PROYECTO CENTRO DE SERVICIO INFONAVIT (CESI), AGUASCALIENTES.

Proyecto Ejecutivo – Memoria de Cálculo de Estructuras.

Ref. E17/MX-1161 _ Rev. 01

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INFONAVIT

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ARCHITECTURE >
PROJECT>

ingenor	ENCARGO: PROYECTO CENTRO DE SERVICIOS INFONAVIT (CESI) AGUASCALIENTES.			
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Índice

INTRODUCCIÓN Y OBJETIVO.

Los Centros de Servicio INFONAVIT (CESI), son oficinas que brindan atención personalizada sobre trámites y servicios relativos al crédito y al ahorro de los trabajadores derechohabientes, establecidos en diversos lugares o plazas en los que se requiere la presencia institucional en todo el país.

El proyecto CESI Aguascalientes, con una superficie de terreno de 4837.4 m² de oficinas (1 nivel de oficinas + estacionamiento). Se encuentra localizado en la calle Balnearios Ejido de Ojo Caliente Mpo. De Aguascalientes, Estado de Aguascalientes.

El objetivo de la presente memoria es describir la estructuración al igual que los parámetros de diseño para el edificio que será destinado para el uso de oficinas, así como sus diferentes áreas de uso de reunión, cuartos de servicio de acuerdo a la información proporcionada por el cliente y la normatividad vigente.

1 DESCRIPCIÓN GENERAL DEL PROYECTO.

Compuesto por un predio de forma irregular y topografía plana. Con base a la constancia de alineamiento las medidas generales son las siguientes, al norte colinda con Técnica Inmobiliaria S.A. y condueños 40.16m, al este con el predio 2 de la subdivisión 100.46 m, al oeste con Internacional de Estudios Humanistas A.C. y al Sur con la calle Balneario 52.10.

Fig. 1 Localización del emplazamiento del "CESI Aguascalientes".

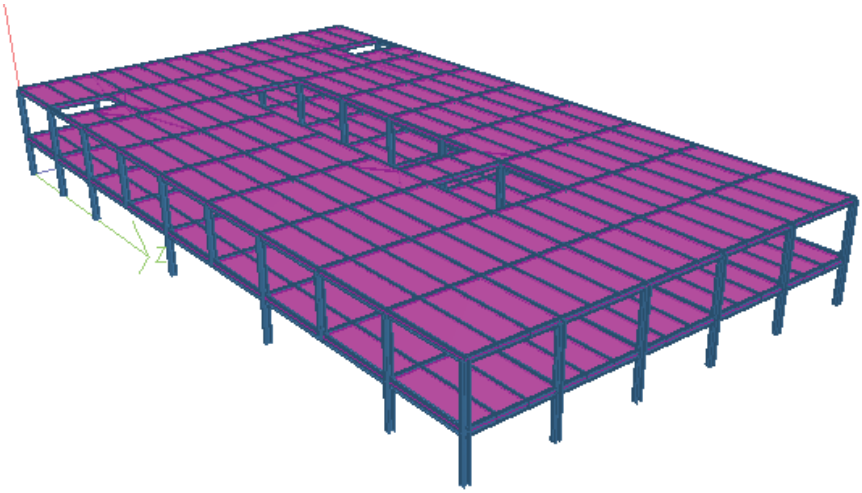
2 MODELO MATEMATICO.

Para el diseño de los elementos estructurales, se utilizara el programa de cómputo correspondiente, el cual contara con las herramientas necesarias para estos fines. Se realizó un modelo matemático tridimensional idealizando columnas y trabes mediante el elemento barra.

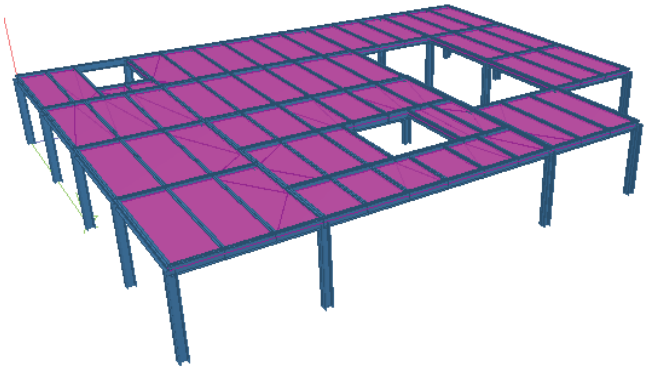
Las cargas gravitacionales (Carga Muerta y Carga Viva) se consideraron como cargas uniformemente repartidas en las trabes de cada nivel y el peso propio de la estructura es calculado directamente por el programa de análisis al declararle el comando self weight a todos los elementos que conforman el modelo.

Para el análisis sísmico, los sistemas de piso (losas) se consideraron como diafragmas rígidos y se realizó un análisis dinámico modal-espectral tomando en cuenta las recomendaciones establecidas en las Normas Técnicas Complementarias para Diseño por Sismo del Reglamento de Construcciones para el Distrito Federal.

En la figura siguiente se muestra una vista tridimensional del modelo de análisis descrito en párrafos anteriores.



Isométrico de Modelo de Delegación.



Isométrico de Modelo de CESI.

3 REGLAMENTOS Y MANUALES EMPLEADOS.

Para el diseño del análisis y diseño estructural en cuestión, se han tomado en cuenta los reglamentos nacionales e internacionales mencionados a continuación:

- Reglamento de Construcciones del Municipio de Aguascalientes.
- Reglamento de Construcciones del Distrito Federal. (R.C.D.F.), Edición 2004
- Normas Técnicas Complementarias para el Diseño por Sismo. (N.T.C.D.S.)
- Normas Técnicas Complementarias sobre Criterios y Acciones para el Diseño Estructural de las Edificaciones. (N.T.C.C.A.D.E.E.)
- Normas Técnicas Complementarias para Diseño y Construcción de Estructuras Metálicas. (N.T.C.D.C.E.M.)
- Normas Técnicas Complementarias para Diseño y Construcción de Cimentaciones. (N.T.C.D.C.C.)
- Manual de Construcción en Acero IMCA.
- Manual de Diseño de Obras Civiles Diseño por Sismo. (M.D.O.C.D.S.)
- American Concrete Institute (ACI), Edición ACI 318-11.
- American Institute of Steel Construction. (AISC-LRFD)

4 MATERIALES.

4.1 CONCRETO.

Concreto estructural Clase I, con peso volumétrico de 2400 kg/cm^3 y resistencia a la compresión a los 28 días de f´c= 250 kg/cm^2. Módulo de E= 242487.1 kg/cm^2. Con agregados pétreos de un máximo de 2.0 cm de diámetro.

4.2 ACERO DE REFUERZO Y ANCLAS.

El acero de refuerzo, con esfuerzo de fluencia fy= 4200 kg/cm^2. Módulo de elasticidad E= 2040000 kg/cm^2. Conforme a la designación A615 grado 60 de la ASTM.

Anclas ASTM A-36.

4.3 ACERO ESTRUCTURAL.

Acero estructural ASTM A-50 con esfuerzo de fluencia fy= 3515 kg/cm^2 y módulo de elasticidad E= 2040000 kg/cm^2.

4.4 TORNILLOS

Tornillos estructurales deberán ser A-325 de alta resistencia.

4.5 SOLDADURA.

Electrodo serie E-70XX con resistencia a la tracción de 70 KSI (49.2 kg/mm^2). Se aplicaran criterios de acuerdo a lo establecido en AWS D1.1.

5 ANÁLISIS DE CARGAS.

Se evaluaran las cargas de acuerdo a lo establecido en el R.C.D.F. de acuerdo a su ocupación o actividad de la edificación, en este caso la estructura será destinada para oficinas por lo que se tienen las siguientes cargas:

De acuerdo al R.C.D.F. en su Art. 186 se deben considerar tres categorías de acciones de acuerdo con la duración en que obran la estructura con intensidad máxima, siendo estas:

- Acciones Permanentes.
- Acciones Variables.
- Acciones Accidentales.

5.1 ACCIONES PERMANENTES.

5.1.1 CARGAS MUERTAS.

De acuerdo al Artículo 160 del Reglamento de Construcciones del Distrito Federal (R.C.D.F.) se considerarán como Carga Muerta los pesos de todos los elementos estructurales, de los acabados y de todos los elementos que ocupan una posición permanente y tienen un peso que no cambia sustancialmente con el tiempo.

Entrepiso

• Losacero		229 kg/m^2
• Muros divisorios		60 kg/m^2
• Acabado		40 kg/m^2
• Instalaciones		30 kg/m^2
• Sobrecarga		40 kg/m^2
	TOTAL =	399 kg/m^2

Azotea

• Losacero		229 kg/m^2
• Relleno		90 kg/m^2
• Equipos		80 kg/m^2
• Instalaciones		30 kg/m^2
• Sobrecarga		40 kg/m^2
	TOTAL =	469 kg/m^2

5.2 ACCIONES VARIABLES.

5.2.1 CARGAS VIVAS.

De acuerdo al Artículo 161 Reglamento de Construcciones del Distrito Federal (R.C.D.F.) se considerarán como Cargas Vivas las fuerzas que se producen por el uso y ocupación de las edificaciones y que no tienen carácter permanente. A menos que se justifiquen racionalmente otros valores, estas cargas se tomaran iguales a las especificadas en las

Normas Técnicas Complementarias sobre Criterios y Acciones para el Diseño Estructural de las Edificaciones (N.T.C.C.A.D.E.E).

Destino de piso o cubierta.	Carga Viva Máxima (Wm) Kg/m2	Carga Viva Instantánea (Wa) Kg/m2
Oficinas	250	180
Azotea pendiente < 5%	100	70

6 ANALISIS SISMICO.

Se realizó un análisis dinámico modal en base a los parámetros obtenidos y proporcionados por el Estudio de Mecánica de Suelos, con tres grados de libertad en cada nivel con el objeto de tomar en cuenta los desplazamientos horizontales en dos direcciones ortogonales.

Los parámetros del análisis es el siguiente:

- Clasificación de la estructura según su uso …….. Grupo B
- Zona Sísmica ……... B
- Clasificación del suelo …….. Tipo II
- Coeficiente sísmico ……. c = 0.45
- Factor de comportamiento sísmico …….. Q = 2

Regionalización Sísmica de la República Mexicana.

