000			
303	2	0	Tensor 1/4"	Tensor 1/4"	3	300,000	0.00000	34.8	OK
0.000	0.000		A416-250(Normal)	146,514	3	300,000			
304	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.3101	34.8	OK
22,843	0.000		A416-250(Normal)	146,514	20	300,000			

305	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.9161	34.8	OK
67,483	0.000		A416-250(Normal)	146,514	20	300,000			
306	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.6442	34.8	OK
47,458	0.000		A416-250(Normal)	146,514	20	300,000			
307	2	0	Tensor 1/4"	Tensor 1/4"	20	300,000	-0.3617	34.8	OK
26,645	0.000		A416-250(Normal)	146,514	20	300,000			
308	2	0	Tensor 1/4"	Tensor 1/4"	13	300,000	-0.1943	34.8	OK
14,311	0.000		A416-250(Normal)	146,514	13	300,000			
309	2	0	Tensor 1/4"	Tensor 1/4"	3	300,000	0.00000	34.8	OK
0.000	0.000		A416-250(Normal)	146,514	3	300,000			
310	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-1.26	34.8	OK
185,154	0.000		A416-250(Normal)	146,514	20	424,264			
311	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	0.00000	34.8	OK
0.000	0.000		A416-250(Normal)	146,514	3	424,264			
312	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-1.33	34.8	OK
195,906	0.000		A416-250(Normal)	146,514	20	424,264			
313	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	0.00000	34.8	OK
0.000	0.000		A416-250(Normal)	146,514	3	424,264			
314	2	0	Tensor 1/4"	Tensor 1/4"	9	424,264	-0.1081	34.8	OK
15,920	0.000		A416-250(Normal)	146,514	9	424,264			
315	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.2081	34.8	OK
30,660	0.000		A416-250(Normal)	146,514	20	424,264			
316	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	0.00000	34.8	OK
0.000	0.000		A416-250(Normal)	146,514	3	424,264			
317	2	0	Tensor 1/4"	Tensor 1/4"	20	424,264	-0.2161	34.8	OK
31,842	0.000		A416-250(Normal)	146,514	20	424,264			
340	2	0	Tensor 1/4"	Tensor 1/4"	20	360,555	-0.3362	34.8	OK
35,770	0.000		A416-250(Normal)	146,514	20	360,555			
341	2	0	Tensor 1/4"	Tensor 1/4"	13	360,555	-5.38	34.8	OK
572,097	0.000		A416-250(Normal)	146,514	13	360,555			
342	2	0	Tensor 1/4"	Tensor 1/4"	20	360,555	-1.06	34.8	OK
113,214	0.000		A416-250(Normal)	146,514	20	360,555			
343	2	0	Tensor 1/4"	Tensor 1/4"	20	360,555	-0.4181	34.8	OK
44,491	0.000		A416-250(Normal)	146,514	20	360,555			
344	2	0	Tensor 1/4"	Tensor 1/4"	3	424,264	0.00000	34.8	OK
0.000	0.000		A416-250(Normal)	146,514	3	424,264			
345	2	0	Tensor 1/4"	Tensor 1/4"	13	424,264	-0.1340	34.8	OK
19,747	0.000		A416-250(Normal)	146,514	13	424,264			
346	2	0	Tensor 1/4"	Tensor 1/4"	13	424,264	-4.23	34.8	OK
623,800	0.000		A416-250(Normal)	146,514	13	424,264			
347	2	0	Tensor 1/4"	Tensor 1/4"	9	424,264	-0.0270	34.8	OK
3,981	0.000		A416-250(Normal)	146,514	9	424,264			
388	2	0	Tensor 1/4"	Tensor 1/4"	13	583,095	-6.42	34.8	OK
1,787,374	0.000		A416-250(Normal)	146,514	13	583,095			
389	2	0	Tensor 1/4"	Tensor 1/4"	13	538,516	-6.95	34.8	OK
1,649,664	0.000		A416-250(Normal)	146,514	13	538,516			
430	2	0	Tensor 1/4"	Tensor 1/4"	20	502,494	-0.2371	34.8	OK

48,993	0.000		A416-250(Normal)	146,514	20	502,494			
431	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-0.0354	21.6	OK
18,684	0.000		A500-50	344,738	13	502,494			
432	3	0	Tensor 5mm	Tensor 5mm	18	502,494	-0.0085	21.6	OK
4,479	0.000		A500-50	344,738	18	502,494			
433	3	0	Tensor 5mm	Tensor 5mm	20	502,494	-0.2321	21.6	OK
122,659	0.000		A500-50	344,738	20	502,494			
434	3	0	Tensor 5mm	Tensor 5mm	1	502,494	0.04935	21.6	OK
0.004	0.000		A500-50	344,738	1	502,494			
435	3	0	Tensor 5mm	Tensor 5mm	20	502,494	-0.2352	21.6	OK
124,287	0.000		A500-50	344,738	20	502,494			
436	3	0	Tensor 5mm	Tensor 5mm	1	502,494	0.05259	21.6	OK
0.004	0.000		A500-50	344,738	1	502,494			
437	3	0	Tensor 5mm	Tensor 5mm	20	502,494	-0.2576	21.6	OK
136,093	0.000		A500-50	344,738	20	502,494			
438	3	0	Tensor 5mm	Tensor 5mm	20	502,494	-0.0081	21.6	OK
4,296	0.000		A500-50	344,738	20	502,494			
439	3	0	Tensor 5mm	Tensor 5mm	20	502,494	-0.2295	21.6	OK
121,264	0.000		A500-50	344,738	20	502,494			
440	3	0	Tensor 5mm	Tensor 5mm	1	502,494	0.04792	21.6	OK
0.004	0.000		A500-50	344,738	1	502,494			
441	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-0.3597	21.6	OK
190,075	0.000		A500-50	344,738	13	502,494			
442	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-4.49	21.6	OK
2,372,680	0.000		A500-50	344,738	13	502,494			
443	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-4.95	21.6	OK
2,614,370	0.000		A500-50	344,738	13	502,494			
444	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-4.98	21.6	OK
2,633,250	0.000		A500-50	344,738	13	502,494			
445	3	0	Tensor 5mm	Tensor 5mm	3	502,494	-5.28	21.6	OK
2,790,588	0.000		A500-50	344,738	3	502,494			
446	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-5.27	21.6	OK
2,783,063	0.000		A500-50	344,738	13	502,494			
447	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-5.29	21.6	OK
2,795,850	0.000		A500-50	344,738	13	502,494			
448	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-5.29	21.6	OK
2,793,770	0.000		A500-50	344,738	13	502,494			
449	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-5.27	21.6	OK
2,784,433	0.000		A500-50	344,738	13	502,494			
450	3	0	Tensor 5mm	Tensor 5mm	3	502,494	-5.27	21.6	OK
2,783,561	0.000		A500-50	344,738	3	502,494			
451	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-5.02	21.6	OK
2,650,836	0.000		A500-50	344,738	13	502,494			
452	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-4.98	21.6	OK
2,631,389	0.000		A500-50	344,738	13	502,494			
453	3	0	Tensor 5mm	Tensor 5mm	13	502,494	-5.32	21.6	OK
2,810,250	0.000		A500-50	344,738	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 4.76 kN en el eje "X" y de 4.76 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

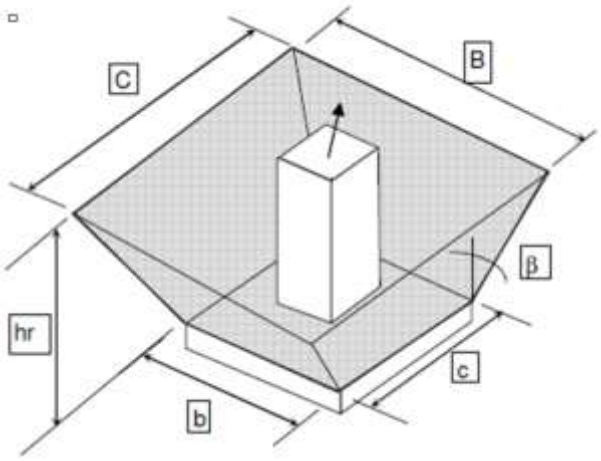
El peso de la estructura de concreto está dado por lo siguiente:

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:

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

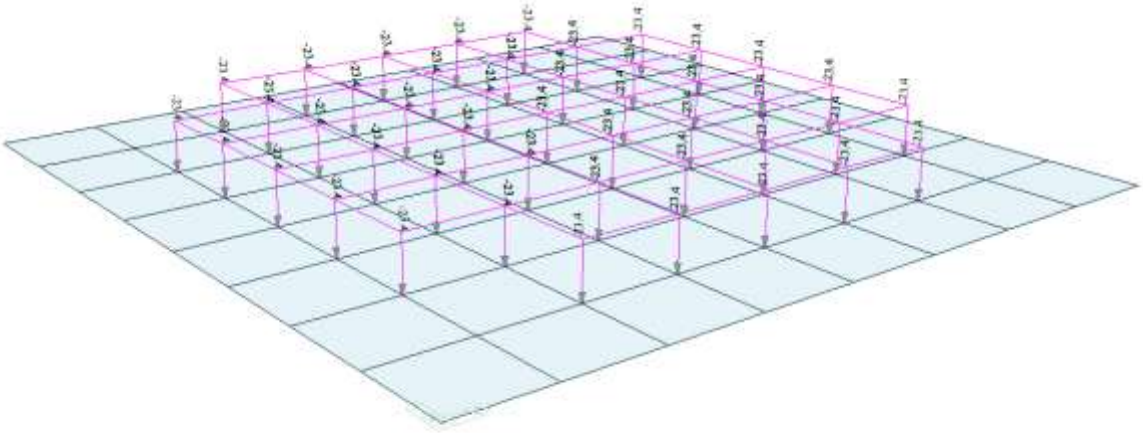
$$F.S.= (3.71\ kN + 2.376\ kN) / 4.76$$

$$F.S.= 1.28$$

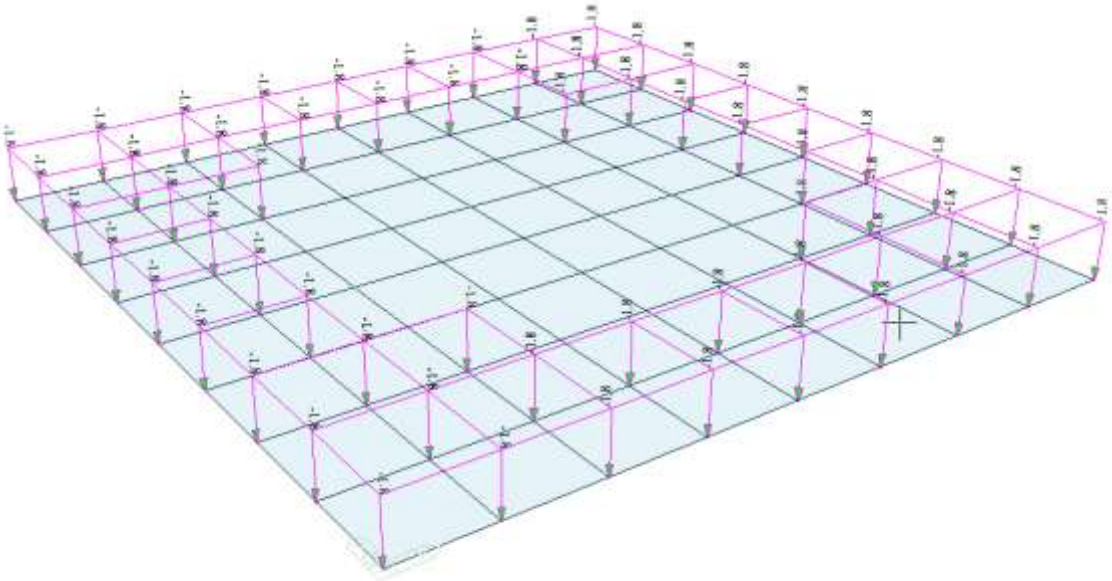
16. DISEÑO DE PLACA DE CIMENTACIÓN PARA TANQUE 5000 Litros

