



PODER JUDICIAL DE LA FEDERACIÓN
SUPREMA CORTE DE JUSTICIA DE LA NACIÓN

OFICIALÍA MAYOR
DIRECCIÓN GENERAL DE INFRAESTRUCTURA FÍSICA

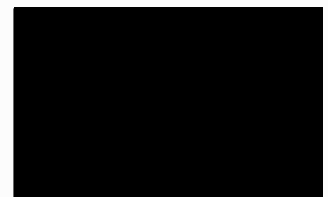
Versión pública de documento denominado Memoria de Cálculo

Con fundamento en los artículos 3, fracción XXI, 100, 106, fracción III, 107 y 116 de la Ley General de Transparencia y Acceso a la Información Pública; 97, 98, fracción III y 104 de la Ley Federal de Transparencia y Acceso a la Información Pública; 3, fracción IX de la Ley General de Protección de Datos Personales en Posesión de Sujetos Obligados; en esta versión consistente de trece páginas y la presente carátula, se omite la información considerada legalmente como CONFIDENCIAL, consistente en firma de persona física lo cual es consistente con la determinación emitida por el Comité de Transparencia de la Suprema Corte de Justicia de la Nación, en su sesión de fecha doce de junio de dos mil diecinueve con número de clave CT-VT/A-46-2019 la cual puede ser consultada en la siguiente liga <https://www.supremacorte.gob.mx/node/78894>, en la que analizó la confidencialidad de esos datos.

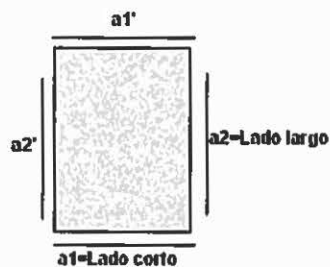
Lic. Octavio Ernesto Alejo Nava
Director General de Infraestructura Física

MEMORIA DE CÁLCULO

**PROYECTO PARA EL SISTEMA DE
CAPTACIÓN Y UTILIZACIÓN DE AGUAS
PLUVIALES PARA LA CASA DE LA CULTURA
JURÍDICA DE COLIMA, COLIMA.**



DISEÑO DE LOSAS DE ACUERDO A LAS NTC DEL RCDF TABLERO DESFAVORABLE CISTERNA



Borde	L (m)	Condicion de apoyo	Longitud ajustada
a1 =	2.00	discontinuo	2.50
a2 =	2.30	continuo	2.30
a1' =	2.00	discontinuo	2.50
a2' =	2.30	continuo	2.30
Perímetro		per =	9.60

Losa se colara con sus apoyos

TIPO DE TABLERO: DE BORDE CC DISCONTINUO

Carga total W = 1950.00 kg/m2

Concreto f_c	=	250	Kg/cm2
f'_c	=	200	Kg/cm2
f''_c	=	170	Kg/cm2
Acero F_y	=	4200	Kg/cm2

Calculo del peralte mínimo

Peralte mínimo	d_{min}	=	per/300	=	3.2000	cm
Factor de correccion	k	=	0.032	=	1.50884	
Peralte mínimo corregido	d_{min}	=	$k \times d_{min}$	=	4.4737	cm
Peralte redondeado	d	=		=	12	cm
Recubrimiento	r	=		=	3	cm
Peralte total	h	=	$d + r$	=	15	cm
Carga última	W_u	=	$W \times 1.4$	=	2730	kg/m2

Diseño por flexion

Relacion de claros	m	=	$a1/a2$	=	0.87	
Porcentaje min	p_{min}	=		=	0.0025	

Separacion maxima						
	50	cm				
	$3.5 h$	=	52.5	cm		
	$2.5 d$	=	30	cm		
	KA	=	$Ml/(FRbd2f'_c)$			


signo	Claro	Coef	MU kg/m	KA	q	p	p rige	As cm2	sep var no. 3
-	Corto int	570	622.44	0.00028	0.00028	0.00001	0.00250	1.52	46.57
-	Largo int		0.00	0.00000	0.00000	0.00000	0.00250	0.00	
-	Corto	270	389.93	0.00018	0.00018	0.00001	0.00250	0.96	74.33
-	Largo	220	317.72	0.00014	0.00014	0.00001	0.00250	0.78	91.23
+	Corto	540	779.85	0.00035	0.00035	0.00001	0.00250	1.91	37.17
+	Largo	430	620.99	0.00028	0.00028	0.00001	0.00250	1.52	46.68

se dejan var. #3 a.c. 15.00 cm

LECHO INFERIOR Y SUPERIOR

REVISION POR CORTANTE

Cortante actuante	V_u	=	1212.83	kg
Cortante resistente	V_R	=	6,788.23	kg
	V_u	<	V_R	O.K.