Espectro de diseño:

a = ao + (c - ao)(T/Ta) para T menor que Ta

a = c para T entre Ta y Tb

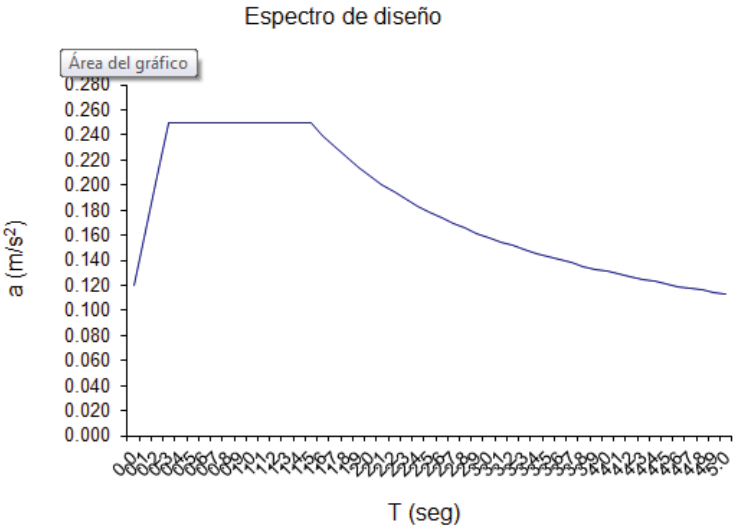
a = qc para T mayor que Tb

q = (Tb/T)r

a_0 = 0.12

Ta = 0.30 seg ; Tb = 1.5 seg

r = 2/3

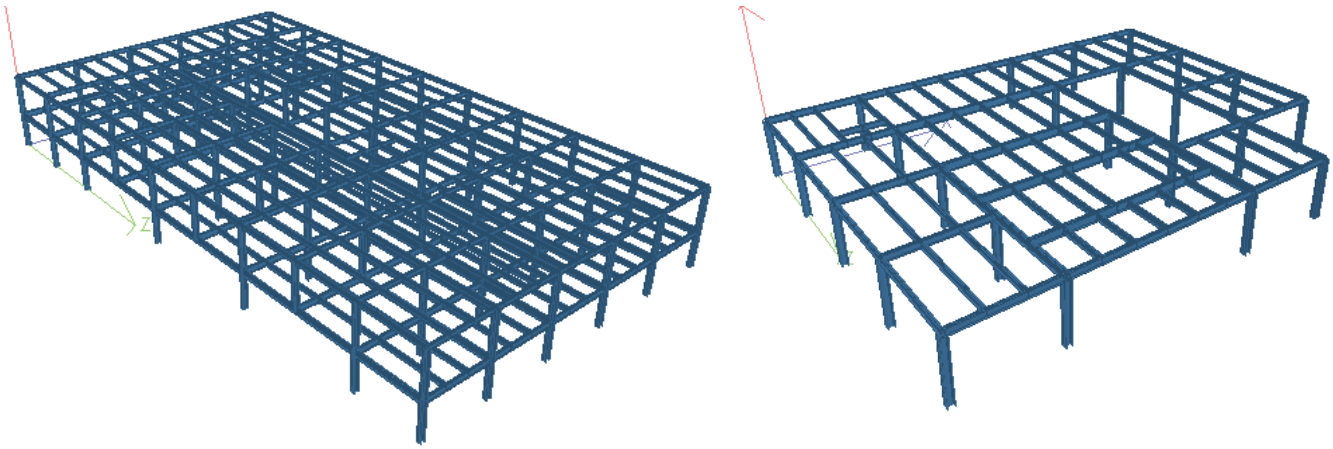


7 COMBINACIONES DE ACCIONES.

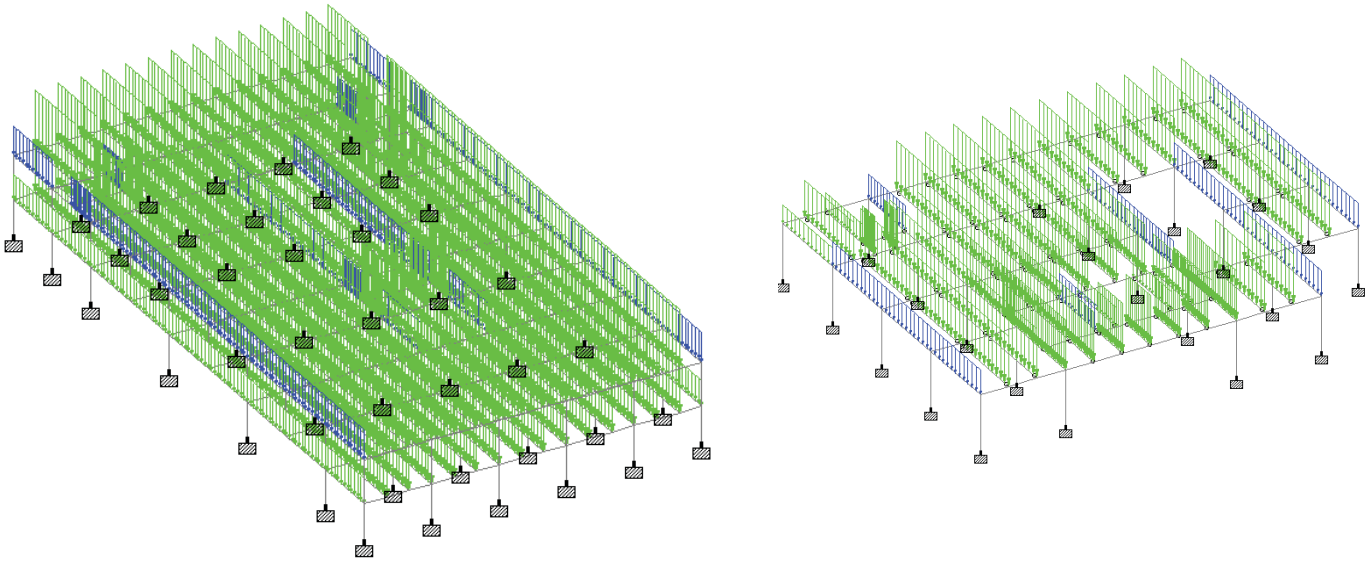
La seguridad de una estructura deberá verificarse para el combinado de todas las acciones que tengan una probabilidad no despreciable de ocurrir simultáneamente.

COMBINACIONES DE SERVICIO
1.0 (PP+CM + CV Max.)
1.0 (PP+CM + CV Inst. + Sx +0.3 Sz)
1.0 (PP+CM + CV Inst. + Sx - 0.3 Sz)
1.0 (PP+CM + CV Inst. - Sx + 0.3 Sz)
1.0 (PP+CM + CV Inst. - Sx - 0.3 Sz)
1.0 (PP+CM + CV Inst. + 0.3 Sx + Sz)
1.0 (PP+CM + CV Inst. + 0.3 Sx - Sz)
1.0 (PP+CM + CV Inst. - 0.3 Sx + Sz)
1.0 (PP+CM + CV Inst. - 0.3 Sx - Sz)
COMBINACIONES DE DISEÑO
1.4 (PP+CM + CV Max.)
1.1 (PP+CM + CV Inst. + Sx +0.3 Sz)
1.1 (PP+CM + CV Inst. + Sx - 0.3 Sz)
1.1 (PP+CM + CV Inst. - Sx + 0.3 Sz)
1.1 (PP+CM + CV Inst. - Sx - 0.3 Sz)
1.1 (PP+CM + CV Inst. + 0.3 Sx + Sz)
1.1 (PP+CM + CV Inst. + 0.3 Sx - Sz)
1.1 (PP+CM + CV Inst. - 0.3 Sx + Sz)
1.1 (PP+CM + CV Inst. - 0.3 Sx - Sz)

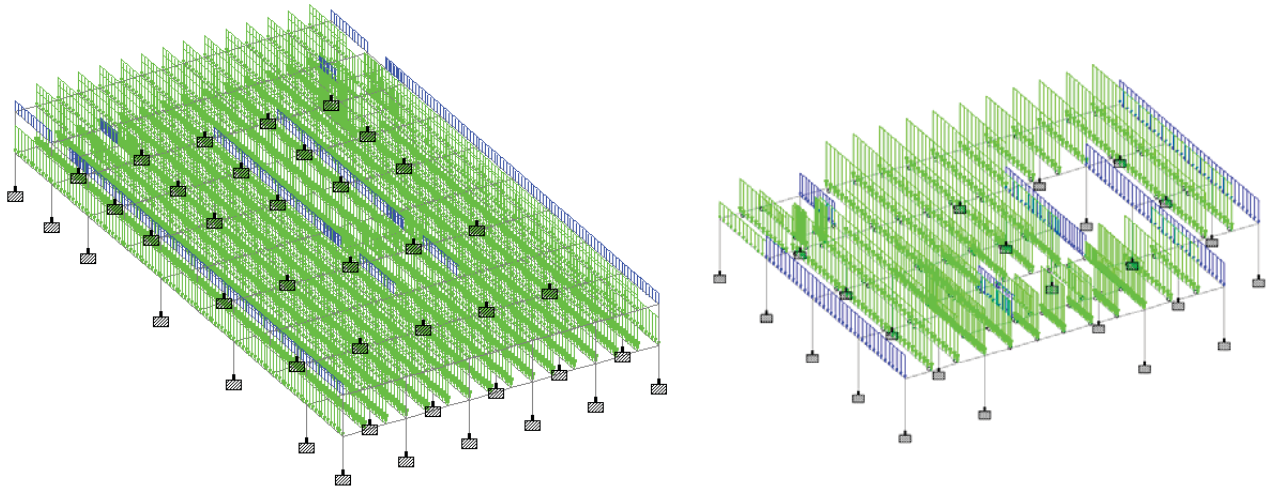
8 ANALISIS ESTRUCTURAL.



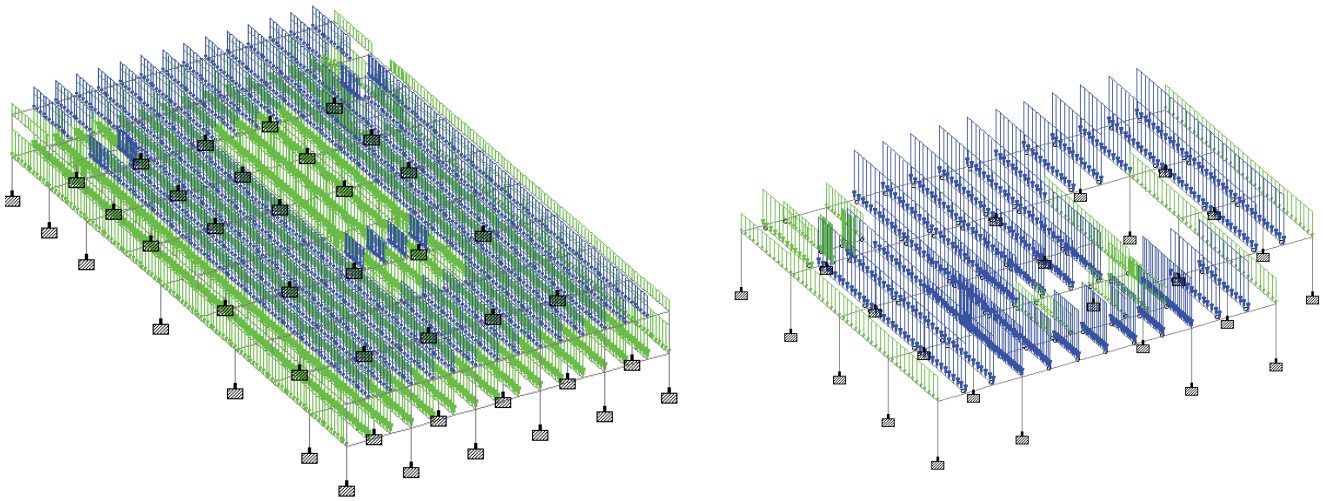
Estructuración Área de Delegación y CESI.