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

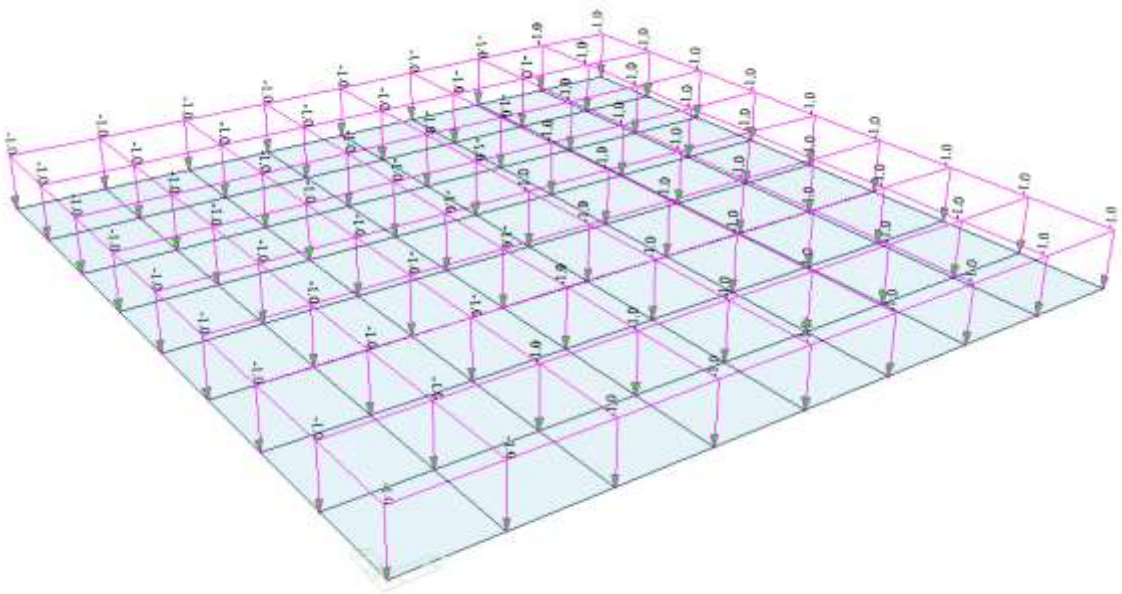
- CARGA MUERTA: Peso propio de placa E=0.10m
- CARGA FLUIDOS: Carga de tanque 5000 lts – 23.4 kN/m2



- CARGA VIVA= 1.8 kN/m2

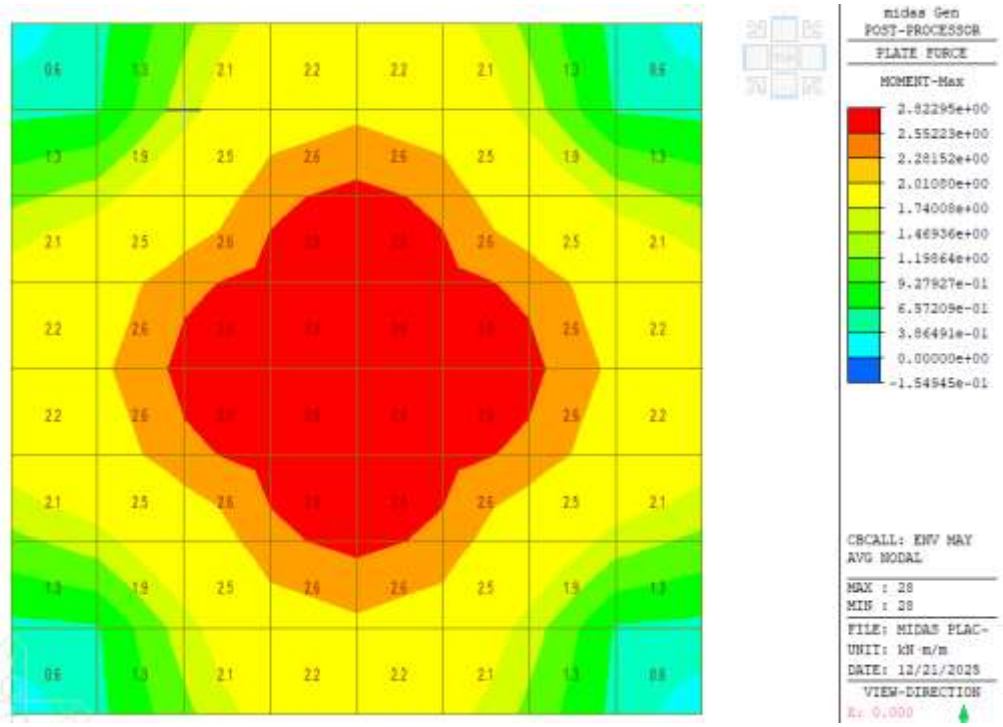


- CARGA GRANIZO= 1.0 kN/m2

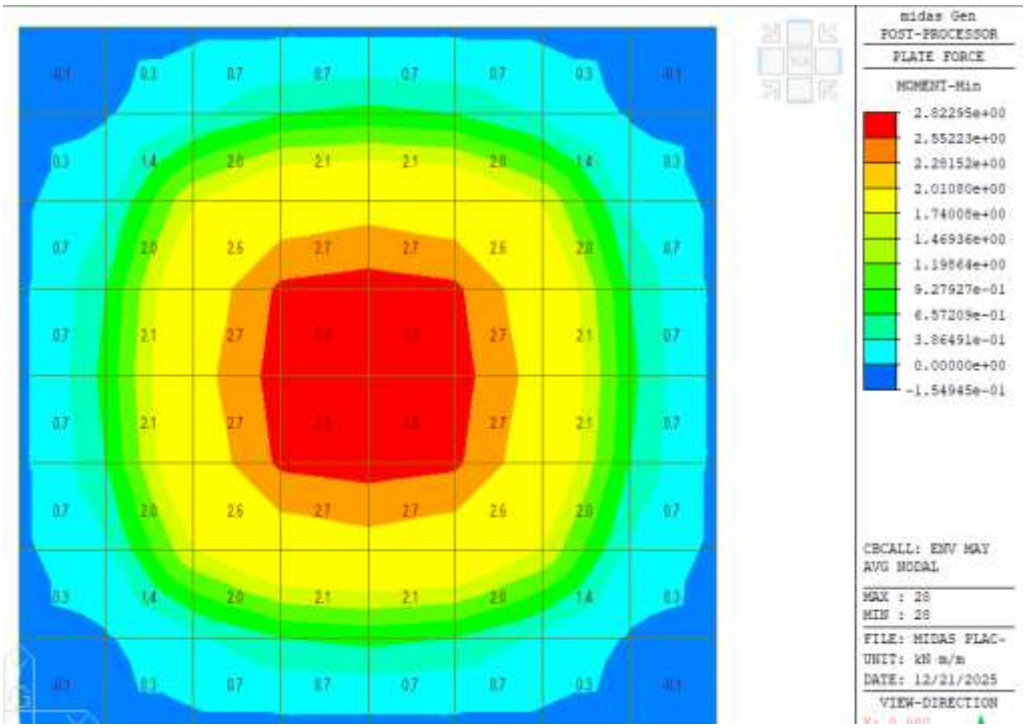


Con el fin de realizar el modelo con condiciones del terreno se utilizaron resortes equivalentes a arcillas blandas, una condición conservadora ante la cantidad de posibles suelos que se puedan encontrar dentro de los municipios. El valor utilizado como reacción de la subrasante en esta ocasión es de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

- DISEÑO DE ACERO DE REFUERZO



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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

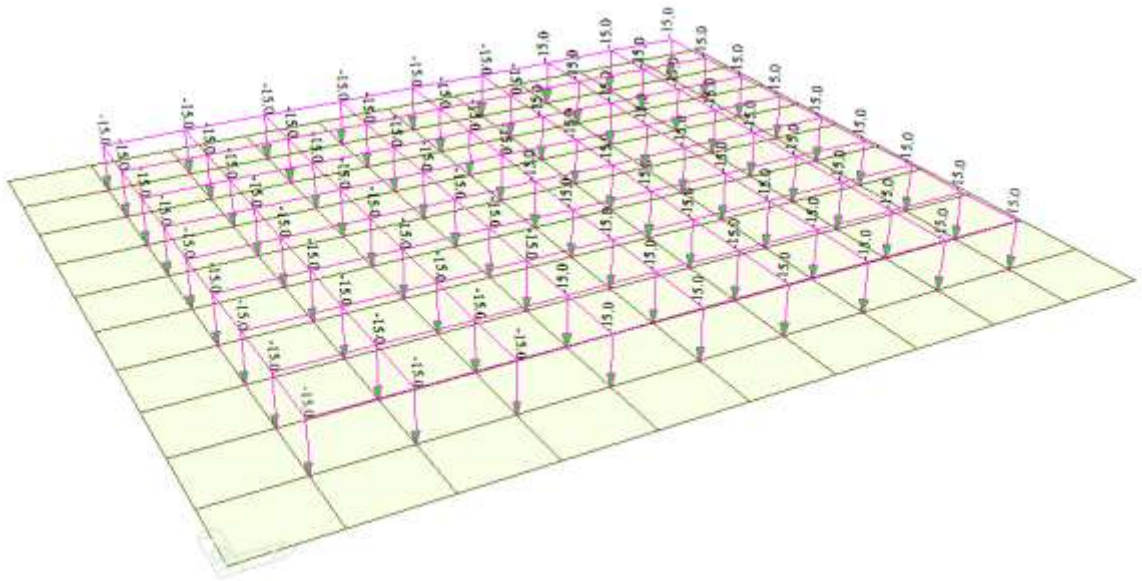
Para la losa de 10 cm, incluir malla electrosoldada de 6 mm cada 0.15m en cada dirección.

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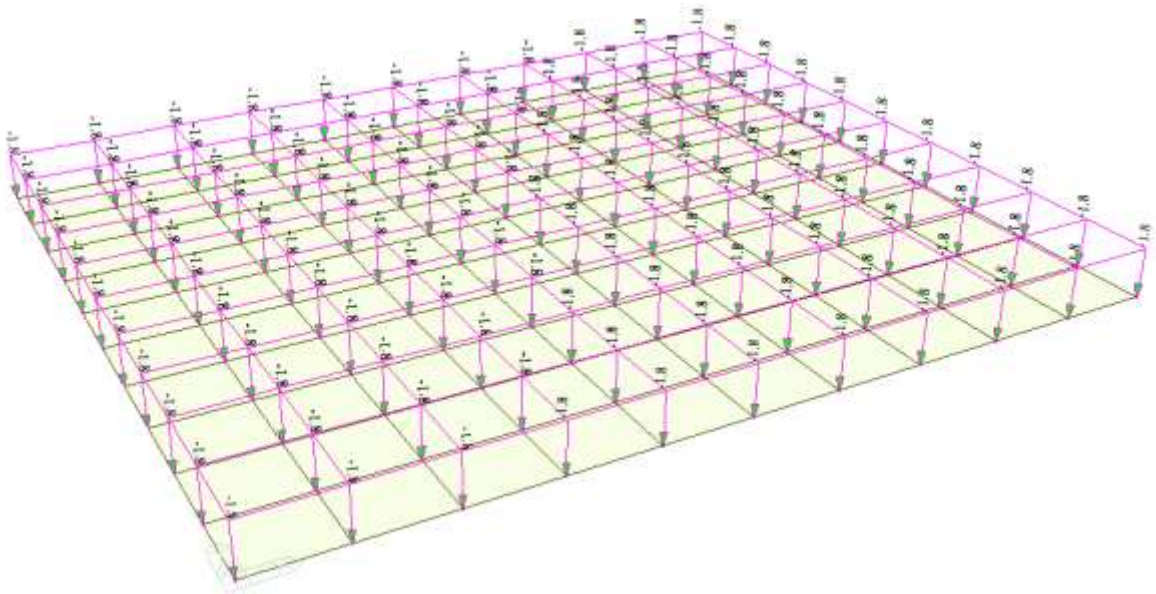
17. DISEÑO DE PLACA DE CIMENTACIÓN PARA CUARTO DE ALMACENAMIENTO

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

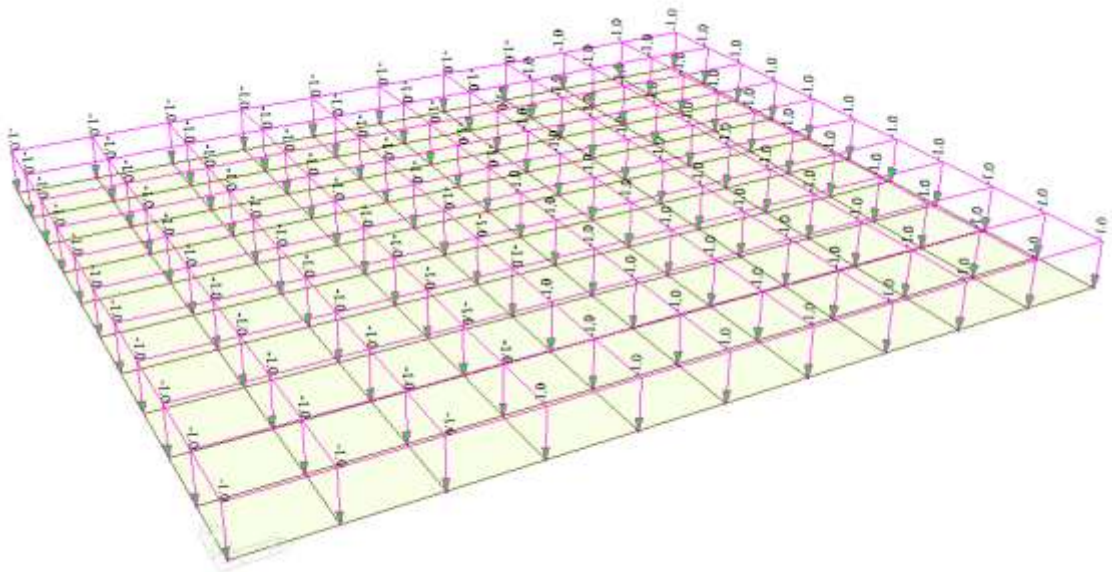
- CARGA MUERTA: Peso propio de placa E=0.12m, más una carga de 15 kN/m2 que considera el peso de la estructura prefabricada y almacenamiento.