 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4865405	Job No.	Sheet No.	Rev.
	1		
Software licensed to: CISTERNA	Part		
Job Title: CISTERNA	Ref		
Client	By	Date: 7-Oct-17	Chk
Chart	File: cisterna3.ssd	Date/Time: 30-Oct-2017 10:08	

Job Information

	Engineer	Checked	Approved
Name:			
Date:	17-Oct-17		

Structure Type: **SPACE FRAME**

Number of Nodes	16	Highest Node	25
Number of Elements	28	Highest Beam	66
Number of Plates	14	Highest Plate	80

Number of Basic Load Cases	2
Number of Combination Load Cases	1

Included in this printout are data for:


All	The Whole Structure
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Included in this printout are results for load cases:

Type	L/C	Name
Primary	1	MUERTAS
Primary	2	VIVAS
Combination	3	COMBINATION LOAD CASE 3

Plates

Plate	Node A	Node B	Node C	Node D	Property
67	3	19	21	12	3
68	19	23	25	21	3
69	23	14	16	25	3
70	3	12	11	1	3
71	12	21	20	11	3
72	21	25	24	20	3
73	25	16	17	24	3
74	3	19	18	1	3
75	19	23	22	18	3
76	23	14	13	22	3
77	1	13	17	11	3
78	14	16	17	13	3
79	18	19	21	20	3
80	23	25	24	22	3

 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4865405	Job No.	Sheet No.	Rev.
	2		
Software licensed to:			
Job Title: CISTERNA		Part:	
Client:		Ref:	
By:		Date: 7-Oct-17	
File: cisterna3.std		Date/Time: 30-Oct-2017 10:08	

Section Properties

Prop	Section	Area (cm ²)	I _{yy} (cm ⁴)	I _{zz} (cm ⁴)	J (cm ⁴)	Material
2	Rect 0.30x0.20	600.000	20E 3	45E 3	47E 3	CONCRETE
4	Rect 0.20x0.20	400.000	13.3E 3	13.3E 3	22.5E 3	CONCRETE

Plate Thickness

Prop	Node A (cm)	Node B (cm)	Node C (cm)	Node D (cm)	Material
3	20.000	20.000	20.000	20.000	CONCRETE

Basic Load Cases

Number	Name
1	MUERTAS
2	VIVAS

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
3	COMBINATION LOAD CASE 3	1	MUERTAS	1.40
		2	VIVAS	1.40

Load Generators

There is no data of this type.

Floor Loads : 1 MUERTAS

Load (MTon/m ²)	Min HL (m)	Max HL (m)	Min X (m)	Max X (m)	Min Y (m)	Max Y (m)
-0.450	0.000	0.000	-	-	-	-
-0.450	2.300	2.300	-	-	-	-

Selfweight : 1 MUERTAS

Direction	Factor
Y	-1.000


 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4885405	Job No.	Sheet No.	Rev.
	3		
Software licensed to use	Part		
Job Title CISTERNA	Ref		
	By	Date 17-Oct-17	Chk
Client	File cisterna3.sld	Date/Time	30-Oct-2017 10:06

Plate Loads : 2 VIVAS

Plate	Type	Direction	Fa	Fb	X1 (m)	Y1 (m)	X2 (m)	Y2 (m)
67	CON	Mton	GY	-0.500	-	-0.600	-0.400	-
	CON	Mton	GY	-0.500	-	-0.600	0.800	-
	CON	Mton	GY	-0.500	-	0.800	-0.400	-
	CON	Mton	GY	-0.500	-	0.800	0.800	-
68	CON	Mton	GY	-0.500	-	-0.600	-0.400	-
	CON	Mton	GY	-0.500	-	-0.600	0.800	-
	CON	Mton	GY	-0.500	-	0.800	-0.400	-
	CON	Mton	GY	-0.500	-	0.800	0.800	-
69	CON	Mton	GY	-0.500	-	-0.600	-0.400	-
	CON	Mton	GY	-0.500	-	-0.600	0.800	-
	CON	Mton	GY	-0.500	-	0.800	-0.400	-
	CON	Mton	GY	-0.500	-	0.800	0.800	-
70	TRAPM	Ton/m2	Z	-1.000	-1.000	-	-	-
71	TRAPM	Ton/m2	Z	1.000	1.000	-	-	-
72	TRAPM	Ton/m2	Z	1.000	1.000	-	-	-
73	TRAPM	Ton/m2	Z	1.000	1.000	-	-	-
74	TRAPM	Ton/m2	Z	-1.000	-1.000	-	-	-
75	TRAPM	Ton/m2	Z	-1.000	-1.000	-	-	-
76	TRAPM	Ton/m2	Z	-1.000	-1.000	-	-	-
77	TRAPM	Ton/m2	Z	-1.000	-1.000	-	-	-
78	TRAPM	Ton/m2	Z	1.000	1.000	-	-	-