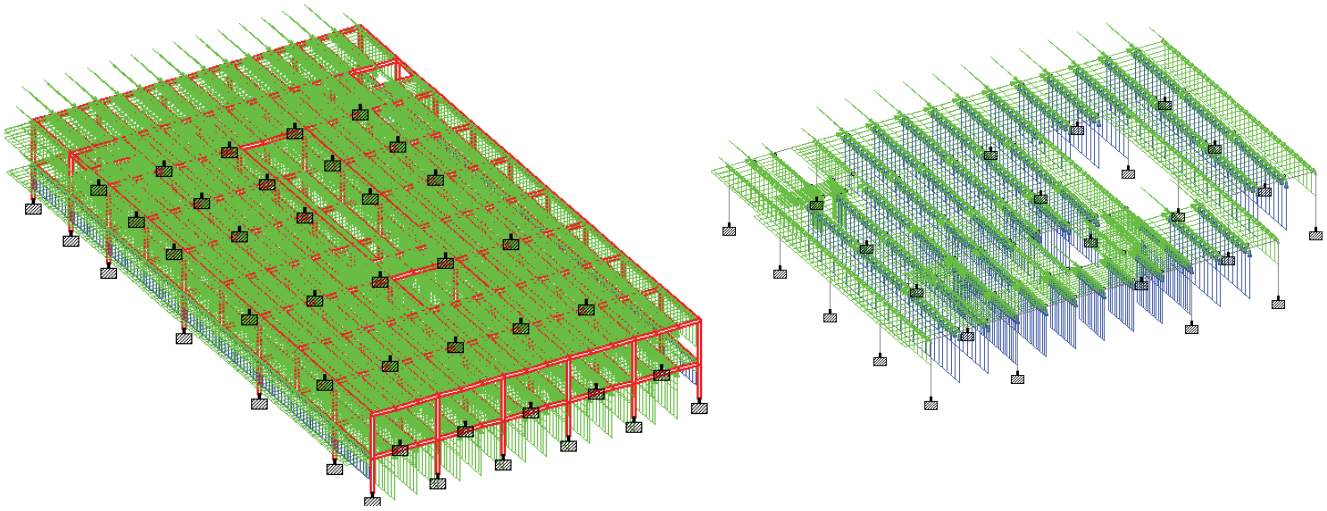
Carga Muerta en Área de Delegación y CESI.



Carga Viva Máxima en Área de Delegación y CESI.



Carga Viva Instantánea en Área de Delegación y CESI.



Carga de Sismo en Área de Delegación y CESI.

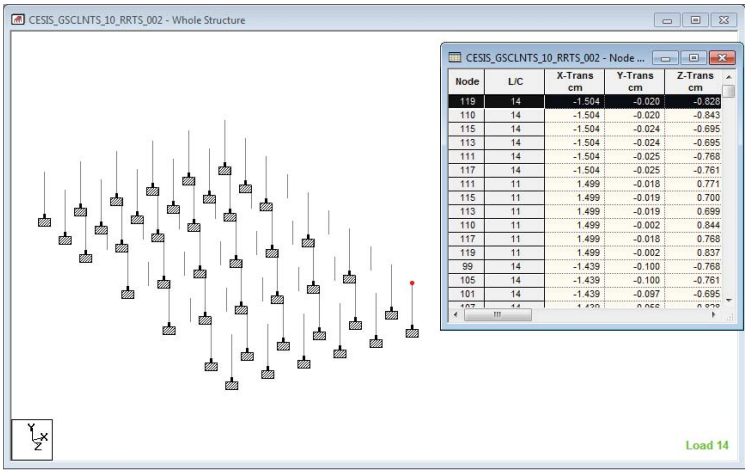
9 REVISION DE DESPLAZAMIENTOS.

Se revisará que los desplazamientos laterales cumplan con las limitaciones que marque el R.C.D.F. 2004 (0.006H < Δ < 0.012H).

Los elementos no estructurales que formen parte de la estructura deberán desligarse adecuadamente.

Edificio de Delegación.

Dirección X

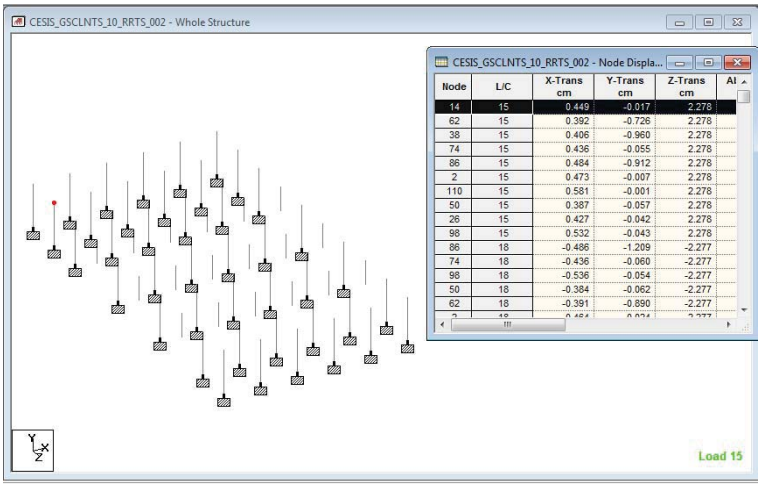


Node	L/C	X-Trans cm	Y-Trans cm	Z-Trans cm
119	14	-1.504	-0.020	-0.828
110	14	-1.504	-0.020	-0.843
115	14	-1.504	-0.024	-0.695
113	14	-1.504	-0.024	-0.695
111	14	-1.504	-0.025	-0.768
117	14	-1.504	-0.025	-0.761
111	11	1.499	-0.018	0.771
115	11	1.499	-0.019	0.700
113	11	1.499	-0.019	0.699
110	11	1.499	-0.002	0.844
117	11	1.499	-0.018	0.768
119	11	1.499	-0.002	0.837
99	14	-1.439	-0.100	-0.768
105	14	-1.439	-0.100	-0.761
101	14	-1.439	-0.097	-0.695

Δ adm = 0.012 x h = 0.012 x 690 cm = **8.28** cm

Δ real = 1.50 cm x 2 = **3.00** cm < Δ adm ; **O.k.**

Dirección Z

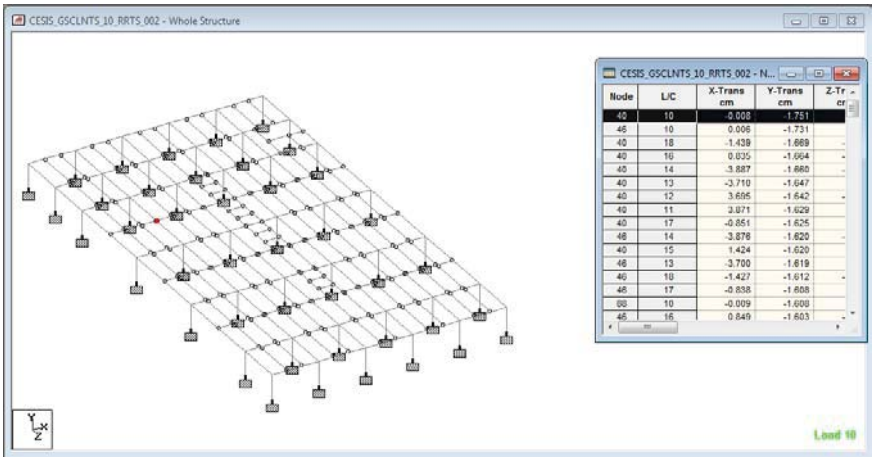


Node	L/C	X-Trans cm	Y-Trans cm	Z-Trans cm	Al
14	15	0.449	-0.017	2.278	
62	15	0.392	-0.726	2.278	
38	15	0.406	-0.960	2.278	
74	15	0.436	-0.055	2.278	
86	15	0.484	-0.912	2.278	
2	15	0.473	-0.007	2.278	
110	15	0.581	-0.001	2.278	
50	15	0.387	-0.057	2.278	
26	15	0.427	-0.042	2.278	
98	15	0.532	-0.043	2.278	
86	18	-0.486	-1.209	-2.277	
74	18	-0.436	-0.060	-2.277	
98	18	-0.536	-0.054	-2.277	
50	18	-0.384	-0.062	-2.277	
62	18	-0.391	-0.890	-2.277	

Δ adm = 0.012 x h = 0.012 x 690 cm = **8.28** cm

Δ real = 2.28 cm x 2 = **4.56** cm < Δ adm ; **O.k.**

Los desplazamientos verticales (deflexiones en vigas) también deberán cumplir con el mismo reglamento y con las normas que rijan en los casos especiales que así se requieran.



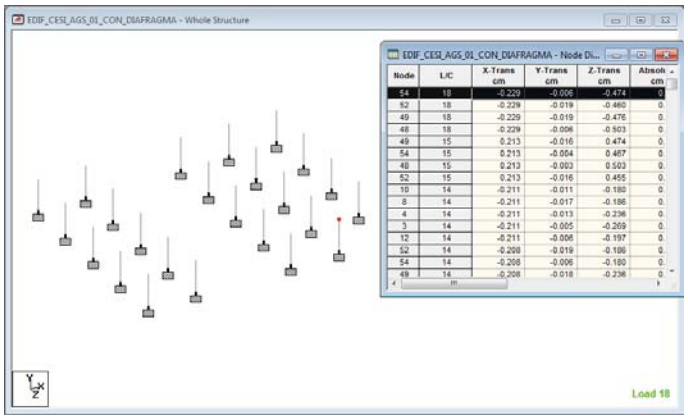
Node	L/C	X-Trans cm	Y-Trans cm	Z-Tr cr
40	10	-0.008	-1.751	
46	10	0.006	-1.731	
40	18	-1.439	-1.689	
40	16	0.835	-1.664	
45	14	-3.887	-1.660	
40	13	-3.710	-1.647	
40	12	3.695	-1.642	
40	11	3.871	-1.629	
40	17	-0.851	-1.625	
46	14	-3.878	-1.620	
40	15	1.424	-1.620	
46	13	-3.700	-1.619	
46	18	-1.427	-1.612	
46	17	-0.838	-1.608	
88	10	-0.009	-1.600	
45	16	0.849	-1.603	

Δ adm = L x 240 + 0.5 cm = 1200 / 240 + 0.5 cm = **5.5** cm

Δ = **1.75** cm < Δ adm ; **O.k.**

Edificio de CESI.

Dirección X

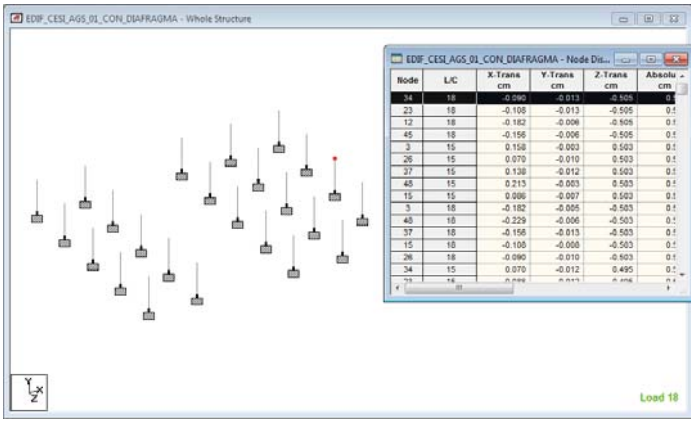


Node	L/C	X-Trans cm	Y-Trans cm	Z-Trans cm	Absolu cm
54	18	-0.229	-0.006	-0.474	0.
52	18	-0.229	-0.019	-0.460	0.
49	18	-0.229	-0.019	-0.476	0.
48	18	-0.229	-0.006	-0.503	0.
49	15	0.213	-0.016	0.474	0.
54	15	0.213	-0.004	0.467	0.
48	15	0.213	-0.003	0.503	0.
52	15	0.213	-0.016	0.455	0.
10	14	-0.211	-0.011	-0.180	0.
8	14	-0.211	-0.017	-0.186	0.
4	14	-0.211	-0.013	-0.236	0.
3	14	-0.211	-0.005	-0.269	0.
12	14	-0.211	-0.006	-0.197	0.
52	14	-0.208	-0.019	-0.186	0.
54	14	-0.208	-0.006	-0.180	0.
49	14	-0.208	-0.018	-0.236	0.