- CARGA VIVA= 1.8 kN/m2

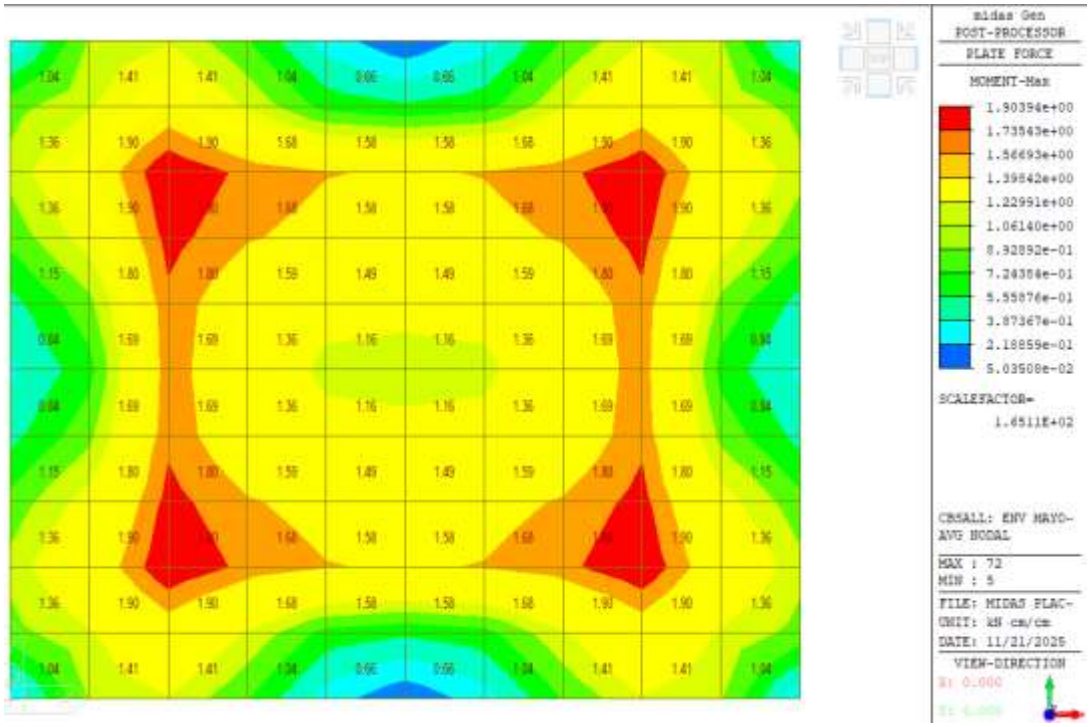


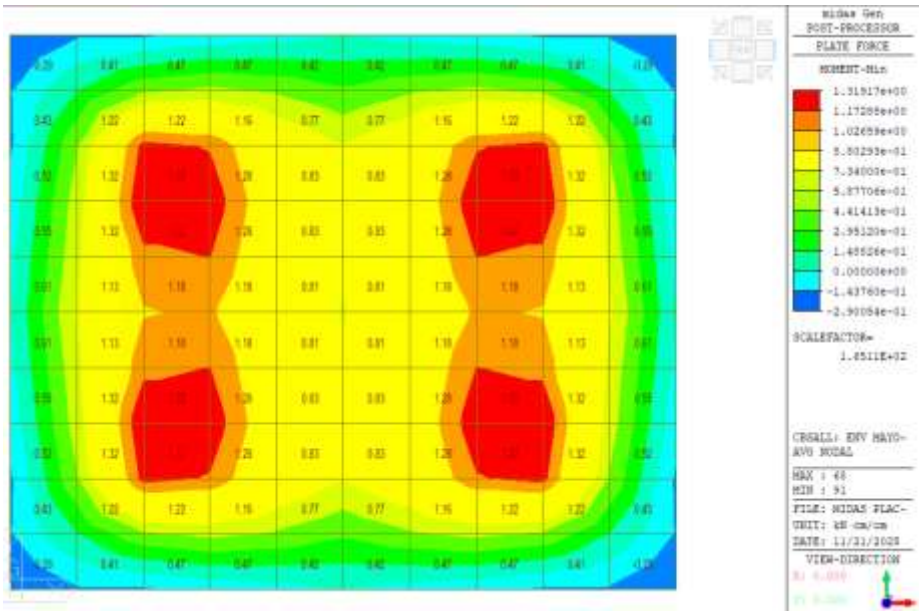
- CARGA GRANIZO= 1.0 kN/m2



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	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-10.384	133.394	9.18378	-0.0006	0.60595	3.22159	OK
0.434	0.012		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
42	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	300	300	1	1	1	1	-2.9971	-65.207	-11.837	-0.0582	-0.2137	6.55295	OK
0.197	0.004		A500-50	34.4738	3	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
44	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.0685	92.216	2.72746	0.05151	-1.9233	3.48898	OK
0.239	0.037		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
45	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.12551	140.501	-0.9194	0.05151	-1.1759	3.85374	OK
0.365	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
46	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.19506	147.045	-3.0295	0.05151	-0.405	3.67554	OK
0.382	0.008		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
47	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.14946	142.298	-5.0731	0.05151	1.12362	2.9583	OK
0.37	0.022		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
48	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.0072	97.2948	-8.5218	0.05151	1.88854	1.71777	OK
0.253	0.037		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
49	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.2772	-128.87	-14.851	0.05151	2.62194	0.31019	OK
0.337	0.051		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
50	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	2.77705	-22.226	-7.4855	-0.0598	0.56022	1.82537	OK
0.069	0.012		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
51	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3802	71.9028	5.90948	0.05206	-1.1208	4.35716	OK
0.194	0.022		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
52	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3109	92.308	2.15767	0.05206	-0.715	5.46269	OK
0.246	0.014		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
53	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.2987	95.8357	-0.1092	0.05206	0.44548	5.86627	OK
0.255	0.009		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
54	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3468	88.0716	-2.3737	0.05206	0.84741	5.55904	OK
0.236	0.016		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
55	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.4652	59.5592	-6.1184	0.05206	1.23304	4.54774	OK
0.163	0.024		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
56	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	30.1014	30.1014	1	1	1	1	-2.67	-23.475	-11.262	0.05206	1.2326	2.85458	OK
0.075	0.031		A500-50	34.4738	3	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
69	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	-0.4143	-137.47	9.38177	0.05151	-2.6399	2.58927	OK
0.358	0.051		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
70	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2923	-69.87	0	0	-1.5608	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
71	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2923	-69.87	0	0	-1.5608	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
72	1	0	Tub 2" x 2mm	Tub 2" x 2mm	4	300	300	1	1	1	1	-0.2516	3.32451	0.17496	-0.0006	-0.0111	0	OK
0.021	0		A500-50	34.4738	4	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
73	1	0	Tub 2" x 2mm	Tub 2" x 2mm	3	300	300	1	1	1	1	-0.1287	-17.907	0	0	0.05969	0	OK
0.088	0.002		A500-50	34.4738	3	300	300	1	1	1	1	26.5526	208.828	208.828	0	33.9204	0	OK
74	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-0.2399	-11.162	2.9262	-0.0056	-0.2164	3.91173	OK
0.031	0.006		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
75	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	33.0543	33.0543	1	1	1	1	0.51059	9.56913	-3.101	0.00793	0.67003	2.747	OK
0.028	0.013		A500-50	34.4738	3	33.0543	33.0543	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
77	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-0.1119	1.95795	-0.2283	0.05089	-0.244	0.64295	OK
0.005	0.005		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
78	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	10.711	10.711	1	1	1	1	0.36663	-14.686	-3.8414	0.00793	0.89906	1.77134	OK
0.04	0.017		A500-50	34.4738	3	10.711	10.711	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
79	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	22.4384	22.4384	1	1	1	1	0.17666	-8.7351	1.87244	-0.04	0.52638	1.00957	OK
0.024	0.01		A500-50	34.4738	3	22.4384	22.4384	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
80	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	68.6003	68.6003	1	1	1	1	0.22725	4.08758	-2.8856	-0.0509	0.10221	0.31461	OK
0.014	0.002		A500-50	34.4738	2	68.6003	68.6003	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
81	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-6.8699	98.2418	3.96629	0.01242	0.45128	1.57383	OK
0.313	0.009		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
82	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	1.10831	132.677	-1.8327	0.02124	-0.5861	1.99768	OK
0.347	0.011		A500-50	34.4738	2	300	300	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
83	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.6057	-65.223	2.74029	0.02066	-1.0276	1.38806	OK
0.186	0.02		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
84	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.4801	-25.766	1.27345	0.02066	-1.105	1.59352	OK
0.084	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
85	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.3329	65.5575	-1.4526	0.02066	-1.1605	1.58018	OK
0.186	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
86	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.2025	114.803	-2.9153	0.02066	-1.1939	1.34835	OK
0.314	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
87	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.0733	164.72	-4.3276	0.02066	-1.2057	0.90311	OK
0.443	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
88	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-4.9485	214.091	-5.6585	0.02066	-1.197	0.60559	OK
0.57	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK

89	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	4.77756	139.999	-4.5776	-0.0384	2.52337	0.96967	OK
0.377	0.049		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
90	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	1.01647	98.1935	-4.1785	-0.0219	2.21425	1.21486	OK
0.258	0.043		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
91	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-1.2396	94.0566	0.27085	0.00691	-1.5542	1.62446	OK
0.248	0.032		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
92	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.5964	-136.3	0.23696	-0.0219	1.06481	1.80382	OK
0.355	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
93	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.52083	-145.01	1.48837	-0.0219	0.45423	1.74899	OK
0.378	0.009		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
94	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.5463	-142.66	2.05603	-0.0219	-0.8643	1.48754	OK
0.372	0.018		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
95	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.63109	-111.39	3.55152	-0.0219	-1.1191	1.53492	OK
0.291	0.03		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
96	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-5.7361	-99.127	4.15703	0.02066	-0.9392	1.39784	OK
0.274	0.03		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
97	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
98	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
99	1	0	Tub 2" x 2mm	Tub 2" x 2mm	4	300	300	1	1	1	1	-0.1207	10.0622	0.2108	-0.0007	-0.0335	0	OK
0.05	0.001		A500-50	34.4738	4	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
100	1	0	Tub 2" x 2mm	Tub 2" x 2mm	4	300	300	1	1	1	1	-0.1207	10.0617	0.08223	-0.0003	-0.0335	0	OK
0.05	0.001		A500-50	34.4738	4	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
101	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.0844	109.184	1.62821	0.0165	2.78234	1.94327	OK
0.289	0.054		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
102	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.7271	23.5789	1.42905	0.0165	1.61288	1.10106	OK
0.069	0.031		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
103	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.7863	-27.131	0.70281	0.0165	-1.3972	0.32118	OK
0.079	0.028		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
104	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	10.711	10.711	1	1	1	1	-2.9163	-29.463	0.86806	0.0165	0.62499	0.73437	OK
0.085	0.012		A500-50	34.4738	2	10.711	10.711	1	1	1	1	171.564	385.684	385.684	51.5385	51.5385	363.347	OK
105	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	22.4384	22.4384	1	1	1	1	-2.9591	-29.464	-0.961	0.0165	0.23273	0.49801	OK
0.085	0.006		A500-50	34.4738	2	22.4384	22.4384	1	1	1	1	170.781	385.684	385.684	51.5385	51.5385	363.347	OK
106	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	68.6003	68.6003	1	1	1	1	2.97116	-74.057	-1.028	-0.0165	-0.9072	0.75608	OK
0.201	0.018		A500-50	34.4738	2	68.6003	68.6003	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
107	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-6.2971	98.7951	-0.6414	-0.0116	0.46777	0.58721	OK
0.309	0.009		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
108	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	1.10236	148.763	0.86495	-0.003	-0.7024	0.3837	OK
0.389	0.014		A500-50	34.4738	2	300	300	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
109	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.9481	-72.131	-0.5668	-0.0023	-0.9724	0.73635	OK
0.205	0.019		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
110	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.8269	-35.99	-0.4	-0.0023	-1.101	0.46057	OK
0.111	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
111	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.6766	57.9513	-0.0878	-0.0023	-1.2078	0.49947	OK
0.167	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
112	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.5354	113.073	0.08906	-0.0023	-1.2914	0.52735	OK
0.31	0.025		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
113	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.3882	171.762	0.2662	-0.0023	-1.3514	0.4253	OK
0.462	0.026		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
114	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.2384	232.606	0.43902	-0.0023	-1.3876	0.44346	OK
0.619	0.027		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
115	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	5.21789	148.512	0.37423	0.00337	2.56548	0.92775	OK
0.4	0.05		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
116	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	1.1596	114.809	0.41733	0.00113	2.2673	0.31387	OK
0.301	0.044		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
117	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-1.2237	90.446	-0.4962	-0.0041	-1.5821	0.41058	OK
0.238	0.034		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
118	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.71777	-132.89	0.22536	0.00113	1.15738	0.23816	OK
0.347	0.022		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
119	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.62719	-146.53	0.171	0.00113	0.56372	0.49566	OK
0.382	0.011		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
120	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.63531	-145.84	0.14644	0.00113	-0.7403	0.86117	OK
0.38	0.018		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
121	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.7008	-122.03	0.06852	0.00113	-0.9833	1.1318	OK
0.318	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
122	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-6.0666	-99.688	-0.7234	-0.0023	-0.8339	0.99336	OK
0.276	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
123	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK

124	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
125	1	0	Tub 2" x 2mm	Tub 2" x 2mm	4	300	300	1	1	1	1	-0.1207	9.69988	0.24056	-0.0008	-0.0323	0	OK
0.049	0.001		A500-50	34.4738	4	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
126	1	0	Tub 2" x 2mm	Tub 2" x 2mm	4	300	300	1	1	1	1	-0.1207	9.69957	0.10397	-0.0003	-0.0323	0	OK
0.049	0.001		A500-50	34.4738	4	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
127	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.2819	119.824	-0.2236	-0.0022	2.99626	1.74139	OK
0.317	0.058		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
128	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.9824	27.1469	-0.1733	-0.0022	1.7528	0.97236	OK
0.079	0.034		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
129	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-3.0742	-29.886	-0.037	-0.0022	-1.4398	0.12298	OK
0.087	0.028		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
130	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	10.711	10.711	1	1	1	1	-3.1956	-31.403	-0.0827	-0.0022	0.7074	0.6461	OK
0.091	0.014		A500-50	34.4738	2	10.711	10.711	1	1	1	1	171.564	385.684	385.684	51.5385	51.5385	363.347	OK
131	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	22.4384	22.4384	1	1	1	1	-3.2475	-31.566	0.07307	-0.0022	0.19644	0.42055	OK
0.091	0.006		A500-50	34.4738	2	22.4384	22.4384	1	1	1	1	170.781	385.684	385.684	51.5385	51.5385	363.347	OK
132	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	68.6003	68.6003	1	1	1	1	3.21085	-84.045	0.12594	0.00225	-1.0725	0.74024	OK
0.227	0.021		A500-50	34.4738	2	68.6003	68.6003	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
133	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-6.3586	98.2006	-0.2391	-0.0037	0.46467	0.34151	OK
0.308	0.009		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
134	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	1.09404	149.491	1.47888	-0.0063	-0.7075	0.3729	OK
0.391	0.014		A500-50	34.4738	2	300	300	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
135	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.9772	-72.251	-0.139	-0.0015	-0.9648	0.64933	OK
0.205	0.019		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
136	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.8569	-36.567	-0.0358	-0.0015	-1.0978	0.29466	OK
0.113	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
137	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.7066	57.2549	0.1556	-0.0015	-1.209	0.28716	OK
0.166	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
138	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.565	112.718	0.2561	-0.0015	-1.2971	0.5022	OK
0.309	0.025		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
139	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.4166	172.007	0.35195	-0.0015	-1.3613	0.41197	OK
0.462	0.026		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
140	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.265	233.698	0.44103	-0.0015	-1.4016	0.43527	OK
0.622	0.027		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
141	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	5.23857	149.033	0.35303	0.00291	2.56921	0.9691	OK
0.402	0.05		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
142	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	1.16312	115.701	0.3063	0.00183	2.27113	0.45736	OK
0.303	0.044		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
143	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-1.218	90.5949	0.01639	-0.0008	-1.5808	0.44525	OK
0.239	0.034		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
144	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.72001	-132.77	-0.0698	0.00183	1.16207	0.16875	OK
0.346	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
145	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.62871	-146.64	-0.1764	0.00183	0.5687	0.35836	OK
0.382	0.011		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
146	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.63608	-146.02	-0.2248	0.00183	-0.7352	0.75685	OK
0.38	0.018		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
147	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.7008	-122.52	-0.3495	0.00183	-0.9781	1.06987	OK
0.32	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
148	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-6.0942	-99.094	-0.2397	-0.0015	-0.8221	0.93906	OK
0.275	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
149	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
150	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
151	1	0	Tub 2" x 2mm	Tub 2" x 2mm	4	300	300	1	1	1	1	-0.1207	9.31804	0.26425	-0.0009	-0.0311	0	OK
0.047	0.001		A500-50	34.4738	4	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
152	1	0	Tub 2" x 2mm	Tub 2" x 2mm	9	300	300	1	1	1	1	-0.1207	-9.3179	0.21752	-0.0007	0.03106	0	OK
0.047	0.001		A500-50	34.4738	9	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
153	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.2933	120.42	-0.1065	-0.0011	3.00838	1.74936	OK
0.319	0.058		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
154	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.9971	27.3422	-0.0983	-0.0011	1.76065	0.97225	OK
0.08	0.034		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
155	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-3.0907	-30.042	-0.0585	-0.0011	-1.4424	0.13629	OK
0.087	0.028		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
156	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	10.711	10.711	1	1	1	1	-3.2116	-31.517	-0.0645	-0.0011	0.71196	0.65377	OK
0.091	0.014		A500-50	34.4738	2	10.711	10.711	1	1	1	1	171.564	385.684	385.684	51.5385	51.5385	363.347	OK
157	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	22.4384	22.4384	1	1	1	1	-3.264	-31.69	0.06654	-0.0011	0.19453	0.43277	OK
0.092	0.006		A500-50	34.4738	2	22.4384	22.4384	1	1	1	1	170.781	385.684	385.684	51.5385	51.5385	363.347	OK
158	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	68.6003	68.6003	1	1	1	1	3.22465	-84.613	0.07046	0.00108	-1.0818	0.75611	OK
0.229	0.021		A500-50	34.4738	2	68.6003	68.6003	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK

159	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-6.3086	98.7379	-0.6033	-0.0023	0.46727	0.45828	OK
0.309	0.009		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
160	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	1.1042	148.593	2.33674	-0.012	-0.7012	0.62436	OK
0.389	0.014		A500-50	34.4738	2	300	300	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
161	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.9454	-72.038	-0.3131	-0.004	-0.9726	0.78305	OK
0.205	0.019		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
162	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.8242	-35.884	-0.0314	-0.004	-1.1008	0.43596	OK
0.111	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
163	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.6739	58.0063	0.491	-0.004	-1.2072	0.40984	OK
0.168	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
164	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.5329	113.068	0.76257	-0.004	-1.2904	0.61552	OK
0.31	0.025		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
165	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.3858	171.673	1.02003	-0.004	-1.35	0.48897	OK
0.461	0.026		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
166	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.2362	232.414	1.25772	-0.004	-1.3859	0.46099	OK
0.619	0.027		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
167	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	5.21325	148.423	1.00206	0.0082	2.56505	0.99401	OK
0.4	0.05		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
168	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	1.15805	114.636	0.8514	0.00534	2.26675	0.42725	OK
0.301	0.044		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
169	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-1.2245	90.5558	0.20657	-0.0005	-1.5823	0.54104	OK
0.239	0.034		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
170	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.71645	-132.92	-0.2564	0.00534	1.1564	0.51244	OK
0.347	0.022		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
171	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.62603	-146.52	-0.5704	0.00534	0.56256	0.5131	OK
0.382	0.011		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
172	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.63433	-145.8	-0.7129	0.00534	-0.7416	0.86277	OK
0.38	0.018		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
173	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.70003	-121.92	-1.0773	0.00534	-0.9848	1.13558	OK
0.318	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
174	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-6.0639	-99.631	-0.5894	-0.004	-0.8345	1.02373	OK
0.276	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
175	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
176	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
177	1	0	Tub 2" x 2mm	Tub 2" x 2mm	9	300	300	1	1	1	1	-0.1207	-9.1198	0.15952	-0.0005	0.0304	0	OK
0.046	0.001		A500-50	34.4738	9	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
178	1	0	Tub 2" x 2mm	Tub 2" x 2mm	9	300	300	1	1	1	1	-0.1207	-9.12	0.22388	-0.0007	0.0304	0	OK
0.046	0.001		A500-50	34.4738	9	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
179	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.2799	119.713	-0.2808	-0.0029	2.99404	1.83332	OK
0.317	0.058		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
180	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.9797	27.1097	-0.2656	-0.0029	1.75134	1.04367	OK
0.079	0.034		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
181	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-3.0713	-29.858	-0.171	-0.0029	-1.4394	0.14913	OK
0.086	0.028		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
182	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	10.711	10.711	1	1	1	1	-3.1927	-31.383	-0.1802	-0.0029	0.70655	0.69965	OK
0.091	0.014		A500-50	34.4738	2	10.711	10.711	1	1	1	1	171.564	385.684	385.684	51.5385	51.5385	363.347	OK
183	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	22.4384	22.4384	1	1	1	1	-3.2445	-31.544	0.18838	-0.0029	0.19682	0.46147	OK
0.091	0.006		A500-50	34.4738	2	22.4384	22.4384	1	1	1	1	170.781	385.684	385.684	51.5385	51.5385	363.347	OK
184	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	68.6003	68.6003	1	1	1	1	3.20837	-83.941	0.19003	0.00286	-1.0708	0.76703	OK
0.227	0.021		A500-50	34.4738	2	68.6003	68.6003	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
185	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-6.3866	84.3418	-4.3255	-0.0219	0.37703	1.71136	OK
0.273	0.007		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
186	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	1.42013	111.342	4.63241	-0.0321	-0.4538	2.19978	OK
0.293	0.009		A500-50	34.4738	2	300	300	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
187	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.7561	-58.781	-2.9822	-0.0226	-0.9248	1.55849	OK
0.17	0.018		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
188	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.6441	-25.513	-1.3783	-0.0226	-1.0256	1.73938	OK
0.083	0.02		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
189	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.5068	57.7562	1.60218	-0.0226	-1.1062	1.72272	OK
0.167	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
190	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.3826	105.315	3.20088	-0.0226	-1.1659	1.46726	OK
0.29	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
191	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.2555	155.165	4.74415	-0.0226	-1.2046	0.97862	OK
0.418	0.023		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
192	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1.003	1	-5.1289	206.091	6.19809	-0.0226	-1.2228	0.64985	OK
0.55	0.024		A500-50	34.4738	2	60.2028	60.2028	1	1	1.003	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
193	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	4.53074	136.297	5.01239	0.042	2.50432	1.06726	OK
0.367	0.049		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK

194	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.89814	91.0575	4.57115	0.02398	2.18206	1.34065	OK
0.239	0.042		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
195	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-1.146	95.7457	-0.1269	-0.0055	-1.5096	1.7881	OK
0.252	0.031		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
196	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.49264	-134.6	-0.273	0.02398	0.99943	1.98291	OK
0.35	0.019		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
197	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.43265	-140.62	-1.2849	0.02398	0.37424	1.92079	OK
0.366	0.008		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
198	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	0.46619	-136.14	-2.2687	0.02398	-0.9572	1.60312	OK
0.354	0.02		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
199	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.56558	-99.282	-3.9087	0.02398	-1.2228	1.58511	OK
0.259	0.029		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
200	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-5.8696	-85.227	-4.5309	-0.0226	-0.8153	1.54558	OK
0.239	0.029		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
201	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
202	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2904	-69.791	0	0	-1.5595	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
203	1	0	Tub 2" x 2mm	Tub 2" x 2mm	9	300	300	1	1	1	1	-0.1207	-8.9317	0.16635	-0.0006	0.02977	0	OK
0.045	0.001		A500-50	34.4738	9	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
204	1	0	Tub 2" x 2mm	Tub 2" x 2mm	9	300	300	1	1	1	1	-0.1207	-8.9319	0.22508	-0.0008	0.02977	0	OK
0.045	0.001		A500-50	34.4738	9	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
205	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-1.9996	104.603	-1.7779	-0.018	2.69036	2.01023	OK
0.277	0.052		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
206	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.6087	-22.98	-0.966	-0.018	1.5527	1.15601	OK
0.067	0.03		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
207	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-2.6625	-25.951	-0.7707	-0.018	-1.379	0.35305	OK
0.075	0.027		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
208	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	10.711	10.711	1	1	1	1	-2.7964	-28.634	-0.9499	-0.018	0.58951	0.78102	OK
0.082	0.011		A500-50	34.4738	2	10.711	10.711	1	1	1	1	171.564	385.684	385.684	51.5385	51.5385	363.347	OK
209	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	22.4384	22.4384	1	1	1	1	-2.835	-28.634	1.05193	-0.018	0.24838	0.54693	OK
0.083	0.006		A500-50	34.4738	2	22.4384	22.4384	1	1	1	1	170.781	385.684	385.684	51.5385	51.5385	363.347	OK
210	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	68.6003	68.6003	1	1	1	1	2.86818	-69.759	1.12335	0.01802	-0.8362	0.79553	OK
0.189	0.016		A500-50	34.4738	2	68.6003	68.6003	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
211	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	300	300	1	1	1	1	-8.7355	124.553	-6.4503	0.00103	0.56545	2.24935	OK
0.397	0.011		A500-50	34.4738	2	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
212	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	300	300	1	1	1	1	-3.0819	-65.596	8.55926	0.04244	-0.2258	4.66479	OK
0.197	0.004		A500-50	34.4738	3	300	300	1	1	1	1	59.6114	385.684	385.684	51.5385	51.5385	363.347	OK
213	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.4266	85.5167	-1.8898	-0.0363	-1.8185	2.45902	OK
0.223	0.035		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
214	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.2441	130.747	0.68116	-0.0363	-1.1251	2.71129	OK
0.34	0.022		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
215	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.178	137.425	2.16773	-0.0363	-0.4094	2.58085	OK
0.357	0.008		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
216	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.2188	132.811	3.6067	-0.0363	1.06409	2.07058	OK
0.345	0.021		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
217	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.3626	91.3916	6.03587	-0.0363	1.77524	1.19167	OK
0.239	0.034		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
218	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	-0.612	-118.04	10.4953	-0.0363	2.45736	0.18139	OK
0.309	0.048		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
219	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	60.2028	60.2028	1	1	1	1	2.8877	-20.677	5.30413	0.04221	0.54362	1.30251	OK
0.064	0.012		A500-50	34.4738	2	60.2028	60.2028	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
220	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3912	68.5711	-4.278	-0.0377	-1.1266	3.10572	OK
0.185	0.022		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
221	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3209	89.4208	-1.5639	-0.0377	-0.7224	3.88638	OK
0.239	0.014		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
222	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3075	93.2129	0.07569	-0.0377	0.4367	4.16895	OK
0.249	0.008		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
223	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.3543	85.7133	1.71365	-0.0377	0.83742	3.94725	OK
0.229	0.016		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
224	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	60.2028	60.2028	1	1	1.001	1	-2.4711	57.8024	4.42277	-0.0377	1.22206	3.22612	OK
0.158	0.024		A500-50	34.4738	3	60.2028	60.2028	1	1	1.001	1	164.63	385.684	385.684	51.5385	51.5385	363.347	OK
225	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	30.1014	30.1014	1	1	1	1	-2.6741	-24.218	8.14431	-0.0377	1.22087	2.02142	OK
0.074	0.031		A500-50	34.4738	3	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
226	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	-0.7529	-128.43	-6.5818	-0.0363	-2.4834	1.8296	OK
0.336	0.048		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
227	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2923	-69.87	0	0	-1.5608	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
228	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2923	-69.87	0	0	-1.5608	0	OK
0.188	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK

229	1	0	Tub 2" x 2mm	Tub 2" x 2mm	9	300	300	1	1	1	1	-0.1265	-2.5565	0.16992	-0.0006	0.00852	0	OK
0.015	0		A500-50	34.4738	9	300	300	1	1	1	1	26.5526	208.828	208.828	33.9204	33.9204	0	OK
230	1	0	Tub 2" x 2mm	Tub 2" x 2mm	3	300	300	1	1	1	1	-0.1294	-16.794	0	0	0.05598	0	OK
0.083	0.002		A500-50	34.4738	3	300	300	1	1	1	1	26.5526	208.828	208.828	0	33.9204	0	OK
231	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	33.0543	33.0543	1	1	1	1	-0.3243	-9.8746	-2.0608	0.00418	0.22397	2.77136	OK
0.027	0.007		A500-50	34.4738	2	33.0543	33.0543	1	1	1	1	169.603	385.684	385.684	51.5385	51.5385	363.347	OK
232	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	33.0543	33.0543	1	1	1	1	0.60638	9.20275	2.24564	-0.0057	0.64492	1.94896	OK
0.026	0.013		A500-50	34.4738	3	33.0543	33.0543	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
233	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	33.0543	33.0543	1	1	1	1	0.26138	1.53109	0.36075	0.02891	0.21612	0.45666	OK
0.005	0.005		A500-50	34.4738	3	33.0543	33.0543	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
234	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	10.711	10.711	1	1	1	1	0.46557	-14.178	2.77881	-0.0057	0.89489	1.25791	OK
0.039	0.017		A500-50	34.4738	3	10.711	10.711	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
235	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	22.4384	22.4384	1	1	1	1	0.1977	-9.0395	-1.3546	0.02891	0.54205	0.71659	OK
0.024	0.011		A500-50	34.4738	3	22.4384	22.4384	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
236	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	4	68.6003	68.6003	1	1	1	1	-0.076	3.87128	0.36064	0.0066	0.08912	0.2245	OK
0.01	0.002		A500-50	34.4738	4	68.6003	68.6003	1	1	1	1	162.55	385.684	385.684	51.5385	51.5385	363.347	OK
318	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
319	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
320	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
321	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
322	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
323	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
324	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
325	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
326	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
327	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
328	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
329	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
330	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
331	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	35	35	1	1	1	1	0	-0.366	0	0	-0.0209	0	OK
0.001	0		A500-50	34.4738	1	35	35	1	1	1	1	171.795	385.684	385.684	0	51.5385	0	OK
382	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	500	500	1	1	1.386	1	-10.519	-126.66	-0.2297	-0.0337	-0.4308	1.53328	OK*
0.782	0.008		A500-50	34.4738	2	500	500	1	1	1.386	1	21.4601	385.684	385.684	51.5385	51.5385	363.347	OK*
383	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	41	41	1	1	1	1	1.13677	8.52847	1.84037	0.05648	0.39435	2.64846	OK
0.026	0.008		A500-50	34.4738	2	41	41	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
386	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	500	500	1	1	1.317	1	-9.6454	-119.84	-0.1656	0.02382	0.40712	1.10824	OK*
0.726	0.008		A500-50	34.4738	2	500	500	1	1	1.317	1	21.4601	385.684	385.684	51.5385	51.5385	363.347	OK*
387	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	41	41	1	1	1	1	1.19812	-6.8122	0.33577	-0.0402	0.3212	1.87849	OK
0.021	0.006		A500-50	34.4738	2	41	41	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
396	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	30.1014	30.1014	1	1	1	1	-2.6826	-66.155	-12.829	0.05206	1.60311	2.85458	OK
0.183	0.031		A500-50	34.4738	3	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
397	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	-0.4016	-63.58	7.83109	0.05151	-2.2694	2.58927	OK
0.167	0.044		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
398	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2776	-23.324	0	0	-1.5507	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
399	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2776	-23.324	0	0	-1.5507	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
400	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.61842	-83.003	4.20981	-0.0219	-1.471	1.53492	OK
0.217	0.03		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
401	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-5.7234	-76.434	3.53502	0.02066	-0.5686	1.39784	OK
0.215	0.029		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
402	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
403	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
404	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.68813	-97.732	0.03459	0.00113	-1.3352	1.1318	OK
0.255	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK

405	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-6.0539	-80.161	-0.6546	-0.0023	-0.4634	0.99336	OK
0.226	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
406	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
407	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
408	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.68814	-98.377	-0.4044	0.00183	-1.33	1.06987	OK
0.257	0.032		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
409	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-6.0816	-79.923	-0.1956	-0.0015	-0.4516	0.93906	OK
0.225	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
410	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
411	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
412	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	0.68736	-97.572	-1.238	0.00534	-1.3367	1.13558	OK
0.255	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	171.795	385.684	385.684	51.5385	51.5385	363.347	OK
413	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-6.0512	-80.086	-0.4682	-0.004	-0.464	1.02373	OK
0.225	0.031		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
414	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
415	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
416	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	30.1014	30.1014	1	1	1	1	-2.7638	-69.889	-3.0469	0.01446	1.52039	1.58511	OK
0.19	0.031		A500-50	34.4738	1	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
417	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1.001	1	-5.857	-66.263	-3.8507	-0.0226	-0.4447	1.54558	OK
0.189	0.029		A500-50	34.4738	2	30.1014	30.1014	1	1	1.001	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
418	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
419	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2756	-23.284	0	0	-1.5494	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
420	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	3	30.1014	30.1014	1	1	1	1	-2.6868	-66.545	9.27814	-0.0377	1.59138	2.02142	OK
0.182	0.031		A500-50	34.4738	3	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
421	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	2	30.1014	30.1014	1	1	1	1	-0.7402	-59.258	-5.4884	-0.0363	-2.1129	1.8296	OK
0.156	0.041		A500-50	34.4738	2	30.1014	30.1014	1	1	1	1	169.975	385.684	385.684	51.5385	51.5385	363.347	OK
422	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2776	-23.324	0	0	-1.5507	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	OK
423	4	0	Tub 2.5" x 2.5mm	Tub 2.5" x 2.5mm	1	29.9181	29.9181	1	1	1	1	-2.2776	-23.324	0	0	-1.5507	0	OK
0.067	0.03		A500-50	34.4738	1	29.9181	29.9181	1	1	1	1	169.997	385.684	385.684	0	51.5385	0	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.
Email: gerencia@inge-sismica.com - 601 249 0897- 313 752 5732
www.inge-sismica.com

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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*** PROJECT INFORMATION

   Project Name :  INVERNADERO 2 PUL 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  DESCRIPTION
                                                      X      Y      Z
   -------- -------------------- ---------- ------ ------ ------  ----------------------------------
--
          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      SHEAR    THERMAL    POISSON      WEI
GHT
                                                ELASTICITY    MODULUS     COEFF.      RATIO    DENS
ITY
   -------- -------------------- ------- ------ ---------- ---------- ---------- ---------- -------
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          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	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	Do not 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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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
181	6	15	0	0
183	13	15	0	0
200	19	15	0	0
202	0	15	0	0
236	3	0	0	0
237	3	3	0	0
238	3	6	0	0
243	16	0	0	0
244	16	3	0	0
245	16	6	0	0
250	13.01	0	3.495	0
251	13.01	3	3.495	0
252	13.01	6	3.495	0
257	5.993	0	3.495	0
258	5.993	3	3.495	0
259	5.993	6	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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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
305	9.2	0	4.978	0
306	9.5	0	4.604	0
308	9.5	0	4.306	0
310	6	12	3	0
311	6	12	0	0
312	13	12	3	0
313	13	12	0	0
314	6.343	12	3.495	0
315	6.756	12	3.933	0
316	7.229	12	4.306	0
317	7.751	12	4.604	0
318	8.312	12	4.823	0
319	8.9	12	4.955	0
320	9.5	12	5	0
321	10.1	12	4.955	0
322	10.69	12	4.823	0
323	11.25	12	4.604	0
324	11.77	12	4.306	0
325	12.24	12	3.933	0
326	12.66	12	3.495	0
327	12.83	12	3.247	0
328	6.172	12	3.247	0
329	5.832	12	3.247	0
330	13.17	12	3.247	0
331	19	12	3	0
332	19	12	0	0
333	0	12	3	0
334	0	12	0	0
335	9.885	12	5.206	0
336	9.602	12	5.376	0
337	9.279	12	5.446	0
338	8.95	12	5.41	0
339	9.5	12	5.41	0
340	3	12	0	0
341	16	12	0	0
342	13.34	12	3.495	0
343	5.663	12	3.495	0
344	13.01	12	3.495	0
345	5.993	12	3.495	0
346	9.5	12	0	0
347	9.5	12	4.306	0
348	9.5	15	0	0
349	9.5	12	4.604	0
350	6	9	3	0
351	6	9	0	0
352	13	9	3	0
353	13	9	0	0
354	6.343	9	3.495	0
355	6.756	9	3.933	0
356	7.229	9	4.306	0
357	7.751	9	4.604	0
358	8.312	9	4.823	0
359	8.9	9	4.955	0
360	9.5	9	5	0
361	10.1	9	4.955	0
362	10.69	9	4.823	0