Floor Loads : 2 VIVAS

Load (MTon/m²)	Min HL (m)	Max HL (m)	Min X (m)	Max X (m)	Min Y (m)	Max Y (m)
-0.100	2.300	2.300	-	-	-	-

Node Displacements

Node	L/C	X (mm)	Y (mm)	Z (mm)	Resultant (mm)	rX (deg)	rY (deg)	rZ (deg)
1	1:MUERTAS	0.000	0.000	0.000	0.000	0.000	-0.000	-0.001
	2:VIVAS	0.000	0.000	0.000	0.000	0.000	0.000	-0.000
	3:COMBINATI	0.000	0.000	0.000	0.000	0.001	-0.000	-0.001
3	1:MUERTAS	-0.001	-0.008	-0.002	0.009	-0.000	-0.000	0.000
	2:VIVAS	-0.004	-0.004	-0.001	0.006	-0.000	0.000	0.000
	3:COMBINATI	-0.006	-0.017	-0.004	0.018	-0.001	0.000	0.000
11	1:MUERTAS	0.000	0.000	0.000	0.000	-0.000	0.000	-0.001
	2:VIVAS	0.000	0.000	0.000	0.000	-0.000	0.000	-0.000
	3:COMBINATI	0.000	0.000	0.000	0.000	-0.001	0.000	-0.001
12	1:MUERTAS	-0.001	-0.008	0.002	0.009	0.000	0.000	0.000
	2:VIVAS	-0.005	-0.004	0.002	0.007	0.000	-0.000	0.000
	3:COMBINATI	-0.006	-0.018	0.005	0.020	0.001	-0.000	0.000

Print Time/Date: 30/10/2017 10:28

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Print Run 3 of 11



ING. SALVADOR VELAZQUEZ JIMENEZ
CED. PROF. No.: 4865405

Software licensed to: sra

Job Title CISTERNA

Client

Job No

Sheet No

4

Rev

Part

Ref

By

Date: 7-Oct-17

Chk

File cisterna3.std

Date/Time 30-Oct-2017 10:08

Node Displacements Cont...

Node	LC	X (mm)	Y (mm)	Z (mm)	Resultant (mm)	rX (deg)	rY (deg)	rZ (deg)
13	1:MUERTAS	0.000	0.000	0.000	0.000	0.000	0.000	0.001
	2:VIVAS	0.000	0.000	0.000	0.000	0.000	-0.000	0.000
	3:COMBINATH	0.000	0.000	0.000	0.000	0.001	0.000	0.001
14	1:MUERTAS	0.001	-0.009	-0.002	0.009	-0.000	0.000	-0.000
	2:VIVAS	0.004	-0.004	-0.001	0.006	-0.000	-0.000	-0.000
	3:COMBINATH	0.006	-0.017	-0.004	0.019	-0.001	-0.000	-0.000
16	1:MUERTAS	0.001	-0.009	0.002	0.009	0.000	-0.000	-0.000
	2:VIVAS	0.005	-0.004	0.002	0.007	0.000	0.000	-0.000
	3:COMBINATH	0.006	-0.018	0.005	0.020	0.001	0.000	-0.000
17	1:MUERTAS	0.000	0.000	0.000	0.000	-0.000	-0.000	0.001
	2:VIVAS	0.000	0.000	0.000	0.000	-0.000	-0.000	0.000
	3:COMBINATH	0.000	0.000	0.000	0.000	-0.001	-0.000	0.001
18	1:MUERTAS	0.000	0.000	0.000	0.000	0.001	-0.000	-0.000
	2:VIVAS	0.000	0.000	0.000	0.000	0.000	0.000	-0.000
	3:COMBINATH	0.000	0.000	0.000	0.000	0.001	-0.000	-0.000
19	1:MUERTAS	-0.000	-0.008	-0.001	0.008	-0.000	-0.000	-0.000
	2:VIVAS	-0.001	-0.002	-0.002	0.003	-0.000	-0.000	0.000
	3:COMBINATH	-0.002	-0.014	-0.003	0.015	-0.000	-0.000	0.000
20	1:MUERTAS	0.000	0.000	0.000	0.000	-0.001	0.000	-0.000
	2:VIVAS	0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000
	3:COMBINATH	0.000	0.000	0.000	0.000	-0.001	0.000	-0.000
21	1:MUERTAS	-0.000	-0.008	0.001	0.008	0.000	0.000	-0.000
	2:VIVAS	-0.001	-0.003	0.003	0.004	0.000	0.000	0.000
	3:COMBINATH	-0.002	-0.015	0.004	0.016	0.000	0.000	0.000
22	1:MUERTAS	0.000	0.000	0.000	0.000	0.001	0.000	0.000
	2:VIVAS	0.000	0.000	0.000	0.000	0.000	-0.000	0.000
	3:COMBINATH	0.000	0.000	0.000	0.000	0.001	0.000	0.000
23	1:MUERTAS	0.000	-0.008	-0.001	0.008	-0.000	0.000	0.000
	2:VIVAS	0.001	-0.002	-0.002	0.003	-0.000	0.000	-0.000
	3:COMBINATH	0.002	-0.014	-0.003	0.015	-0.000	0.000	-0.000
24	1:MUERTAS	0.000	0.000	0.000	0.000	-0.001	-0.000	0.000
	2:VIVAS	0.000	0.000	0.000	0.000	-0.000	0.000	0.000
	3:COMBINATH	0.000	0.000	0.000	0.000	-0.001	-0.000	0.000
25	1:MUERTAS	0.000	-0.008	0.001	0.008	0.000	-0.000	0.000
	2:VIVAS	0.001	-0.003	0.003	0.004	0.000	-0.000	-0.000
	3:COMBINATH	0.002	-0.015	0.004	0.016	0.000	-0.000	-0.000