Δ adm = 0.012 x h = 0.012 x 390 cm = **4.68** cm

Δ real = 0.23 cm x 2 = **0.46** cm < Δ adm ; **O.k.**

Dirección Z

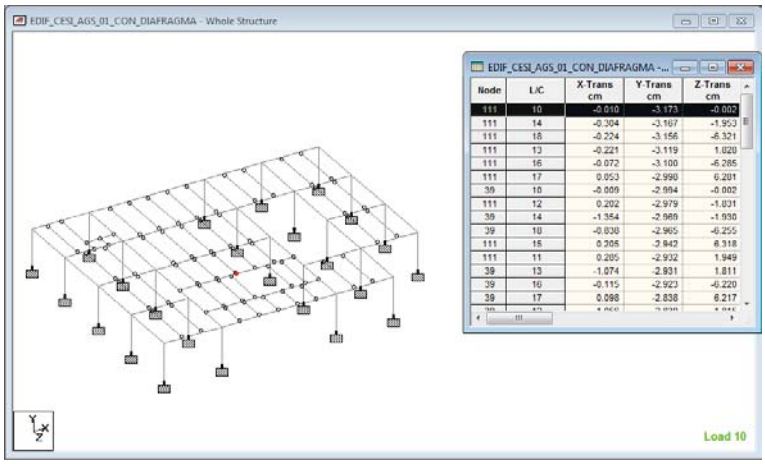


Node	L/C	X-Trans cm	Y-Trans cm	Z-Trans cm	Absolu cm
34	18	-0.090	-0.013	-0.505	0.5
23	18	-0.108	-0.013	-0.505	0.5
12	18	-0.182	-0.006	-0.505	0.5
45	18	-0.156	-0.006	-0.505	0.5
3	15	0.158	-0.003	0.503	0.5
26	15	0.070	-0.010	0.503	0.5
27	15	0.138	-0.012	0.503	0.5
45	15	0.213	-0.003	0.503	0.5
15	15	0.006	-0.007	0.503	0.5
3	18	-0.182	-0.005	-0.503	0.5
48	18	-0.229	-0.006	-0.503	0.5
37	18	-0.156	-0.013	-0.503	0.5
15	18	-0.108	-0.008	-0.503	0.5
26	18	-0.090	-0.010	-0.503	0.5
34	15	0.070	-0.012	0.495	0.5

Δ adm = 0.012 x h = 0.012 x 390 cm = **4.68** cm

Δ real = 0.51 cm x 2 = **1.02** cm < Δ adm ; **O.k.**

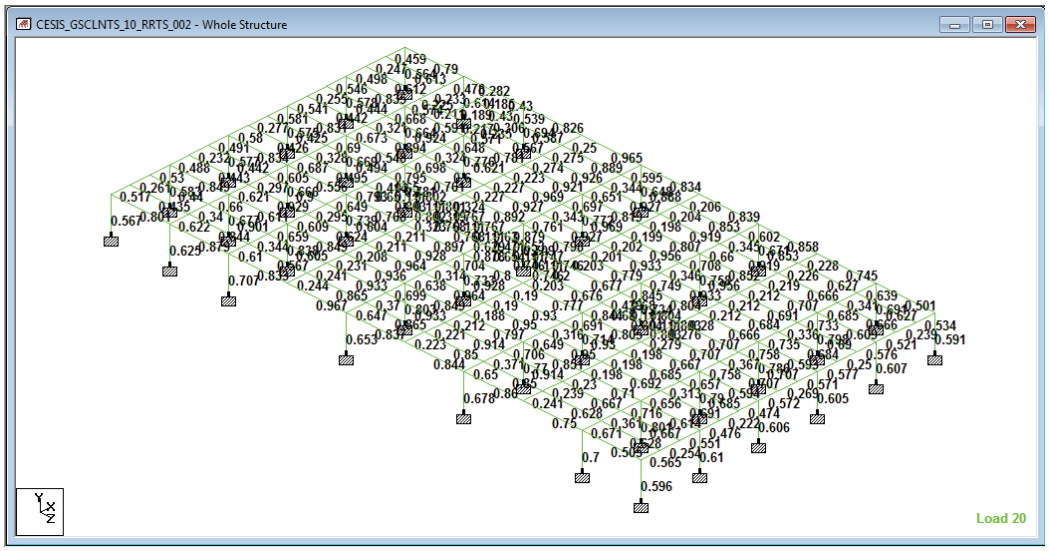
Los desplazamientos verticales (deflexiones en vigas) también deberán cumplir con el mismo reglamento y con las normas que rijan en los casos especiales que así se requieran.



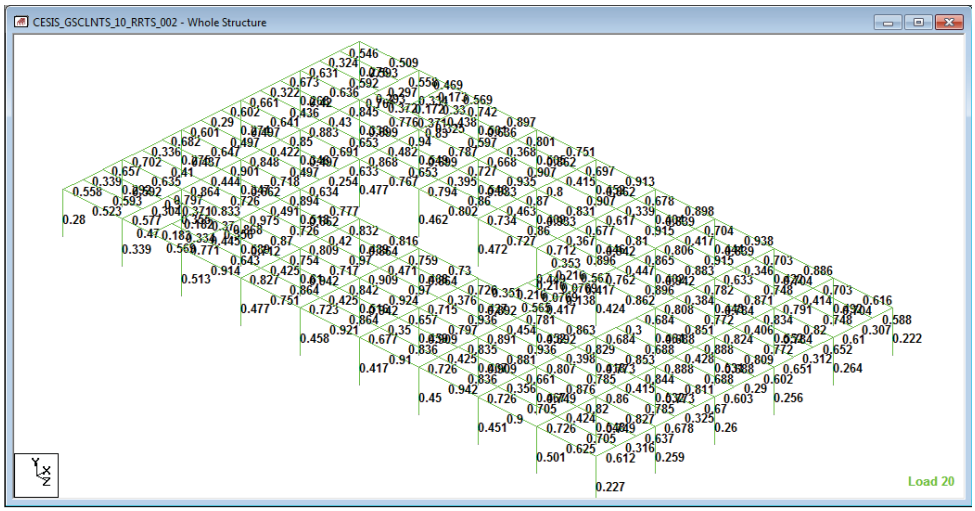
Δ adm = L x 240 + 0.5 cm = 1200 / 240 + 0.5 cm = **5.5** cm

Δ = **3.17** cm < Δ adm ; **O.k.**

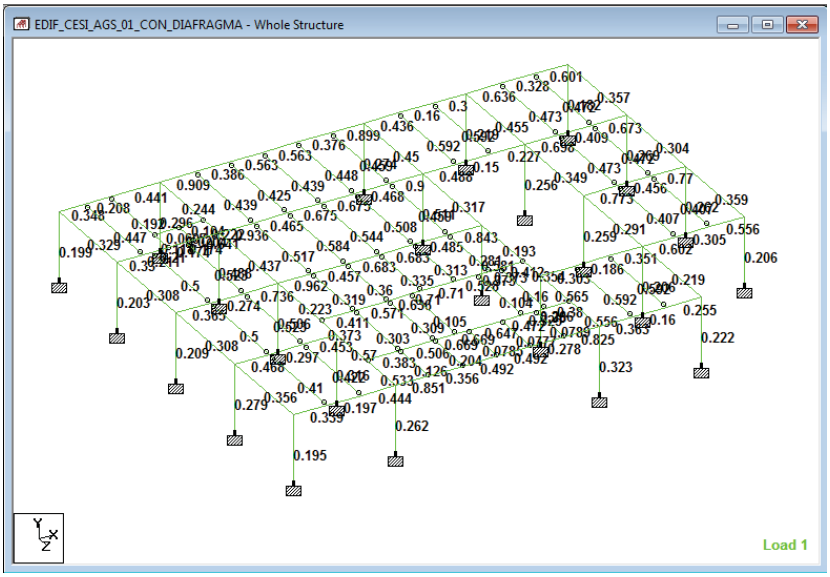
10 REVISION DE ESFUERZOS EN ELEMENTOS ESTRUTURALES



Esfuerzos en columnas y vigas 1er Nivel, Área de Oficinas de Delegación.



Esfuerzos en columnas y vigas Nivel de Azotea, Área de Oficinas de Delegación.



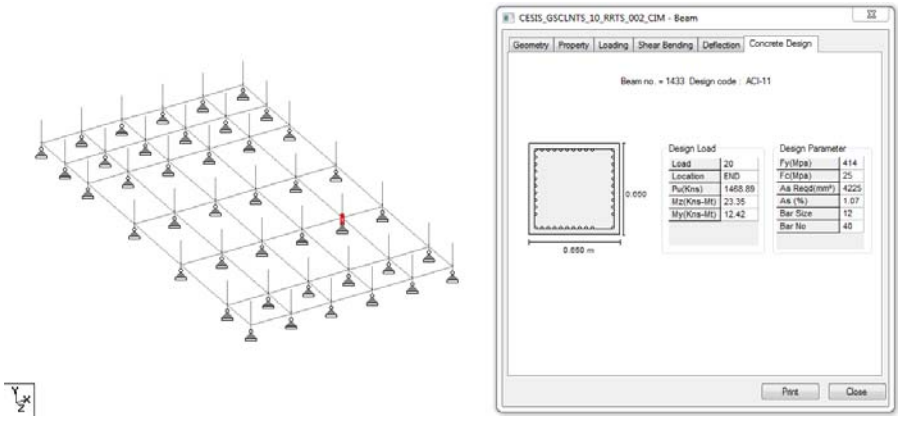
Esfuerzos en columnas y vigas Área de CESI.

11 DISEÑO DE ELEMENTOS ESTRUCTURALES.

Se diseñaran los elementos de la estructura de acuerdo con los lineamientos vigentes del R.C.D.F., así como las N.TC.-2004 con las combinaciones de carga aplicando los efectos de sismo,

Diseño de dados de concreto.

De los datos obtenidos de la corrida con el programa STAAD.Pro se obtiene el refuerzo necesario para los dados, se requiere un área de acero de refuerzo de :

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      ACI 318-11   COLUMN  NO.  1433   DESIGN RESULTS
      ================================================

FY - 413.7  FC -  24.5 MPA,  SQRE SIZE - 650.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  4225.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
-------------------------------------------------------------

 40 - 12 MM               1.071       20      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   12 SPACING 192.00 MM
```

Área de acero de refuerzo del modelo STAAD Pro. As= **42.25** cm^2

Área de acero mínimo As = 0.01bd'= 0.1 x 4225 cm^2 = 42.25 cm^2

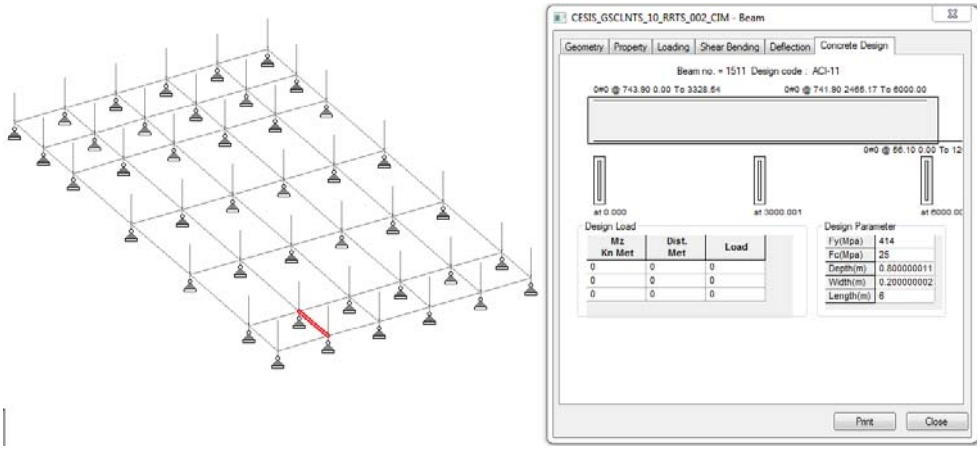
Área de dado = 65 cm x 65 cm = 4225 cm^2

Ocupando varilla del # **6**, área de acero necesaria = 42.25 cm2 / 2.85 cm2 = **14.82**

Acero de refuerzo propuesto:

16 # 6 , As_{prop} = 16 x 2.85 cm^2 = **45.60** cm^2 > **42.25** cm^2 ; o.k

Diseño de trabes de liga.