363	11.25	9	4.604	0
364	11.77	9	4.306	0
365	12.24	9	3.933	0
366	12.66	9	3.495	0
367	12.83	9	3.247	0
368	6.172	9	3.247	0
369	5.832	9	3.247	0
370	13.17	9	3.247	0
375	9.885	9	5.206	0
376	9.602	9	5.376	0
377	9.279	9	5.446	0
378	8.95	9	5.41	0
379	9.5	9	5.41	0
380	3	9	0	0
381	16	9	0	0
382	13.01	9	3.495	0
383	5.993	9	3.495	0
384	5.663	9	3.495	0
385	13.34	9	3.495	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
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
200	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
202	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
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
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
311	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
313	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
334	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
340	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
341	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
351	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
353	111111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

380	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
381	111000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

*** FLOOR DIAPHRAGM / RIGID LINK DATA

MASTER	DDDRRR	NODES OF SAME DISPLACEMENT
8F Floor Diaphragm	49 52 76 80 104 108 318 322 358 362	

*** SECTION PROPERTY DATA

NO	NAME	SHAPE	H	B	tw	tf1	r1
1	Tub 2" x 2mm	P	0.06	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 - 2	P	0.06	0.002	0	0	0
5	Tensor 1/8"	SR	0.00312	0	0	0	0
6	Tub 2" x 3mm	P	0.06	0.003	0	0	0

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

NO	NAME	AREA	MOMENT OF INERTIA			SHAPE FACTOR	
		[SRC:EQIV.]	Ix	Iy	Iz	k-Y	k-Z
1	Tub 2" x 2mm	0.0003644	3.068e-07	1.534e-07	1.534e-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 - 2	0.0003644	3.068e-07	1.534e-07	1.534e-07	0.5	0.5
5	Tensor 1/8"	7.645e-06	9.303e-12	4.651e-12	4.651e-12	0.9	0.9
6	Tub 2" x 3mm	0.0005372	4.376e-07	2.188e-07	2.188e-07	0.5	0.5

NO	NAME	SECTION MODULUS Sy		SECTION MODULUS Sz	
		I or CONC.	J or STEEL	I or CONC.	J or STEEL
1	Tub 2" x 2mm	5.114e-06	5.114e-06	5.114e-06	5.114e-06
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 - 2	5.114e-06	5.114e-06	5.114e-06	5.114e-06
5	Tensor 1/8"	2.982e-09	2.982e-09	2.982e-09	2.982e-09

6 Tub 2" x 3mm 7.293e-06 7.293e-06 7.293e-06 7.293e-06

*** BEAM MEMBER DATA

NO	NODAL CONNECTIVITY I	J	BEAM END RELEASE I	J	MATERIAL	SECTION	LENGTH
41	3	43	-	-	A500-50	Tub 2" x 3mm	3
42	4	44	-	-	A500-50	Tub 2" x 3mm	3
44	45	46	-	-	A500-50	Tub 2" x 2mm -~	0.602
45	46	47	-	-	A500-50	Tub 2" x 2mm -~	0.602
46	47	48	-	-	A500-50	Tub 2" x 2mm -~	0.602
47	48	49	-	-	A500-50	Tub 2" x 2mm -~	0.602
48	49	50	-	-	A500-50	Tub 2" x 2mm -~	0.602
49	50	24	-	-	A500-50	Tub 2" x 2mm -~	0.602
50	24	51	-	-	A500-50	Tub 2" x 2mm -~	0.602
51	51	52	-	-	A500-50	Tub 2" x 2mm -~	0.602
52	52	53	-	-	A500-50	Tub 2" x 2mm -~	0.602
53	53	54	-	-	A500-50	Tub 2" x 2mm -~	0.602
54	54	55	-	-	A500-50	Tub 2" x 2mm -~	0.602
55	55	56	-	-	A500-50	Tub 2" x 2mm -~	0.602
56	56	277	-	-	A500-50	Tub 2" x 2mm -~	0.301
69	3	278	-	-	A500-50	Tub 2" 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 2" x 2mm -~	0.3305
75	65	66	-	-	A500-50	Tub 2" x 2mm -~	0.3305
77	67	64	-	-	A500-50	Tub 2" x 2mm -~	0.3305
78	66	63	-	-	A500-50	Tub 2" x 2mm -~	0.1071
79	67	63	-	-	A500-50	Tub 2" x 2mm -~	0.2244
80	24	64	-	-	A500-50	Tub 2" x 2mm -~	0.686
81	68	69	-	-	A500-50	Tub 2" x 3mm	3
82	70	71	-	-	A500-50	Tub 2" x 3mm	3
83	72	73	-	-	A500-50	Tub 2" x 2mm -~	0.602
84	73	74	-	-	A500-50	Tub 2" x 2mm -~	0.602
85	74	75	-	-	A500-50	Tub 2" x 2mm -~	0.602
86	75	76	-	-	A500-50	Tub 2" x 2mm -~	0.602
87	76	77	-	-	A500-50	Tub 2" x 2mm -~	0.602
88	77	78	-	-	A500-50	Tub 2" x 2mm -~	0.602
89	78	79	-	-	A500-50	Tub 2" x 2mm -~	0.602
90	79	80	-	-	A500-50	Tub 2" x 2mm -~	0.602
91	80	81	-	-	A500-50	Tub 2" x 2mm -~	0.602
92	81	82	-	-	A500-50	Tub 2" x 2mm -~	0.602
93	82	83	-	-	A500-50	Tub 2" x 2mm -~	0.602
94	83	84	-	-	A500-50	Tub 2" x 2mm -~	0.602
95	84	281	-	-	A500-50	Tub 2" x 2mm -~	0.301
96	68	282	-	-	A500-50	Tub 2" 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 2" x 2mm -~	0.3305
102	91	92	-	-	A500-50	Tub 2" x 2mm -~	0.3305
103	93	94	-	-	A500-50	Tub 2" x 2mm -~	0.3305
104	92	95	-	-	A500-50	Tub 2" x 2mm -~	0.1071
105	93	95	-	-	A500-50	Tub 2" x 2mm -~	0.2244
106	78	94	-	-	A500-50	Tub 2" x 2mm -~	0.686
107	96	97	-	-	A500-50	Tub 2" x 3mm	3
108	98	99	-	-	A500-50	Tub 2" x 3mm	3
109	100	101	-	-	A500-50	Tub 2" x 2mm -~	0.602
110	101	102	-	-	A500-50	Tub 2" x 2mm -~	0.602
111	102	103	-	-	A500-50	Tub 2" x 2mm -~	0.602
112	103	104	-	-	A500-50	Tub 2" x 2mm -~	0.602

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

113	104	105	-	-	A500-50 Tub 2" x 2mm -~	0.602
114	105	106	-	-	A500-50 Tub 2" x 2mm -~	0.602
115	106	107	-	-	A500-50 Tub 2" x 2mm -~	0.602
116	107	108	-	-	A500-50 Tub 2" x 2mm -~	0.602
117	108	109	-	-	A500-50 Tub 2" x 2mm -~	0.602
118	109	110	-	-	A500-50 Tub 2" x 2mm -~	0.602
119	110	111	-	-	A500-50 Tub 2" x 2mm -~	0.602
120	111	112	-	-	A500-50 Tub 2" x 2mm -~	0.602
121	112	285	-	-	A500-50 Tub 2" x 2mm -~	0.301
122	96	286	-	-	A500-50 Tub 2" 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 2" x 2mm -~	0.3305
128	119	120	-	-	A500-50 Tub 2" x 2mm -~	0.3305
129	121	122	-	-	A500-50 Tub 2" x 2mm -~	0.3305
130	120	123	-	-	A500-50 Tub 2" x 2mm -~	0.1071
131	121	123	-	-	A500-50 Tub 2" x 2mm -~	0.2244
132	106	122	-	-	A500-50 Tub 2" x 2mm -~	0.686
211	310	311	-	-	A500-50 Tub 2" x 3mm	3
212	312	313	-	-	A500-50 Tub 2" x 3mm	3
213	314	315	-	-	A500-50 Tub 2" x 2mm -~	0.602
214	315	316	-	-	A500-50 Tub 2" x 2mm -~	0.602
215	316	317	-	-	A500-50 Tub 2" x 2mm -~	0.602
216	317	318	-	-	A500-50 Tub 2" x 2mm -~	0.602
217	318	319	-	-	A500-50 Tub 2" x 2mm -~	0.602
218	319	320	-	-	A500-50 Tub 2" x 2mm -~	0.602
219	320	321	-	-	A500-50 Tub 2" x 2mm -~	0.602
220	321	322	-	-	A500-50 Tub 2" x 2mm -~	0.602
221	322	323	-	-	A500-50 Tub 2" x 2mm -~	0.602
222	323	324	-	-	A500-50 Tub 2" x 2mm -~	0.602
223	324	325	-	-	A500-50 Tub 2" x 2mm -~	0.602
224	325	326	-	-	A500-50 Tub 2" x 2mm -~	0.602
225	326	327	-	-	A500-50 Tub 2" x 2mm -~	0.301
226	310	328	-	-	A500-50 Tub 2" x 2mm -~	0.301
227	310	329	-	-	A500-50 Tub 2" x 2mm -~	0.2992
228	312	330	-	-	A500-50 Tub 2" x 2mm -~	0.2992
229	331	332	-	-	A500-50 Tub 2" x 2mm	3
230	333	334	-	-	A500-50 Tub 2" x 2mm	3
231	321	335	-	-	A500-50 Tub 2" x 2mm -~	0.3305
232	335	336	-	-	A500-50 Tub 2" x 2mm -~	0.3305
233	337	338	-	-	A500-50 Tub 2" x 2mm -~	0.3305
234	336	339	-	-	A500-50 Tub 2" x 2mm -~	0.1071
235	337	339	-	-	A500-50 Tub 2" x 2mm -~	0.2244
236	320	338	-	-	A500-50 Tub 2" x 2mm -~	0.686
318	56	250	-	-	A500-50 Tub 2" x 2mm -~	0.35
319	84	251	-	-	A500-50 Tub 2" x 2mm -~	0.35
320	112	252	-	-	A500-50 Tub 2" x 2mm -~	0.35
324	326	344	-	-	A500-50 Tub 2" x 2mm -~	0.35
325	45	257	-	-	A500-50 Tub 2" x 2mm -~	0.35
326	72	258	-	-	A500-50 Tub 2" x 2mm -~	0.35
327	100	259	-	-	A500-50 Tub 2" x 2mm -~	0.35
331	314	345	-	-	A500-50 Tub 2" x 2mm -~	0.35
382	24	306	-	-	A500-50 Tub 2" x 2mm -~	0.3956
383	24	63	-	-	A500-50 Tub 2" x 2mm -~	0.41
386	346	347	-	-	A500-50 Tub 2" x 2mm -~	4.306
387	320	339	-	-	A500-50 Tub 2" x 2mm -~	0.41
396	277	4	-	-	A500-50 Tub 2" x 2mm -~	0.301
397	278	45	-	-	A500-50 Tub 2" 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 2" x 2mm -~	0.301
401	282	72	-	-	A500-50 Tub 2" 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 2" x 2mm -~	0.301
405	286	100	-	-	A500-50 Tub 2" 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
420	327	312	-	-	A500-50 Tub 2" x 2mm -~	0.301
421	328	314	-	-	A500-50 Tub 2" x 2mm -~	0.301
422	329	343	-	-	A500-50 Tub 2" x 2mm -~	0.2992
423	330	342	-	-	A500-50 Tub 2" x 2mm -~	0.2992
459	306	308	-	-	A500-50 Tub 2" x 2mm -~	0.2987
464	349	320	-	-	A500-50 Tub 2" x 2mm -~	0.3956
471	308	274	-	-	A500-50 Tub 2" x 2mm -~	4.306
476	347	349	-	-	A500-50 Tub 2" x 2mm -~	0.2987
477	350	351	-	-	A500-50 Tub 2" x 3mm	3
478	352	353	-	-	A500-50 Tub 2" x 3mm	3
479	354	355	-	-	A500-50 Tub 2" x 2mm -~	0.602
480	355	356	-	-	A500-50 Tub 2" x 2mm -~	0.602
481	356	357	-	-	A500-50 Tub 2" x 2mm -~	0.602
482	357	358	-	-	A500-50 Tub 2" x 2mm -~	0.602
483	358	359	-	-	A500-50 Tub 2" x 2mm -~	0.602
484	359	360	-	-	A500-50 Tub 2" x 2mm -~	0.602
485	360	361	-	-	A500-50 Tub 2" x 2mm -~	0.602
486	361	362	-	-	A500-50 Tub 2" x 2mm -~	0.602
487	362	363	-	-	A500-50 Tub 2" x 2mm -~	0.602
488	363	364	-	-	A500-50 Tub 2" x 2mm -~	0.602
489	364	365	-	-	A500-50 Tub 2" x 2mm -~	0.602
490	365	366	-	-	A500-50 Tub 2" x 2mm -~	0.602
491	366	367	-	-	A500-50 Tub 2" x 2mm -~	0.301
492	350	368	-	-	A500-50 Tub 2" x 2mm -~	0.301
493	350	369	-	-	A500-50 Tub 2" x 2mm -~	0.2992
494	352	370	-	-	A500-50 Tub 2" x 2mm -~	0.2992
497	361	375	-	-	A500-50 Tub 2" x 2mm -~	0.3305
498	375	376	-	-	A500-50 Tub 2" x 2mm -~	0.3305
499	377	378	-	-	A500-50 Tub 2" x 2mm -~	0.3305
500	376	379	-	-	A500-50 Tub 2" x 2mm -~	0.1071
501	377	379	-	-	A500-50 Tub 2" x 2mm -~	0.2244
502	360	378	-	-	A500-50 Tub 2" x 2mm -~	0.686
509	366	382	-	-	A500-50 Tub 2" x 2mm -~	0.35
510	354	383	-	-	A500-50 Tub 2" x 2mm -~	0.35
511	367	352	-	-	A500-50 Tub 2" x 2mm -~	0.301
512	368	354	-	-	A500-50 Tub 2" x 2mm -~	0.301
513	369	384	-	-	A500-50 Tub 2" x 2mm -~	0.2992
514	370	385	-	-	A500-50 Tub 2" x 2mm -~	0.2992