Print Time/Date 30/10/2017 10:28

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Print Run 4 of 11


 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4885405	Job No	Sheet No 5	Rev
	Software licensed to one Job Title CISTERNA		
Client	Part Ref By Date: 7-Oct-17 Chd File: cisterna3.stb Date/Time: 30-Oct-2017 10:08		

Plate Centre Stresses

Plate	LIC	Shear		Membrane			Bending		
		Qx (MTon/m ²)	Qy (MTon/m ²)	Sx (MTon/m ²)	Sy (MTon/m ²)	Sxy (MTon/m ²)	Mx (MTon m/m)	My (MTon m/m)	Mxy (MTon m/m)
67	1:MUERTAS	0.033	-0.000	1.468	2.398	-0.000	-0.001	-0.004	0.000
	2:VIVAS	0.062	-0.001	3.524	5.631	-0.015	-0.004	-0.005	0.000
	3:COMBINATI	0.134	-0.001	6.965	11.240	-0.021	-0.008	-0.013	0.000
68	1:MUERTAS	0.000	-0.000	1.109	1.053	0.000	-0.000	-0.001	-0.000
	2:VIVAS	-0.000	-0.000	3.607	3.658	-0.000	-0.001	-0.004	0.000
	3:COMBINATI	0.000	-0.000	6.602	6.600	-0.000	-0.002	-0.007	-0.000
69	1:MUERTAS	-0.033	-0.000	1.465	2.398	0.000	-0.001	-0.004	-0.000
	2:VIVAS	-0.062	-0.001	3.524	5.631	0.015	-0.004	-0.005	-0.000
	3:COMBINATI	-0.134	-0.001	6.965	11.240	0.021	-0.008	-0.013	-0.000
70	1:MUERTAS	0.000	0.123	-3.795	-4.185	0.000	0.001	0.007	0.000
	2:VIVAS	0.002	0.018	-1.035	-1.414	0.014	0.002	0.005	-0.000
	3:COMBINATI	0.003	0.198	-6.763	-7.810	0.019	0.005	0.017	-0.000
71	1:MUERTAS	-0.007	0.101	-2.263	-7.425	0.197	0.001	0.008	0.001
	2:VIVAS	-0.007	0.023	0.033	-2.269	0.734	-0.001	0.004	-0.000
	3:COMBINATI	-0.020	0.174	-3.123	-13.571	1.303	0.000	0.018	0.001
72	1:MUERTAS	0.000	0.111	-2.248	-6.685	0.000	0.002	0.007	-0.000
	2:VIVAS	0.000	0.005	0.261	-2.418	-0.000	0.002	0.004	-0.000
	3:COMBINATI	0.000	0.162	-2.782	-12.744	-0.000	0.005	0.015	-0.000
73	1:MUERTAS	0.007	0.101	-2.263	-7.425	-0.197	0.001	0.008	-0.001
	2:VIVAS	0.007	0.023	0.033	-2.269	-0.734	-0.001	0.004	0.000
	3:COMBINATI	0.020	0.174	-3.123	-13.571	-1.303	0.000	0.018	-0.001
74	1:MUERTAS	0.007	-0.101	-2.263	-7.425	0.197	-0.001	-0.008	-0.001
	2:VIVAS	0.008	-0.025	0.199	-1.642	0.691	0.001	-0.004	0.000
	3:COMBINATI	0.019	-0.178	-2.890	-12.693	1.243	-0.000	-0.016	-0.001
75	1:MUERTAS	-0.000	-0.111	-2.248	-6.685	-0.000	-0.002	-0.007	-0.000
	2:VIVAS	-0.000	-0.004	0.436	-1.829	0.000	-0.002	-0.004	0.000
	3:COMBINATI	-0.000	-0.161	-2.537	-11.920	-0.000	-0.005	-0.015	0.000
76	1:MUERTAS	-0.007	-0.101	-2.263	-7.425	-0.197	-0.001	-0.008	0.001
	2:VIVAS	-0.008	-0.025	0.199	-1.642	-0.691	0.001	-0.004	-0.000
	3:COMBINATI	-0.019	-0.178	-2.890	-12.693	-1.243	-0.000	-0.016	0.001
77	1:MUERTAS	0.000	-0.000	-0.000	-0.010	0.000	0.007	0.012	-0.000
	2:VIVAS	-0.000	0.002	-0.000	-0.002	0.000	0.002	0.004	-0.000
	3:COMBINATI	0.000	0.002	-0.000	-0.017	0.000	0.013	0.022	-0.000
78	1:MUERTAS	-0.000	-0.123	-3.795	-4.185	-0.000	-0.001	-0.007	0.000
	2:VIVAS	-0.002	-0.018	-1.035	-1.414	0.014	-0.002	-0.005	0.000
	3:COMBINATI	-0.003	-0.198	-6.763	-7.810	0.019	-0.005	-0.017	0.000
79	1:MUERTAS	-0.053	0.000	-4.486	-4.174	0.000	0.003	0.000	-0.000
	2:VIVAS	-0.018	0.001	-0.337	0.125	0.015	0.000	-0.001	0.000
	3:COMBINATI	-0.100	0.001	-6.755	-5.668	0.020	0.004	-0.001	0.000
80	1:MUERTAS	-0.000	-0.053	-4.174	-4.486	0.000	-0.000	-0.003	0.000
	2:VIVAS	-0.001	-0.018	0.125	-0.337	-0.015	0.001	-0.000	0.000
	3:COMBINATI	-0.001	-0.100	-5.668	-6.755	-0.020	0.001	-0.004	0.000