```
        ACI 318-11   BEAM  NO.  1511   DESIGN RESULTS
        ==========================================

LEN -  6000. MM  FY -  414.  FC -  25.  MPA, SIZE -  200. X  800. MMS

LEVEL     HEIGHT      BAR INFO        FROM          TO          ANCHOR
            (MM)                        (MM)          (MM)        STA  END
_____________________________________________________________________

*** A SUITABLE BAR ARRANGEMENT COULD NOT BE DETERMINED.
REQD. STEEL =     977. MM2,   MAX. STEEL PERMISSIBLE =    2804. MM2
MAX POS MOMENT =    250.61 KN-MET,   LOADING    25
```

Área de acero de refuerzo en el momento positivo obtenido del modelo STAAD. Pro. As = **9.77** cm^2.

Ocupando varilla del # **8**, área de acero necesaria = 9.77 cm^2 / 5.07 cm^2 = **1.93**

Acero de refuerzo propuesto:

2 # 8 , As_{prop} = 2 x 5.07 cm^2 = **10.14** cm^2 > **9.77** cm^2 ; o.k

```
*** A SUITABLE BAR ARRANGEMENT COULD NOT BE DETERMINED.
REQD. STEEL =    1065. MM2,   MAX. STEEL PERMISSIBLE =    2804. MM2
MAX NEG MOMENT =    271.63 KN-MET,   LOADING    28
```

Área de acero de refuerzo en el momento negativo obtenido del modelo STAAD. Pro. As = **10.65** cm^2.

Ocupando varilla del # **8**, área de acero necesaria = 10.65 cm^2 / 5.07 cm^2 = **2.10**

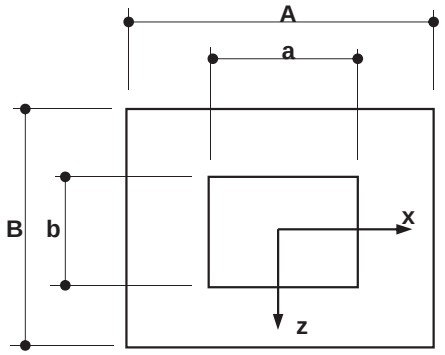
Acero de refuerzo propuesto:

2 # 8 , As_{prop} = 2 x 5.07 cm^2 = **10.14** cm^2 < **10.65** cm^2 ; se necesita colocar baston

10.65 cm^2 - **10.14** cm^2 = **0.51**cm^2 ; utilizamos **1#5**

REFERENCIAS

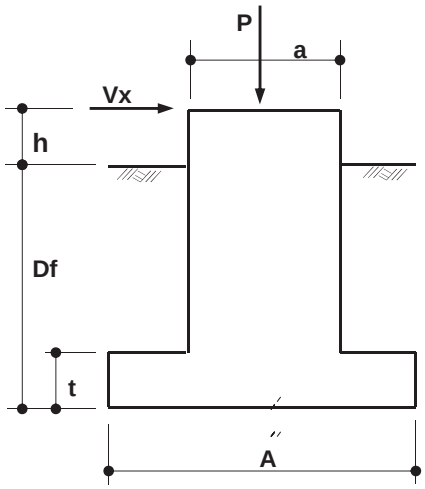
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**3.50**	m
B =	**3.50**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**7.00**	ton/m^2
γs =	**1.66**	ton/m^3

A =	12.25	m^2
Sx =	7.15	m^3
Sz =	7.15	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**39.64**	ton
Mx =	**6.29**	ton·m
Mz =	**13.11**	ton·m
Fx =	**5.86**	ton
Fz =	**3.63**	ton

Cargas Factorizadas
Diseño estructural de zapata

P =	**43.60**	ton
Mx =	**6.91**	ton·m
Mz =	**14.42**	ton·m
Fx =	**6.45**	ton
Fz =	**3.99**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-39.64	ton	P =	-43.60	ton
Mx =	-6.29	ton·m	Mx =	-6.91	ton·m
Mz =	-13.11	ton·m	Mz =	-14.42	ton·m
Fx =	-5.86	ton	Fx =	-6.45	ton
Fz =	-3.63	ton	Fz =	-3.99	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	39.64	ton	P =	43.60	ton
Mx =	9.92	ton·m	Mx =	10.90	ton·m
Mz =	7.25	ton·m	Mz =	7.97	ton·m
Fx =	5.86	ton	Fx =	6.45	ton
Fz =	3.63	ton	Fz =	3.99	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	10.29	ton	10.29	ton
RELLENO	12.76	ton	12.76	ton
AXIAL (P)	39.64	ton	43.60	ton
TOTAL=	63.35	ton	67.31	ton

Mrx = 110.86 ton·m
Mrz = 110.86 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	110.86	ton·m		Mrz =	110.86	ton·m	
Mx =	9.92	ton·m		Mz =	7.25	ton·m	
Fvol	≤	(Mrx / Mx)		Fvol	≤	(Mrz / Mz)	
1.5	<	11.18	**Correcto**	1.5	<	15.29	**Correcto**

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.11	m
ez=Mx/Peso=	0.16	m
F = B/2-ez =	1.59	m
E = A/2 -ex =	1.64	m
A =	3.50	m
B =	3.50	m
E/A =	0.47	m
F/B =	0.46	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

REFERENCIAS

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.56 < 7.00\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.97$$

CASO II **No aplica**

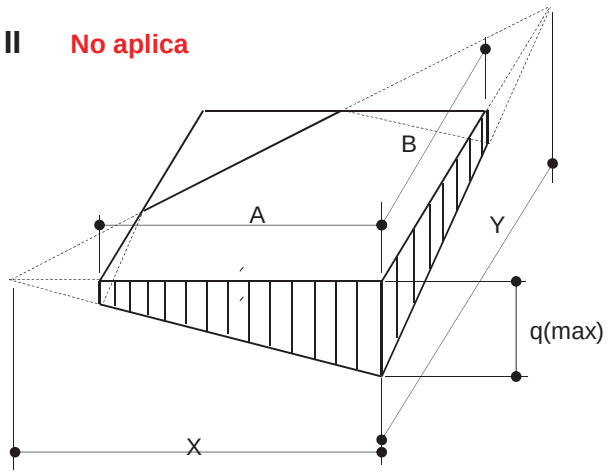


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =		F/B =	(B/Y)1 =
				SE OBTIENE
AHORA PARA	(B/Y)1 =		E/A =	(A/X)2 =

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

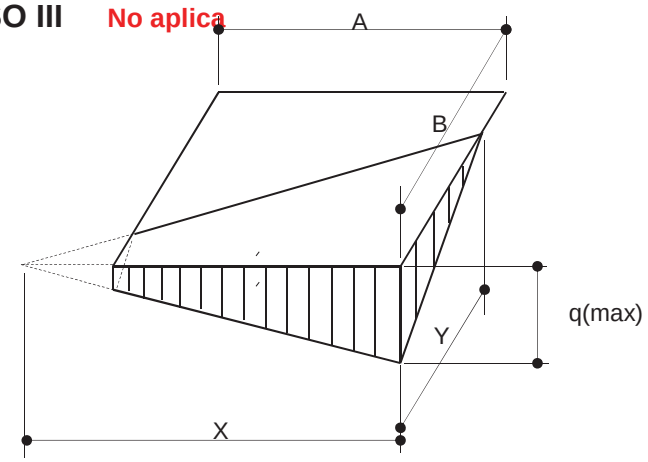


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 6.97 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	5.05	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.43	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	5.13	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	7.20	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **5** =	1.99	cm^2
Rn =	6.33100	
PORCENTAJE DE ACERO DE REFUERZO =	0.00153	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 5 @ (ESPACIAMIENTO DE VARILLAS) =	19.21	cm

SE USARA VARILLA No. 5 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	7.20	ton

ϕVc > Vu **Correcto**

REFERENCIAS

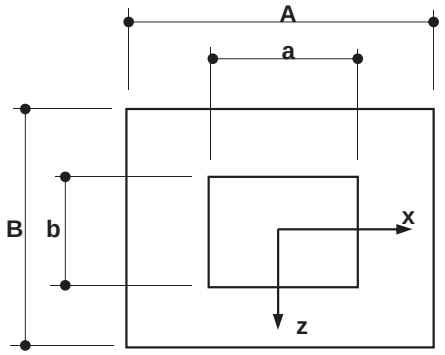
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.8	m
Vc = REIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	56	ton

Vc > Wp **Correcto**

REFERENCIAS

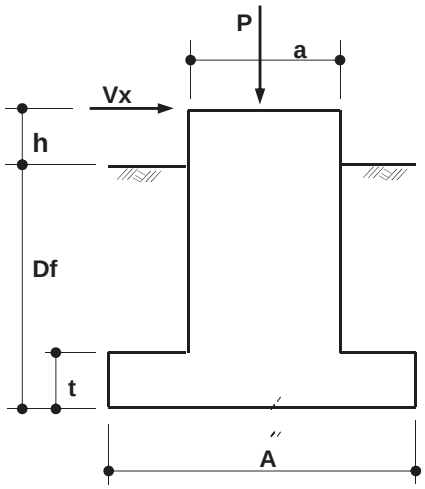
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**3.30**	m
B =	**3.30**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**8.33**	ton/m^2
γs =	**1.66**	ton/m^3

A =	10.89	m^2
Sx =	5.99	m^3
Sz =	5.99	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**39.64**	ton
Mx =	**6.29**	ton·m
Mz =	**13.11**	ton·m
Fx =	**5.86**	ton
Fz =	**3.63**	ton

Cargas Factorizadas
Diseño estructural de zapata

P =	**43.60**	ton
Mx =	**6.91**	ton·m
Mz =	**14.42**	ton·m
Fx =	**6.45**	ton
Fz =	**3.99**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-39.64	ton	P =	-43.60	ton
Mx =	-6.29	ton·m	Mx =	-6.91	ton·m
Mz =	-13.11	ton·m	Mz =	-14.42	ton·m
Fx =	-5.86	ton	Fx =	-6.45	ton
Fz =	-3.63	ton	Fz =	-3.99	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	39.64	ton	P =	43.60	ton
Mx =	9.92	ton·m	Mx =	10.90	ton·m
Mz =	7.25	ton·m	Mz =	7.97	ton·m
Fx =	5.86	ton	Fx =	6.45	ton
Fz =	3.63	ton	Fz =	3.99	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	9.15	ton	9.15	ton
RELLENO	11.29	ton	11.29	ton
AXIAL (P)	39.64	ton	43.60	ton
TOTAL=	60.74	ton	64.70	ton

Mrx = 100.22 ton·m
Mrz = 100.22 ton·m

REVISIÓN CONTRA VOLTEO

En eje X			**En eje Z**		
Mrx =	100.22	ton·m	Mrz =	100.22	ton·m
Mx =	9.92	ton·m	Mz =	7.25	ton·m
Fvol ≤	(Mrx / Mx)		Fvol ≤	(Mrz / Mz)	