*** TRUSS MEMBER DATA

NO	NODAL CONNECTIVITY I	J	MATERIAL	SECTION	TENSION / COMPRESSION	SECTION AREA I	J	LENGTH
268	236	3	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
269	237	68	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
270	238	96	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
274	340	310	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
275	243	4	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
276	244	70	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
277	245	98	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
281	341	312	A416-250(~	Tensor 1/~	T	3.167e-05	-	4.243
282	61	117	A416-250(~	Tensor 1/~	T	3.167e-05	-	6
288	59	115	A416-250(~	Tensor 1/~	T	3.167e-05	-	6
294	342	331	A416-250(~	Tensor 1/~	T	7.645e-06	-	5.685
295	58	59	A416-250(~	Tensor 1/~	T	7.645e-06	-	5.685
296	61	57	A416-250(~	Tensor 1/~	T	7.645e-06	-	5.685

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

297	333	343	A416-250(~ Tensor 1/~	T	7.645e-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
304	4	70	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
305	70	98	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
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	200	331	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
345	183	312	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
346	181	310	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
347	202	333	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
388	348	320	A416-250(~ Tensor 1/~	N	3.167e-05	-	5.831
389	275	24	A416-250(~ Tensor 1/~	N	3.167e-05	-	5.385
467	102	110	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.543
468	74	82	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.543
469	47	308	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
470	308	54	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
474	316	347	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
475	347	324	A416-250(~ Tensor 1/~	T	3.167e-05	-	2.271
503	380	350	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
504	381	352	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
505	117	333	A416-250(~ Tensor 1/~	T	3.167e-05	-	6
506	115	331	A416-250(~ Tensor 1/~	T	3.167e-05	-	6
507	96	350	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
508	98	352	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
523	356	364	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.543
526	350	310	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
527	352	312	A416-250(~ Tensor 1/~	T	3.167e-05	-	3
536	353	312	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
537	313	352	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
538	351	310	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
539	311	350	A416-250(~ Tensor 1/~	T	3.167e-05	-	4.243
540	96	106	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
541	98	106	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
542	350	360	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
543	352	360	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
544	310	320	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
545	312	320	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
546	68	78	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
547	70	78	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
548	3	24	A416-250(~ Tensor 5mm	T	1.963e-05	-	4.031
549	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 2" x 2mm	6.56	0.00656	0.5057	6	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 -~	26.42	0.02642	2.037	148	0
5	Tensor 1/8"	0.2229	0.0001738	0.0134	0	4
6	Tub 2" x 3mm	10.74	0.01612	1.242	10	0

*** 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
331	0	0	-0.009	0	0	0
333	0	0	-0.009	0	0	0
384	0	0	-0.009	0	0	0
385	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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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
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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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
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
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
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
479	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
480	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
481	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
482	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
483	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
484	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
486	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
487	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
488	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
489	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
490	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
491	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
492	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
497	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
498	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
499	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
500	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
501	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
511	Uniform Load	LZ	NO	0	-0.0014	1	-0.0014	0	0	0	0
512	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 TRANSLATIONAL MASS ROTATIONAL CENTER OF MASS

NAME	(X-DIR)	(Y-DIR)	MASS	(X-COORD)	(Y-COORD)
Roof	0.0	0.0	0.0	0.0	0.0
14F	0.0	0.0	0.0	0.0	0.0
13F	0.0	0.0	0.0	0.0	0.0
12F	0.0	0.0	0.0	0.0	0.0
11F	0.0	0.0	0.0	0.0	0.0
10F	0.0	0.0	0.0	0.0	0.0
9F	0.0	0.0	0.0	0.0	0.0
8F	0.01806762	0.01806762	0.35069797	9.5	6.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.01806762	0.01806762			

* 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	0.00417093	0.00417093
14F	0.01106241	0.01106241
13F	0.00327219	0.00327219
12F	0.00491302	0.00491302
11F	0.02056726	0.02056726
10F	0.0	0.0
9F	0.02032561	0.02032561
8F	0.0	0.0
7F	0.02001074	0.02001074
6F	0.03680506	0.03680506
5F	0.01787994	0.01787994
4F	0.03569186	0.03569186
3F	0.01744041	0.01744041
2F	0.13252198	0.13252198
1F	0.11628161	0.11628161
TOTAL :	0.44094301	0.44094301

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

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.20000
Effective Peak Velocity (Av)	: 0.20000
Site Coefficient at Short Periods (Fa)	: 1.70000
Site Coefficient at 1 s Period (Fv)	: 3.20000
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

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  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)    : 3.360801
  Total Effective Weight For Y-dir. Seismic Loads (Wy)    : 3.360801

  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               : 2.327666
  Total Base Shear Of Model For Y-direction               : 0.000000
  Summation Of Wi*Hi^k Of Model For X-direction           : 12.907472
  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

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 0.0
       G.L          0.0        0.0        0.0        0.0          0.0        0.0        0.0
 0.0
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The accidental amplification factors are automatically set to 1.0 when torsional amplification effe
ct
to accidental eccentricity is not considered.
The inherent amplification factors are automatically set to 0 when torsional amplification effect
to inherent eccentricity is not considered.
The inherent amplification factors are all set to 'the input value - 1.0'.(This is to exclude the t
rue
inherent torsion)
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  ** Story Force , Seismic Force x Scale Factor + Added Force


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

     STORY    STORY    STORY  SEISMIC   ADDED    STORY    STORY   OVERTURN. ACCIDENT. INHERENT   TOTA
L
     NAME     WEIGHT   LEVEL  FORCE     FORCE    FORCE    SHEAR   MOMENT    TORSION   TORSION    TORS
ION
---------- -------- ------- -------- -------- -------- -------- --------- --------- --------- -----
----
      Roof   0.0409  5.4462  0.04017      0.0  0.04017      0.0       0.0  0.024102       0.0  0.02
4102
       14F 0.108478    5.41 0.105832      0.0 0.105832  0.04017  0.001454  0.063499       0.0  0.06
3499
       13F 0.032087  5.3759 0.031107      0.0 0.031107 0.146002  0.006433  0.018664       0.0  0.01
8664
       12F 0.048177 5.20641 0.045233      0.0 0.045233 0.177109   0.03645   0.02714       0.0   0.0
2714
       11F 0.201683     5.0 0.181852      0.0 0.181852 0.222342  0.082345  0.109111       0.0  0.10
9111
       10F      0.0  4.9777      0.0      0.0      0.0 0.404194   0.09136       0.0       0.0
 0.0
        9F 0.199313 4.95539 0.178112      0.0 0.178112 0.404194  0.100375  0.106867       0.0  0.10
6867
        8F 0.177171 4.82255 0.154081      0.0 0.154081 0.582306   0.17773  0.092449       0.0  0.09
2449
        7F 0.196225 4.60439 0.162932      0.0 0.162932 0.736387  0.338382  0.097759       0.0  0.09
7759
        6F  0.36091  4.3057 0.280235      0.0 0.280235 0.899319  0.606999  0.168141       0.0  0.16
8141
        5F 0.175331 3.93304 0.124356      0.0 0.124356 1.179554  1.046569  0.074613       0.0  0.07
4613
        4F 0.349994  3.4946 0.220566      0.0 0.220566  1.30391  1.618258  0.132339       0.0  0.13
2339
        3F 0.171021  3.2473  0.10015      0.0  0.10015 1.524475  1.995259   0.06009       0.0   0.0
6009
        2F 1.299511     3.0 0.703041      0.0 0.703041 1.624625  2.397026  0.421824       0.0  0.42
1824
      G.L.     --        0.0    --       --       --    2.327666  9.380024    ---       ---       --
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PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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	0.0409	5.4462	0.04017	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.108478	5.41	0.105832	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.032087	5.3759	0.031107	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.048177	5.20641	0.045233	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.201683	5.0	0.181852	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	0.199313	4.95539	0.178112	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.177171	4.82255	0.154081	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.196225	4.60439	0.162932	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.36091	4.3057	0.280235	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5F	0.175331	3.93304	0.124356	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4F	0.349994	3.4946	0.220566	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3F	0.171021	3.2473	0.10015	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2F	1.299511	3.0	0.703041	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 :

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 : EY (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)	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	0.01806762	0.01806762	0.35069797	9.5	6.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.01806762	0.01806762			

* 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	0.00417093	0.00417093
14F	0.01106241	0.01106241
13F	0.00327219	0.00327219
12F	0.00491302	0.00491302
11F	0.02056726	0.02056726
10F	0.0	0.0
9F	0.02032561	0.02032561
8F	0.0	0.0
7F	0.02001074	0.02001074
6F	0.03680506	0.03680506

5F	0.01787994	0.01787994
4F	0.03569186	0.03569186
3F	0.01744041	0.01744041
2F	0.13252198	0.13252198
1F	0.11628161	0.11628161
TOTAL :	0.44094301	0.44094301

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

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.20000
Effective Peak Velocity (Av)	: 0.20000
Site Coefficient at Short Periods (Fa)	: 1.70000
Site Coefficient at 1 s Period (Fv)	: 3.20000
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)	: 3.360801
Total Effective Weight For Y-dir. Seismic Loads (Wy)	: 3.360801
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	: 2.327666
Summation Of Wi*Hi^k Of Model For X-direction	: 0.000000
Summation Of Wi*Hi^k Of Model For Y-direction	: 12.907472

ECCENTRICITY RELATED DATA

STORY NAME	X-DIRECTIONAL LOAD ACCIDENTAL ECCENT.	X-DIRECTIONAL LOAD INHERENT ECCENT.	X-DIRECTIONAL LOAD ACCIDENTAL AMP.FACTOR	X-DIRECTIONAL LOAD INHERENT AMP.FACTOR	Y-DIRECTIONAL LOAD ACCIDENTAL ECCENT.	Y-DIRECTIONAL LOAD INHERENT ECCENT.	Y-DIRECTIONAL LOAD ACCIDENTAL AMP.FACTOR	Y-DIRECTIONAL LOAD INHERENT AMP.FACTOR
Roof	-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	0.0409	5.4462	0.04017	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.108478	5.41	0.105832	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.032087	5.3759	0.031107	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.048177	5.20641	0.045233	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.201683	5.0	0.181852	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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