Print Time/Date: 30/10/2017 10:28

STAAD Pro for Windows Release 2007

Print Run 5 of 11


 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4865405	Job No	Sheet No 6	Rev
	Software licensed to: CISTERNA Job Title: CISTERNA		
Client	File: cisterna3.std	Date/Time: 30-Oct-2017 10:06	

Plate Centre Stress Summary

	Plate	LIC	Shear		Membrane			Bending		
			Qx (MTon/m ²)	Qy (MTon/m ²)	Sx (MTon/m ²)	Sy (MTon/m ²)	Sxy (MTon/m ²)	Mx (MTon/m/m)	My (MTon/m/m)	Mxy (MTon/m/m)
Max Qx	67	3.COMBINATH	0.134	-0.001	6.985	11.240	-0.021	-0.008	-0.013	0.000
Min Qx	69	3.COMBINATH	-0.134	-0.001	6.985	11.240	0.021	-0.008	-0.013	-0.000
Max Qy	70	3.COMBINATH	0.003	0.198	-6.763	-7.810	0.019	0.005	0.017	-0.000
Min Qy	78	3.COMBINATH	-0.003	-0.198	-6.763	-7.810	0.019	-0.005	-0.017	0.000
Max Sx	67	3.COMBINATH	0.134	-0.001	6.985	11.240	-0.021	-0.008	-0.013	0.000
Min Sx	70	3.COMBINATH	0.003	0.198	-6.763	-7.810	0.019	0.005	0.017	-0.000
Max Sy	69	3.COMBINATH	-0.134	-0.001	6.985	11.240	0.021	-0.008	-0.013	-0.000
Min Sy	71	3.COMBINATH	-0.020	0.174	-3.123	-13.571	1.303	0.000	0.016	0.001
Max Sxy	71	3.COMBINATH	-0.020	0.174	-3.123	-13.571	1.303	0.000	0.016	0.001
Min Sxy	73	3.COMBINATH	0.020	0.174	-3.123	-13.571	-1.303	0.000	0.016	-0.001
Max Mx	77	3.COMBINATH	0.000	0.002	-0.000	-0.017	0.000	0.013	0.022	-0.000
Min Mx	67	3.COMBINATH	0.134	-0.001	6.985	11.240	-0.021	-0.008	-0.013	0.000
Max My	77	3.COMBINATH	0.000	0.002	-0.000	-0.017	0.000	0.013	0.022	-0.000
Min My	78	3.COMBINATH	-0.003	-0.198	-6.763	-7.810	0.019	-0.005	-0.017	0.000
Max Mxy	71	3.COMBINATH	-0.020	0.174	-3.123	-13.571	1.303	0.000	0.016	0.001
Min Mxy	73	3.COMBINATH	0.020	0.174	-3.123	-13.571	-1.303	0.000	0.016	-0.001