1.5 <	10.10	**Correcto**	1.5 <	13.82	**Correcto**

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.12	m
ez=Mx/Peso=	0.16	m
F = B/2-ez =	1.49	m
E = A/2 -ex =	1.53	m
A =	3.30	m
B =	3.30	m
E/A =	0.46	m
F/B =	0.45	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

REFERENCIAS

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.23 < 8.33\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.71$$

CASO II **No aplica**

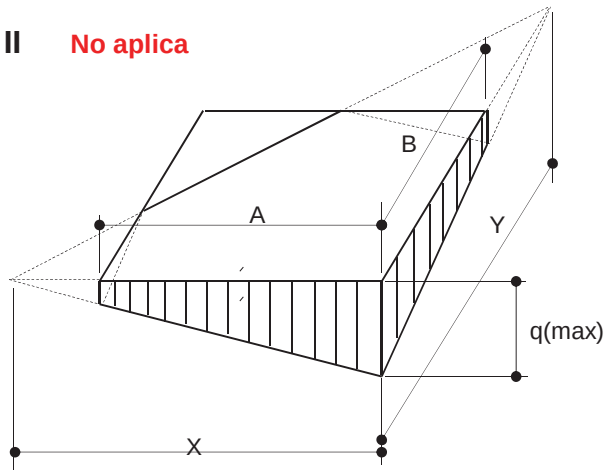


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =		F/B =	(B/Y)1 =
				SE OBTIENE
AHORA PARA	(B/Y)1 =		E/A =	(A/X)2 =

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

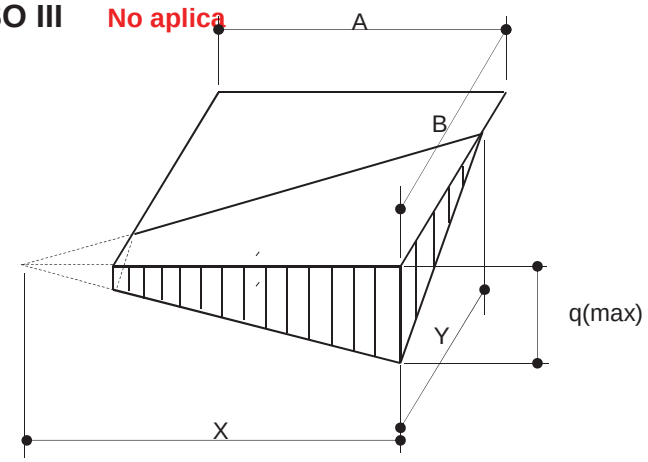


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 7.71 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	5.79	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.33	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	5.08	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	7.67	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **5** =	1.99	cm^2
Rn =	6.27099	
PORCENTAJE DE ACERO DE REFUERZO =	0.00152	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 5 @ (ESPACIAMIENTO DE VARILLAS) =	19.21	cm

SE USARA VARILLA No. 5 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	7.67	ton

ϕVc > Vu **Correcto**

REFERENCIAS

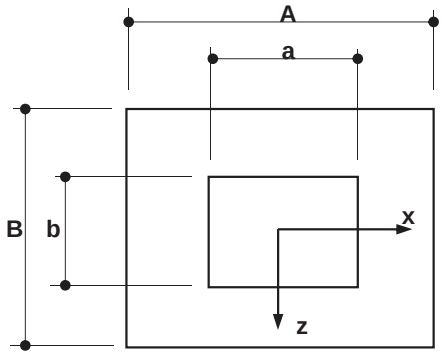
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.8	m
Vc = REIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	56	ton

Vc > Wp **Correcto**

REFERENCIAS

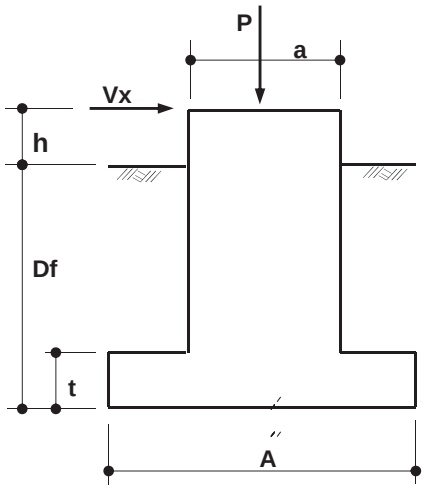
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**3.10**	m
B =	**3.10**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**9.14**	ton/m^2
γs =	**1.66**	ton/m^3

A =	9.61	m^2
Sx =	4.97	m^3
Sz =	4.97	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**39.64**	ton
Mx =	**6.29**	ton·m
Mz =	**13.11**	ton·m
Fx =	**5.86**	ton
Fz =	**3.63**	ton

Cargas Factorizadas
Diseño estructural de zapata

P =	**43.60**	ton
Mx =	**6.91**	ton·m
Mz =	**14.42**	ton·m
Fx =	**6.45**	ton
Fz =	**3.99**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-39.64	ton	P =	-43.60	ton
Mx =	-6.29	ton·m	Mx =	-6.91	ton·m
Mz =	-13.11	ton·m	Mz =	-14.42	ton·m
Fx =	-5.86	ton	Fx =	-6.45	ton
Fz =	-3.63	ton	Fz =	-3.99	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	39.64	ton	P =	43.60	ton
Mx =	9.92	ton·m	Mx =	10.90	ton·m
Mz =	7.25	ton·m	Mz =	7.97	ton·m
Fx =	5.86	ton	Fx =	6.45	ton
Fz =	3.63	ton	Fz =	3.99	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	8.07	ton	8.07	ton
RELLENO	9.91	ton	9.91	ton
AXIAL (P)	39.64	ton	43.60	ton
TOTAL=	58.28	ton	62.24	ton

Mrx = 90.34 ton·m
Mrz = 90.34 ton·m

REVISIÓN CONTRA VOLTEO

En eje X			**En eje Z**		
Mrx =	90.34	ton·m	Mrz =	90.34	ton·m
Mx =	9.92	ton·m	Mz =	7.25	ton·m
Fvol ≤	(Mrx / Mx)		Fvol ≤	(Mrz / Mz)	
1.5 <	9.11	**Correcto**	1.5 <	12.46	**Correcto**

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.12	m
ez=Mx/Peso=	0.17	m
F = B/2-ez =	1.38	m
E = A/2 -ex =	1.43	m
A =	3.10	m
B =	3.10	m
E/A =	0.46	m
F/B =	0.45	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

REFERENCIAS

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 8.06 < 9.14\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 8.61$$

CASO II **No aplica**

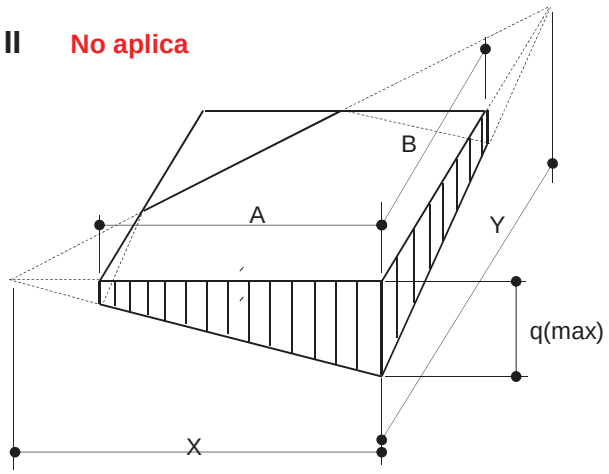


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

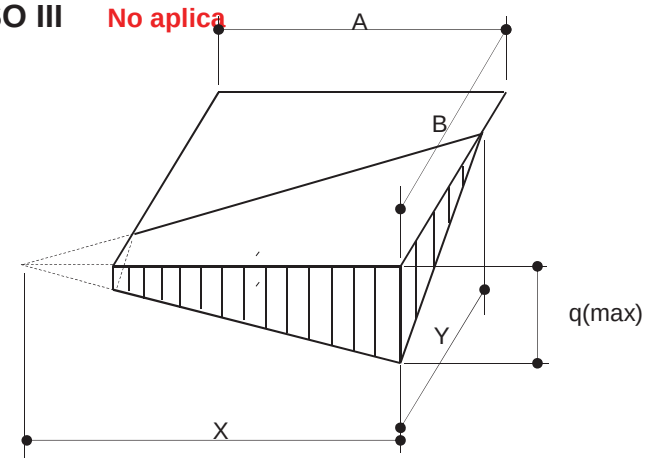


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 8.61 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	6.69	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.23	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	5.02	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	8.20	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **5** =	1.99	cm^2
Rn =	6.19865	
PORCENTAJE DE ACERO DE REFUERZO =	0.00150	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 5 @ (ESPACIAMIENTO DE VARILLAS) =	19.21	cm

SE USARA VARILLA No. 5 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	8.20	ton

ϕVc > Vu **Correcto**

REFERENCIAS

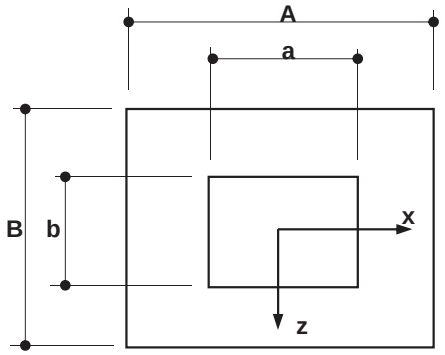
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.8	m
Vc = REIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	56	ton

Vc > Wp **Correcto**

REFERENCIAS

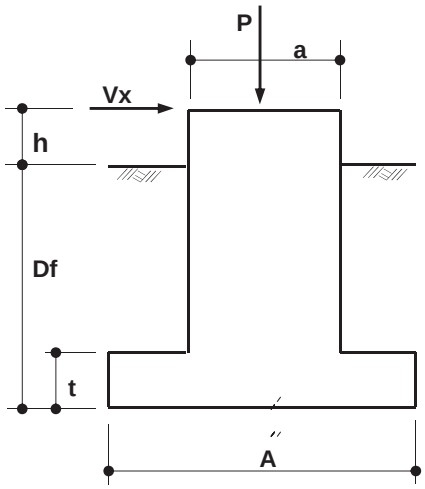
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.40**	m
A =	**4.50**	m
B =	**4.50**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**7.00**	ton/m^2
γs =	**1.66**	ton/m^3

A =	20.25	m^2
Sx =	15.19	m^3
Sz =	15.19	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**71.42**	ton
Mx =	**9.00**	ton·m
Mz =	**14.53**	ton·m
Fx =	**7.11**	ton
Fz =	**6.49**	ton

Cargas Factorizadas
Diseño estructural de zapata

P =	**78.56**	ton
Mx =	**9.90**	ton·m
Mz =	**15.99**	ton·m
Fx =	**7.82**	ton
Fz =	**7.14**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-71.42	ton	P =	-78.56	ton
Mx =	-9.00	ton·m	Mx =	-9.90	ton·m
Mz =	-14.53	ton·m	Mz =	-15.99	ton·m
Fx =	-7.11	ton	Fx =	-7.82	ton
Fz =	-6.49	ton	Fz =	-7.14	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	71.42	ton	P =	78.56	ton
Mx =	15.49	ton·m	Mx =	17.04	ton·m
Mz =	7.42	ton·m	Mz =	8.17	ton·m
Fx =	7.11	ton	Fx =	7.82	ton
Fz =	6.49	ton	Fz =	7.14	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.61	ton	0.61	ton
ZAPATA	19.44	ton	19.44	ton
RELLENO	19.75	ton	19.75	ton
AXIAL (P)	71.42	ton	78.56	ton
TOTAL=	111.22	ton	118.36	ton

Mrx = 250.24 ton·m
Mrz = 250.24 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	250.24	ton·m		Mrz =	250.24	ton·m	
Mx =	15.49	ton·m		Mz =	7.42	ton·m	
Fvol	≤	(Mrx / Mx)		Fvol	≤	(Mrz / Mz)	
1.5	<	16.15	**Correcto**	1.5	<	33.72	**Correcto**