9F	0.199313	4.95539	0.178112	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8F	0.177171	4.82255	0.154081	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7F	0.196225	4.60439	0.162932	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6F	0.36091	4.3057	0.280235	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5F	0.175331	3.93304	0.124356	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4F	0.349994	3.4946	0.220566	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3F	0.171021	3.2473	0.10015	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2F	1.299511	3.0	0.703041	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	0.0409	5.4462	0.04017	0.0	0.04017	0.0	0.0	0.0	0.0	0.0
14F	0.108478	5.41	0.105832	0.0	0.105832	0.04017	0.001454	0.00291	0.0	0.00291
13F	0.032087	5.3759	0.031107	0.0	0.031107	0.146002	0.006433	0.0	0.0	0.0
12F	0.048177	5.20641	0.045233	0.0	0.045233	0.177109	0.03645	0.0	0.0	0.0
11F	0.201683	5.0	0.181852	0.0	0.181852	0.222342	0.082345	0.0	0.0	0.0
10F	0.0	4.9777	0.0	0.0	0.0	0.404194	0.09136	0.0	0.0	0.0
9F	0.199313	4.95539	0.178112	0.0	0.178112	0.404194	0.100375	0.010693	0.0	0.010693
8F	0.177171	4.82255	0.154081	0.0	0.154081	0.582306	0.17773	0.018298	0.0	0.018298
7F	0.196225	4.60439	0.162932	0.0	0.162932	0.736387	0.338382	0.028491	0.0	0.028491
6F	0.36091	4.3057	0.280235	0.0	0.280235	0.899319	0.606999	0.063652	0.0	0.063652
5F	0.175331	3.93304	0.124356	0.0	0.124356	1.179554	1.046569	0.034126	0.0	0.034126
4F	0.349994	3.4946	0.220566	0.0	0.220566	1.30391	1.618258	0.084626	0.0	0.084626
3F	0.171021	3.2473	0.10015	0.0	0.10015	1.524475	1.995259	0.036739	0.0	0.036739
2F	1.299511	3.0	0.703041	0.0	0.703041	1.624625	2.397026	0.667889	0.0	0.667889
G.L.	--	0.0	--	--	--	2.327666	9.380024	---	---	--

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	0.01806762	0.01806762	0.35069797	9.5	6.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.01806762	0.01806762			

* 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	0.00417093	0.00417093
14F	0.01106241	0.01106241
13F	0.00327219	0.00327219
12F	0.00491302	0.00491302
11F	0.02056726	0.02056726
10F	0.0	0.0
9F	0.02032561	0.02032561
8F	0.0	0.0
7F	0.02001074	0.02001074
6F	0.03680506	0.03680506
5F	0.01787994	0.01787994
4F	0.03569186	0.03569186
3F	0.01744041	0.01744041
2F	0.13252198	0.13252198
1F	0.11628161	0.11628161
TOTAL :	0.44094301	0.44094301

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

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.20000
Effective Peak Velocity (Av)	: 0.20000
Site Coefficient at Short Periods (Fa)	: 1.70000
Site Coefficient at 1 s Period (Fv)	: 3.20000
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)	: 3.360801
Total Effective Weight For Y-dir. Seismic Loads (Wy)	: 3.360801
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	: 2.856681
Total Base Shear Of Model For Y-direction	: 0.000000
Summation Of Wi*Hi^k Of Model For X-direction	: 12.907472
Summation Of Wi*Hi^k Of Model For Y-direction	: 0.000000

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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 ECCENTRICITY RELATED DATA
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STORY NAME	X-DIRECTIONAL LOAD: ACCIDENTAL ECCENT.	X-DIRECTIONAL LOAD: INHERENT ECCENT.	X-DIRECTIONAL LOAD: ACCIDENTAL AMP.FACTOR	X-DIRECTIONAL LOAD: INHERENT AMP.FACTOR	Y-DIRECTIONAL LOAD: ACCIDENTAL ECCENT.	Y-DIRECTIONAL LOAD: INHERENT ECCENT.	Y-DIRECTIONAL LOAD: ACCIDENTAL AMP.FACTOR	Y-DIRECTIONAL LOAD: INHERENT AMP.FACTOR
Roof	-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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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	0.0409	5.4462	0.049299	0.0	0.049299	0.0	0.0	0.029579	0.0	0.029579
14F	0.108478	5.41	0.129885	0.0	0.129885	0.049299	0.001784	0.077931	0.0	0.077931
13F	0.032087	5.3759	0.038177	0.0	0.038177	0.179184	0.007895	0.022906	0.0	0.022906
12F	0.048177	5.20641	0.055514	0.0	0.055514	0.217361	0.044734	0.033308	0.0	0.033308
11F	0.201683	5.0	0.223182	0.0	0.223182	0.272875	0.101059	0.133909	0.0	0.133909
10F	0.0	4.9777	0.0	0.0	0.0	0.496057	0.112123	0.0	0.0	0.0
9F	0.199313	4.95539	0.218592	0.0	0.218592	0.496057	0.123187	0.131155	0.0	0.131155
8F	0.177171	4.82255	0.189099	0.0	0.189099	0.714648	0.218124	0.11346	0.0	0.11346
7F	0.196225	4.60439	0.199962	0.0	0.199962	0.903748	0.415287	0.119977	0.0	0.119977
6F	0.36091	4.3057	0.343925	0.0	0.343925	1.10371	0.744954	0.206355	0.0	0.206355
5F	0.175331	3.93304	0.152618	0.0	0.152618	1.447634	1.284426	0.091571	0.0	0.091571
4F	0.349994	3.4946	0.270694	0.0	0.270694	1.600253	1.986044	0.162416	0.0	0.162416
3F	0.171021	3.2473	0.122911	0.0	0.122911	1.870947	2.448726	0.073747	0.0	0.073747
2F	1.299511	3.0	0.862823	0.0	0.862823	1.993858	2.941805	0.517694	0.0	0.517694
G.L.	--	0.0	--	--	--	2.856681	11.51185	---	---	--

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	0.0409	5.4462	0.049299	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14F	0.108478	5.41	0.129885	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13F	0.032087	5.3759	0.038177	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12F	0.048177	5.20641	0.055514	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11F	0.201683	5.0	0.223182	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	0.199313	4.95539	0.218592	0.0	0.0	0.0	0.0	0.0	0.0	

```
 0.0
        8F 0.177171 4.82255 0.189099      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        7F 0.196225 4.60439 0.199962      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        6F  0.36091  4.3057 0.343925      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        5F 0.175331 3.93304 0.152618      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        4F 0.349994  3.4946 0.270694      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        3F 0.171021  3.2473 0.122911      0.0      0.0      0.0      0.0      0.0      0.0
 0.0
        2F 1.299511     3.0 0.862823      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       TRANSLATIONAL MASS      ROTATIONAL   CENTER OF MASS
    NAME        (X-DIR)      (Y-DIR)    MASS         (X-COORD)    (Y-COORD)
```

Roof	0.0	0.0	0.0	0.0	0.0
14F	0.0	0.0	0.0	0.0	0.0
13F	0.0	0.0	0.0	0.0	0.0
12F	0.0	0.0	0.0	0.0	0.0
11F	0.0	0.0	0.0	0.0	0.0
10F	0.0	0.0	0.0	0.0	0.0
9F	0.0	0.0	0.0	0.0	0.0
8F	0.01806762	0.01806762	0.35069797	9.5	6.0
7F	0.0	0.0	0.0	0.0	0.0
6F	0.0	0.0	0.0	0.0	0.0
5F	0.0	0.0	0.0	0.0	0.0
4F	0.0	0.0	0.0	0.0	0.0
3F	0.0	0.0	0.0	0.0	0.0
2F	0.0	0.0	0.0	0.0	0.0
1F	0.0	0.0	0.0	0.0	0.0
TOTAL :	0.01806762	0.01806762			

* 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	0.00417093	0.00417093
14F	0.01106241	0.01106241
13F	0.00327219	0.00327219
12F	0.00491302	0.00491302
11F	0.02056726	0.02056726
10F	0.0	0.0
9F	0.02032561	0.02032561
8F	0.0	0.0
7F	0.02001074	0.02001074
6F	0.03680506	0.03680506
5F	0.01787994	0.01787994
4F	0.03569186	0.03569186
3F	0.01744041	0.01744041
2F	0.13252198	0.13252198
1F	0.11628161	0.11628161
TOTAL :	0.44094301	0.44094301

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

Site Class	: E
Effective Peak Acceleration(Aa)	: 0.20000
Effective Peak Velocity (Av)	: 0.20000
Site Coefficient at Short Periods (Fa)	: 1.70000
Site Coefficient at 1 s Period (Fv)	: 3.20000
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

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  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)    : 3.360801
  Total Effective Weight For Y-dir. Seismic Loads (Wy)    : 3.360801

  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               : 2.856681
  Summation Of Wi*Hi^k Of Model For X-direction           : 0.000000
  Summation Of Wi*Hi^k Of Model For Y-direction           : 12.907472
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 ECCENTRICITY RELATED DATA
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	X-DIRECTIONAL LOAD				Y-DIRECTIONAL LOAD			
STORY NAME	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR	ACCIDENTAL ECCENT.	INHERENT ECCENT.	ACCIDENTAL AMP.FACTOR	INHERENT AMP.FACTOR
Roof	-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 t
rue
inherent torsion)
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  ** Story Force , Seismic Force x Scale Factor + Added Force


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

     STORY    STORY    STORY  SEISMIC   ADDED    STORY    STORY   OVERTURN. ACCIDENT. INHERENT   TOTA
L
     NAME     WEIGHT   LEVEL  FORCE     FORCE    FORCE    SHEAR   MOMENT    TORSION   TORSION    TORS
ION
---------- -------- ------- -------- -------- -------- -------- --------- --------- --------- -----
----
      Roof   0.0409  5.4462 0.049299      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       14F 0.108478    5.41 0.129885      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       13F 0.032087  5.3759 0.038177      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       12F 0.048177 5.20641 0.055514      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
       11F 0.201683     5.0 0.223182      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 0.199313 4.95539 0.218592      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        8F 0.177171 4.82255 0.189099      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        7F 0.196225 4.60439 0.199962      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        6F  0.36091  4.3057 0.343925      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        5F 0.175331 3.93304 0.152618      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        4F 0.349994  3.4946 0.270694      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        3F 0.171021  3.2473 0.122911      0.0      0.0      0.0       0.0       0.0       0.0
 0.0
        2F 1.299511     3.0 0.862823      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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PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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	0.0409	5.4462	0.049299	0.0	0.049299	0.0	0.0	0.0	0.0	0.0
14F	0.108478	5.41	0.129885	0.0	0.129885	0.049299	0.001784	0.003572	0.0	0.003572
13F	0.032087	5.3759	0.038177	0.0	0.038177	0.179184	0.007895	0.0	0.0	0.0
12F	0.048177	5.20641	0.055514	0.0	0.055514	0.217361	0.044734	0.0	0.0	0.0
11F	0.201683	5.0	0.223182	0.0	0.223182	0.272875	0.101059	0.0	0.0	0.0
10F	0.0	4.9777	0.0	0.0	0.0	0.496057	0.112123	0.0	0.0	0.0
9F	0.199313	4.95539	0.218592	0.0	0.218592	0.496057	0.123187	0.013124	0.0	0.013124
8F	0.177171	4.82255	0.189099	0.0	0.189099	0.714648	0.218124	0.022457	0.0	0.022457
7F	0.196225	4.60439	0.199962	0.0	0.199962	0.903748	0.415287	0.034967	0.0	0.034967
6F	0.36091	4.3057	0.343925	0.0	0.343925	1.10371	0.744954	0.078118	0.0	0.078118
5F	0.175331	3.93304	0.152618	0.0	0.152618	1.447634	1.284426	0.041882	0.0	0.041882
4F	0.349994	3.4946	0.270694	0.0	0.270694	1.600253	1.986044	0.103859	0.0	0.103859
3F	0.171021	3.2473	0.122911	0.0	0.122911	1.870947	2.448726	0.045089	0.0	0.045089
2F	1.299511	3.0	0.862823	0.0	0.862823	1.993858	2.941805	0.819682	0.0	0.819682
G.L.	--	0.0	--	--	--	2.856681	11.51185	---	---	--

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

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

---
If torsional amplification effects are not considered :

Accidental Torsion , Story Force * Accidental Eccentricity
Inherent Torsion , 0

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

[LOAD CASE : Carga de Viento]

** BEAM LOAD DATA

MEMBER	TYPE	DIR.	PROJ.	D1	P1	D2	P2	D3	P3	D4	P4
44	Uniform Load	LZ	NO	0	-0.6	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

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

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											
	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											
	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	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	479	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0	480	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0	481	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0	482	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0	483	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0	484	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0
0	486	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0
0	487	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0

0												
	488	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	489	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	490	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	491	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	492	Uniform Load	LZ	NO	0	-1.2	1	-1.2	0	0	0	
0												
	497	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	498	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	499	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	500	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	501	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	511	Uniform Load	LZ	NO	0	1.2	1	1.2	0	0	0	
0												
	512	Uniform Load	LZ	NO	0	-1.2	1	-1.2	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
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
421	Uniform Load	GZ	NO	0	-6.5	1	-6.5	0	0	0	0

PROJECT TITLE : INVERNADERO 2 PUL TIPO 2

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

```
      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
      491          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
    0
      512          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
    0
      513          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
    0
      514          Uniform Load     GZ     NO      0      -6.5      1      -6.5      0         0      0
    0


*** RESPONSE SPECTRUM FUNCTION DATA

        NAME         FUNCTION  SCALE  GRAVITY DATA
                        TYPE
  ---------- --------------- ------ -------- --------------------------------------------------
  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	