Reactions

Node	LIC	Horizontal	Vertical	Horizontal	Moment		
		FX (MTon)	FY (MTon)	FZ (MTon)	MX (MTon/m)	MY (MTon/m)	MZ (MTon/m)
1	1.MUERTAS	0.662	6.031	1.125	0.000	0.000	0.000
	2.VIVAS	1.578	4.247	1.424	0.000	0.000	0.000
	3.COMBINATH	3.137	14.388	3.569	0.000	0.000	0.000
11	1.MUERTAS	0.662	6.031	-1.125	0.000	0.000	0.000
	2.VIVAS	1.631	4.428	-1.417	0.000	0.000	0.000
	3.COMBINATH	3.210	14.643	-3.559	0.000	0.000	0.000
13	1.MUERTAS	-0.662	6.031	1.125	0.000	0.000	0.000
	2.VIVAS	-1.578	4.247	1.424	0.000	0.000	0.000
	3.COMBINATH	-3.137	14.388	3.569	0.000	0.000	0.000
17	1.MUERTAS	-0.662	6.031	-1.125	0.000	0.000	0.000
	2.VIVAS	-1.631	4.428	-1.417	0.000	0.000	0.000
	3.COMBINATH	-3.210	14.643	-3.559	0.000	0.000	0.000
18	1.MUERTAS	0.090	7.592	1.246	0.000	0.000	0.000
	2.VIVAS	-0.022	0.724	2.514	0.000	0.000	0.000
	3.COMBINATH	0.095	11.641	5.264	0.000	0.000	0.000
20	1.MUERTAS	0.090	7.592	-1.246	0.000	0.000	0.000
	2.VIVAS	-0.014	1.064	-2.921	0.000	0.000	0.000
	3.COMBINATH	0.106	12.118	-5.273	0.000	0.000	0.000
22	1.MUERTAS	-0.090	7.592	1.246	0.000	0.000	0.000
	2.VIVAS	0.022	0.724	2.514	0.000	0.000	0.000
	3.COMBINATH	-0.095	11.641	5.264	0.000	0.000	0.000

Print Time/Date: 30/10/2017 10:26

STAAD Pro for Windows Release 2007

Print Run 6 of 11

 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4865405	Job No	Sheet No 7	Rev
	Part		
Job Title CISTERNA	Ref		
Client	By	Date 17-Oct-17	Chk
	File cisterna3.std	Date/Time 30-Oct-2017 10:08	

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (Mton)	FY (Mton)	FZ (Mton)	MX (Mton m)	MY (Mton m)	MZ (Mton m)
24	1:MUERTAS	-0.090	7.592	-1.248	0.000	0.000	0.000
	2:VIVAS	0.014	1.064	-2.521	0.000	0.000	0.000
	3.COMBINATI	-0.106	12.118	-5.273	0.000	0.000	0.000

Statics Check Results

L/C		FX (Mton)	FY (Mton)	FZ (Mton)	MX (Mton m)	MY (Mton m)	MZ (Mton m)
1:MUERTAS	Loads	0.000	-12.250	0.000	554.614	0.000	-1.42E 3
1:MUERTAS	Reactions	-0.000	12.250	-0.000	-554.614	0.000	1.42E 3
	Difference	-0.000	-0.000	-0.000	0.000	0.000	-0.000
2:VIVAS	Loads	0.000	-4.705	0.000	223.623	-0.000	-546.398
2:VIVAS	Reactions	-0.000	4.705	-0.000	-223.623	0.000	546.398
	Difference	-0.000	-0.000	-0.000	0.000	0.000	0.000


Base Pressure Summary

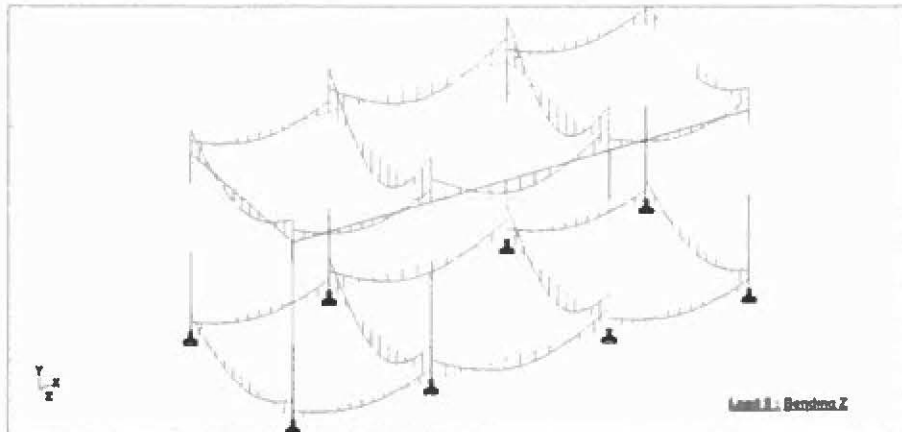
	Node	L/C	FX (Mton/m ²)	FY (Mton/m ²)	FZ (Mton/m ²)
Max FX	1	1:MUERTAS	0.000	0.000	0.000
Min FX	1	1:MUERTAS	0.000	0.000	0.000
Max FY	1	1:MUERTAS	0.000	0.000	0.000
Min FY	1	1:MUERTAS	0.000	0.000	0.000
Max FZ	1	1:MUERTAS	0.000	0.000	0.000
Min FZ	1	1:MUERTAS	0.000	0.000	0.000