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.07	m
ez=Mx/Peso=	0.14	m
F = B/2-ez =	2.11	m
E = A/2 -ex =	2.18	m
A =	4.50	m
B =	4.50	m
E/A =	0.49	m
F/B =	0.47	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

REFERENCIAS

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.51 < 7.00\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.93$$

CASO II **No aplica**

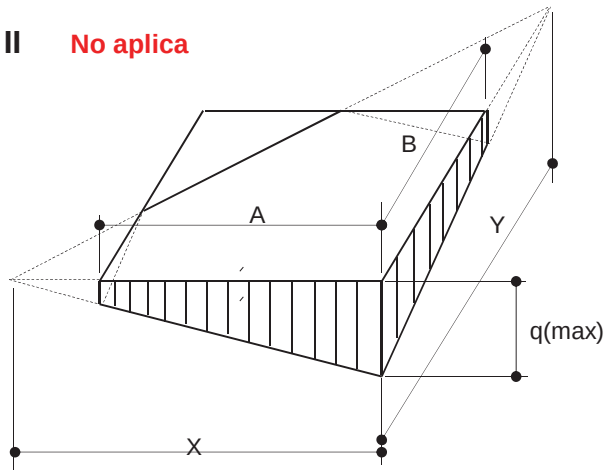


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =		F/B =	(B/Y)1 =
				SE OBTIENE
AHORA PARA	(B/Y)1 =		E/A =	(A/X)2 =

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

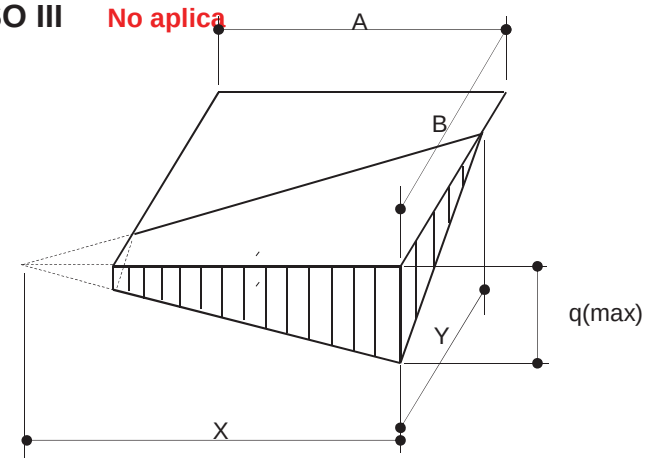


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 6.93 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.96	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.00	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	4.97	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.93	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	9.22	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	9.58	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	35	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	8.35936	
PORCENTAJE DE ACERO DE REFUERZO =	0.00203	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	12.08	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	23.50	cm

SE USARA VARILLA No. 6 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	30.44	ton
ϕVc =	25.87	ton
Vu =	9.58	ton

ϕVc > Vu **Correcto**

REFERENCIAS

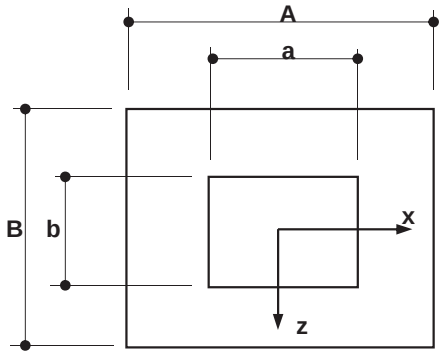
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	4	m
Vc = REIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	243	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	101	ton

Vc > Wp **Correcto**

REFERENCIAS

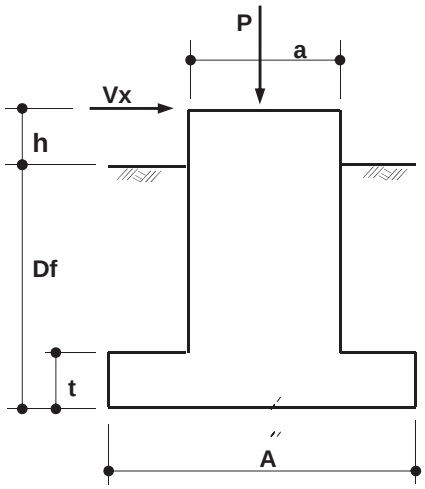
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.40**	m
A =	**4.20**	m
B =	**4.20**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**8.33**	ton/m^2
γs =	**1.66**	ton/m^3

A =	17.64	m^2
Sx =	12.35	m^3
Sz =	12.35	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**71.42**	ton
Mx =	**9.00**	ton·m
Mz =	**14.53**	ton·m
Fx =	**7.11**	ton
Fz =	**6.49**	ton

Cargas Factorizadas
Diseño estructural de zapata

P =	**78.56**	ton
Mx =	**9.90**	ton·m
Mz =	**15.99**	ton·m
Fx =	**7.82**	ton
Fz =	**7.14**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-71.42	ton	P =	-78.56	ton
Mx =	-9.00	ton·m	Mx =	-9.90	ton·m
Mz =	-14.53	ton·m	Mz =	-15.99	ton·m
Fx =	-7.11	ton	Fx =	-7.82	ton
Fz =	-6.49	ton	Fz =	-7.14	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	71.42	ton	P =	78.56	ton
Mx =	15.49	ton·m	Mx =	17.04	ton·m
Mz =	7.42	ton·m	Mz =	8.17	ton·m
Fx =	7.11	ton	Fx =	7.82	ton
Fz =	6.49	ton	Fz =	7.14	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.61	ton	0.61	ton
ZAPATA	16.93	ton	16.93	ton
RELLENO	17.15	ton	17.15	ton
AXIAL (P)	71.42	ton	78.56	ton
TOTAL=	106.11	ton	113.25	ton

Mrx = 222.83 ton·m
Mrz = 222.83 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	222.83	ton·m		Mrz =	222.83	ton·m	
Mx =	15.49	ton·m		Mz =	7.42	ton·m	
Fvol	≤	(Mrx / Mx)		Fvol	≤	(Mrz / Mz)	
1.5	<	14.39	**Correcto**	1.5	<	30.03	**Correcto**

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.07	m
ez=Mx/Peso=	0.15	m
F = B/2-ez =	1.95	m
E = A/2 -ex =	2.03	m
A =	4.20	m
B =	4.20	m
E/A =	0.48	m
F/B =	0.47	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

REFERENCIAS

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.27 < 8.33\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.76$$

CASO II **No aplica**

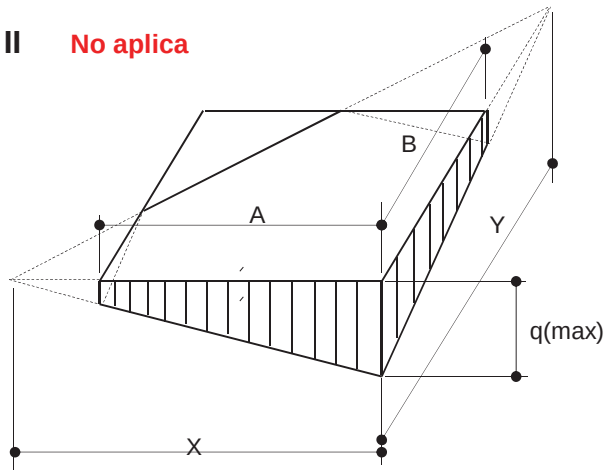


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =		F/B =	(B/Y)1 =
				SE OBTIENE
AHORA PARA	(B/Y)1 =		E/A =	(A/X)2 =

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

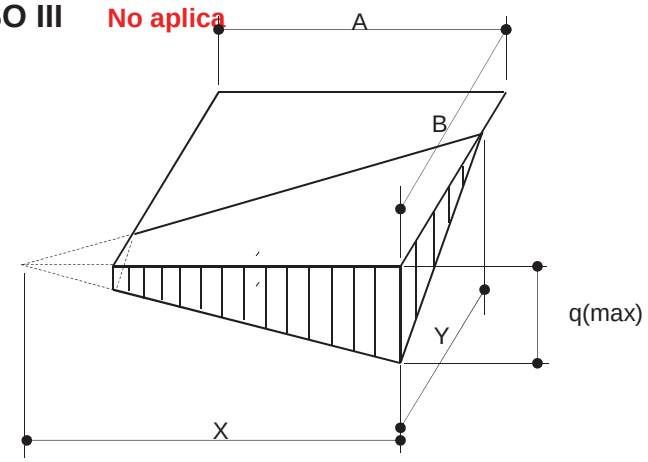


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 7.76 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.96	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.00	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	5.80	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.78	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	9.14	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	10.30	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	35	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	8.29166	
PORCENTAJE DE ACERO DE REFUERZO =	0.00201	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	12.08	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	23.50	cm

SE USARA VARILLA No. 6 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	30.44	ton
ϕVc =	25.87	ton
Vu =	10.30	ton

ϕVc > Vu **Correcto**

REFERENCIAS

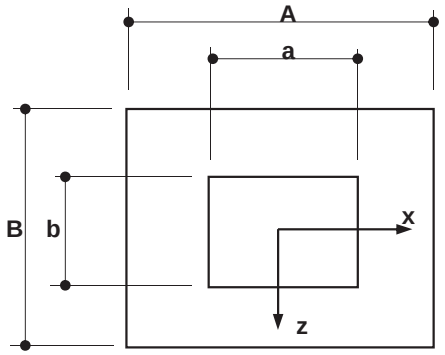
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	4	m
Vc = REIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	243	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	101	ton

Vc > Wp **Correcto**

REFERENCIAS

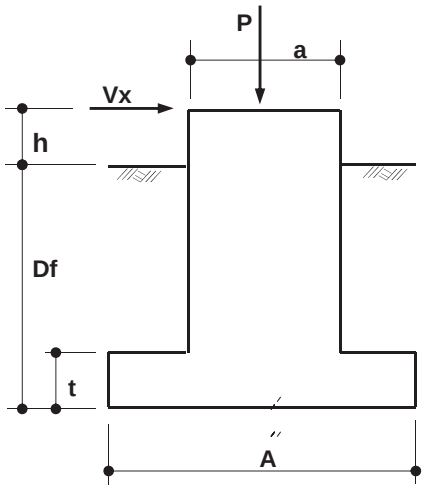
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.40**	m
A =	**3.80**	m
B =	**3.80**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**9.14**	ton/m^2
γs =	**1.66**	ton/m^3

A =	14.44	m^2
Sx =	9.15	m^3
Sz =	9.15	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**71.42**	ton
Mx =	**9.00**	ton·m
Mz =	**14.53**	ton·m
Fx =	**7.11**	ton
Fz =	**6.49**	ton

Cargas Factorizadas
Diseño estructural de zapata

P =	**78.56**	ton
Mx =	**9.90**	ton·m
Mz =	**15.99**	ton·m
Fx =	**7.82**	ton
Fz =	**7.14**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-71.42	ton	P =	-78.56	ton
Mx =	-9.00	ton·m	Mx =	-9.90	ton·m
Mz =	-14.53	ton·m	Mz =	-15.99	ton·m
Fx =	-7.11	ton	Fx =	-7.82	ton