Print Time/Date: 30/10/2017 10:29

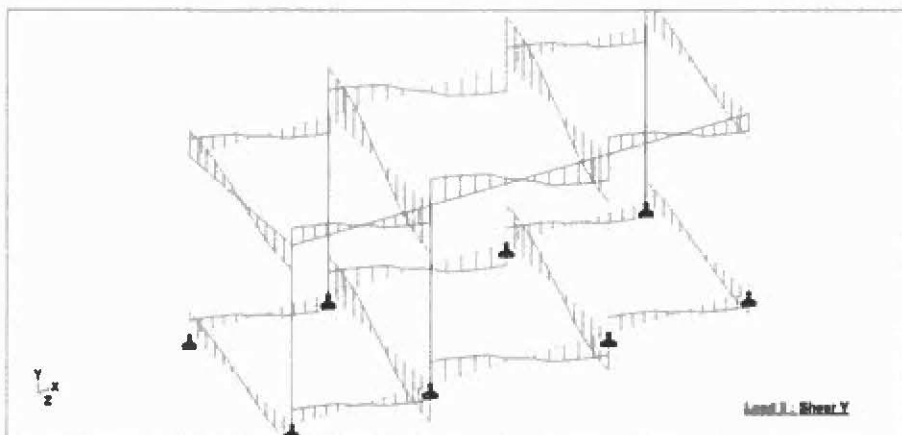
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Print Run 7 of 11


 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4885405	Job No.	Sheet No.	Rev.
		8	
Software licensed to: STC			
Job Title: CISTERNA	Ref.		
	By	Date: 7-Oct-17	Chk
Client	File: cisterna3.std	Date/Time: 30-Oct-2017 10:08	

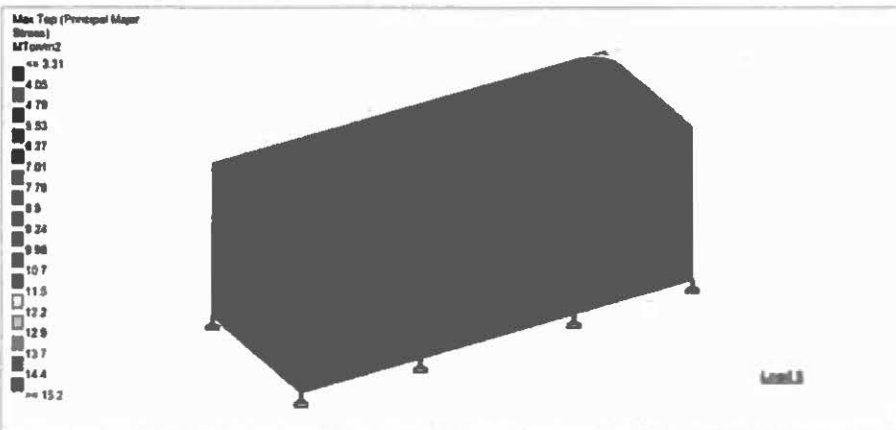
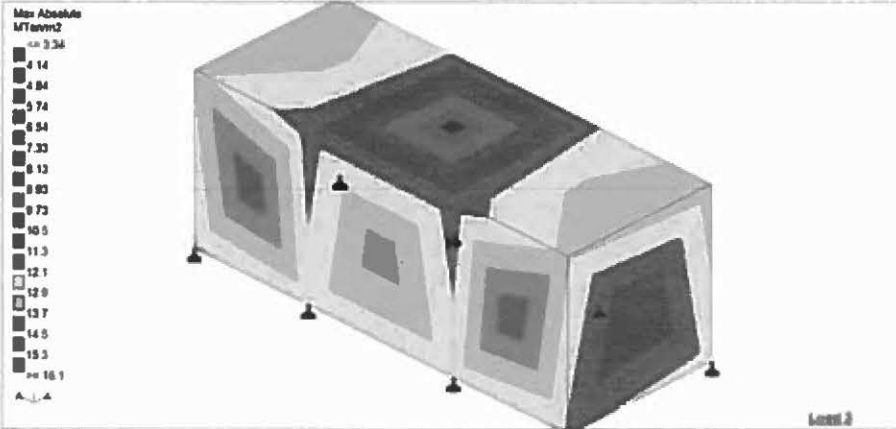


Whole Structure Mz 1MTon-m:1m 3 COMBINATION LOAD CASE 3



Whole Structure Fy 2MTon:1m 3 COMBINATION LOAD CASE 3

 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4865405	Job No.	Sheet No.	Rev
	Part		
Job Title: CISTERNA	Ref		
	By		Date: 7-Oct-17
Client	File: cisterna3.sld	Date/Time: 30-Oct-2017 10:08	



Print Time/Date: 30/10/2017 10:29

STAAD Pro for Windows Release 2007

Print Run 8 of 11



ING. SALVADOR VELAZQUEZ JIMENEZ
CED. PROF. No.: 4865405

Job No.

Sheet No.

10

Rev.

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Job Title: CISTERNA

Part

Ref

By

Date: 7-Oct-17

Chil

Client

File: cisterna3.sld

Date/Time: 30-Oct-2017 10:08

Max Bottom (Principal Major

Stress)

M(Ton/m²)

min -3.34

4.16

4.94

5.74

6.54

7.33

8.13

8.93

9.73

10.5

11.3

12.1

12.9

13.7

14.5

15.3

max 16.1



Load 1

Whole Structure

SX (local)

M(Ton/m²)

min -6.76

-6.8

-6.04

-4.16

-3.33

-2.47

-1.61

-0.748

0.111

0.97

1.83

2.69

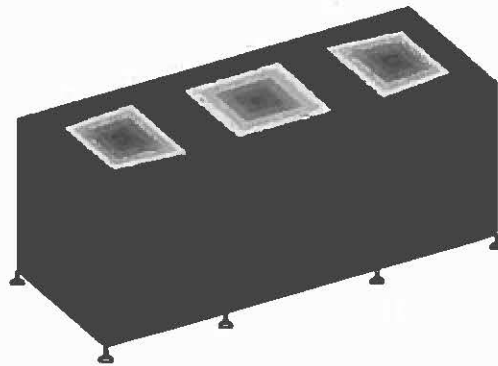
3.55

4.41

5.27

6.13

max 6.98




Load 1

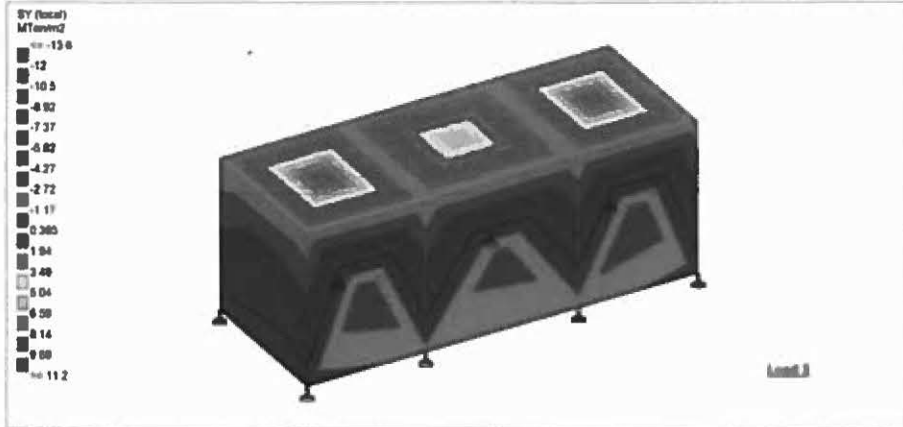
Whole Structure

Print Time/Date: 30/10/2017 10:29

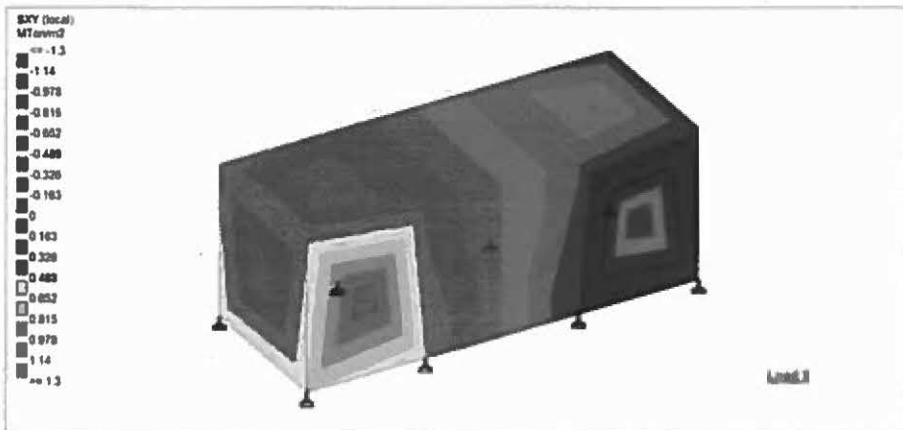
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Print Run 10 of 11

 ING. SALVADOR VELAZQUEZ JIMENEZ CED. PROF. No.: 4865405	Job No.	Sheet No.	Rev.
	11		
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Job Title: CISTERNA	Part		
	Ref		
	By	Date: 7-Oct-17	Chk
Client	File: cisterna3.std	Date/Time: 30-Oct-2017 10:06	



Whole Structure



Whole Structure