Fz =	-6.49	ton	Fz =	-7.14	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	71.42	ton	P =	78.56	ton
Mx =	15.49	ton·m	Mx =	17.04	ton·m
Mz =	7.42	ton·m	Mz =	8.17	ton·m
Fx =	7.11	ton	Fx =	7.82	ton
Fz =	6.49	ton	Fz =	7.14	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.61	ton	0.61	ton
ZAPATA	13.86	ton	13.86	ton
RELLENO	13.96	ton	13.96	ton
AXIAL (P)	71.42	ton	78.56	ton
TOTAL=	99.85	ton	106.99	ton

Mrx = 189.72 ton·m
Mrz = 189.72 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	189.72	ton·m		Mrz =	189.72	ton·m	
Mx =	15.49	ton·m		Mz =	7.42	ton·m	
Fvol	≤	(Mrx / Mx)		Fvol	≤	(Mrz / Mz)	
1.5	<	12.25	**Correcto**	1.5	<	25.57	**Correcto**

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.07	m
ez=Mx/Peso=	0.16	m
F = B/2-ez =	1.74	m
E = A/2 -ex =	1.83	m
A =	3.80	m
B =	3.80	m
E/A =	0.48	m
F/B =	0.46	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

REFERENCIAS

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 8.61 < 9.14\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 9.22$$

CASO II **No aplica**

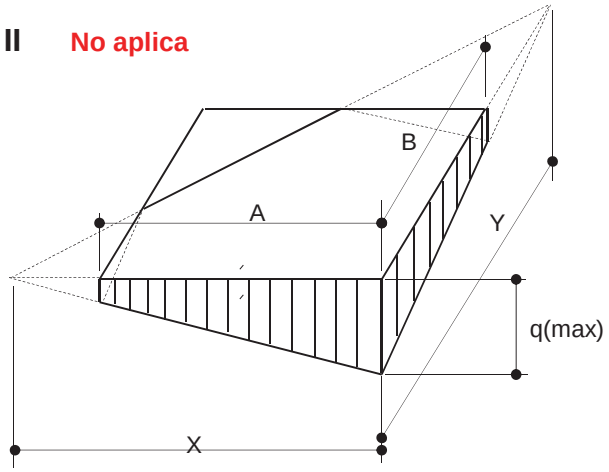


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =		F/B =	(B/Y)1 =
				SE OBTIENE
AHORA PARA	(B/Y)1 =		E/A =	(A/X)2 =

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

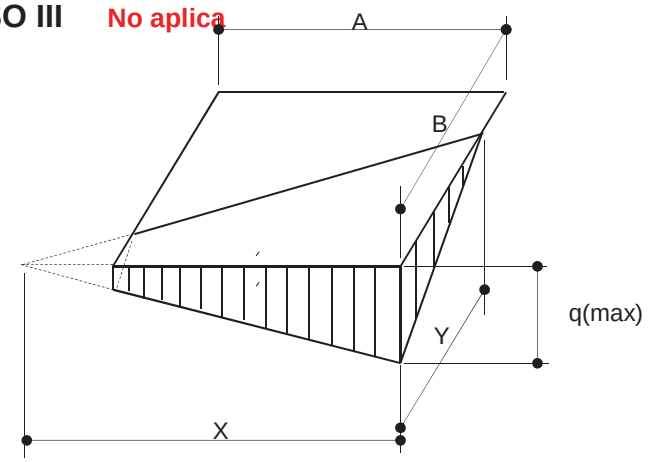


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 9.22 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.96	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.00	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	7.27	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.58	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	9.01	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	11.45	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	35	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	8.17685	
PORCENTAJE DE ACERO DE REFUERZO =	0.00199	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	12.08	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	23.50	cm

SE USARA VARILLA No. 6 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	30.44	ton
ϕVc =	25.87	ton
Vu =	11.45	ton

ϕVc > Vu **Correcto**

REFERENCIAS

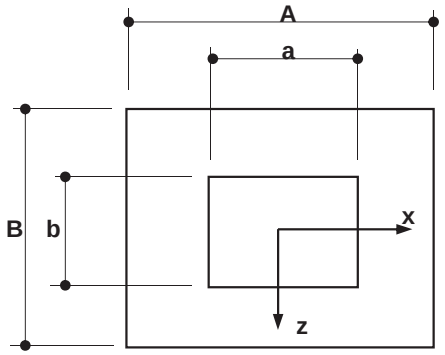
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	4	m
Vc = REIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	243	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	101	ton

Vc > Wp **Correcto**

REFERENCIAS

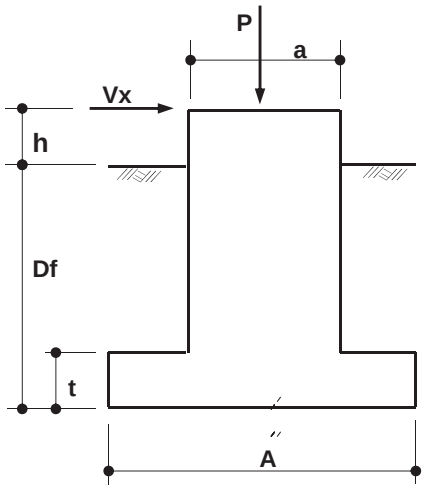
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.40**	m
A =	**3.80**	m
B =	**3.80**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**7.00**	ton/m^2
γs =	**1.66**	ton/m^3

A =	14.44	m^2
Sx =	9.15	m^3
Sz =	9.15	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 450 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**51.48**	ton
Mx =	**7.41**	ton·m
Mz =	**18.56**	ton·m
Fx =	**4.77**	ton
Fz =	**4.53**	ton

Nodo 450 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**56.63**	ton
Mx =	**8.15**	ton·m
Mz =	**20.42**	ton·m
Fx =	**5.25**	ton
Fz =	**4.98**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-51.48	ton	P =	-56.63	ton
Mx =	-7.41	ton·m	Mx =	-8.15	ton·m
Mz =	-18.56	ton·m	Mz =	-20.42	ton·m
Fx =	-4.77	ton	Fx =	-5.25	ton
Fz =	-4.53	ton	Fz =	-4.98	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	51.48	ton	P =	56.63	ton
Mx =	11.94	ton·m	Mx =	13.13	ton·m
Mz =	13.79	ton·m	Mz =	15.17	ton·m
Fx =	4.77	ton	Fx =	5.25	ton
Fz =	4.53	ton	Fz =	4.98	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.61	ton	0.61	ton
ZAPATA	13.86	ton	13.86	ton
RELLENO	13.96	ton	13.96	ton
AXIAL (P)	51.48	ton	56.63	ton
TOTAL=	79.91	ton	85.06	ton

Mrx = 151.83 ton·m
Mrz = 151.83 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	151.83	ton·m		Mrz =	151.83	ton·m	
Mx =	11.94	ton·m		Mz =	13.79	ton·m	
Fvol	≤ (Mrx / Mx)			Fvol	≤ (Mrz / Mz)		
1.5	< 12.72		**Correcto**	1.5	< 11.01		**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.17	m
ez=Mx/Peso=	0.15	m
F = B/2-ez =	1.75	m
E = A/2 -ex =	1.73	m
A =	3.80	m
B =	3.80	m
E/A =	0.45	m
F/B =	0.46	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.84 < 7.00\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.28$$

CASO II **No aplica**

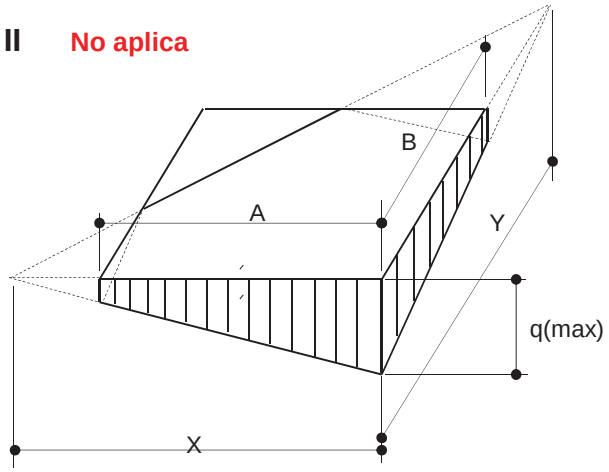


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

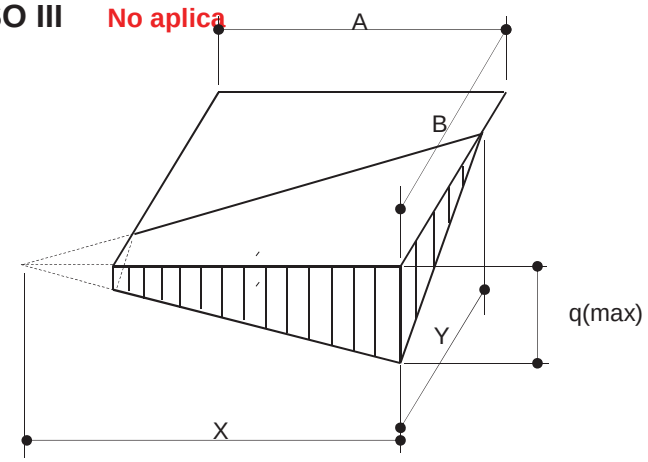


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 7.28 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.96	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.00	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	5.32	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.58	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	6.60	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	8.39	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	35	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	5.99002	
PORCENTAJE DE ACERO DE REFUERZO =	0.00145	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	12.08	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	23.50	cm

SE USARA VARILLA No. 6 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	30.44	ton
ϕVc =	25.87	ton
Vu =	8.39	ton

ϕVc > Vu **Correcto**

REFERENCIAS

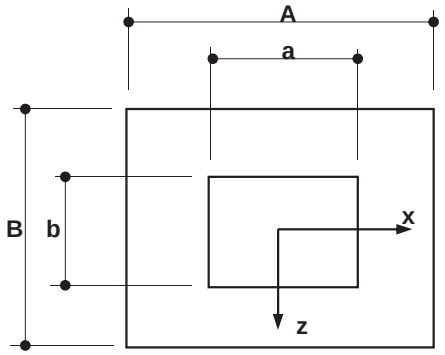
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	4.00	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	243	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	73	ton

Vc > Wp **Correcto**

REFERENCIAS

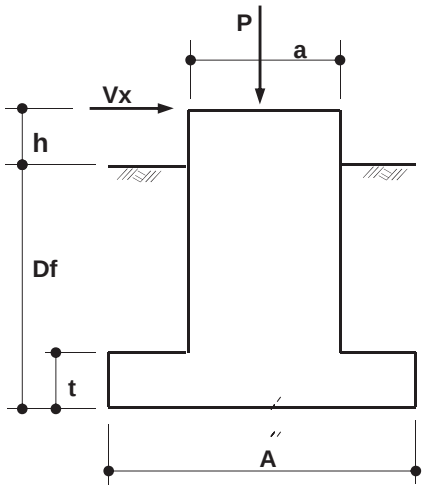
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**2.60**	m
B =	**2.60**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**16.04**	ton/m^2
γs =	**1.66**	ton/m^3

A =	6.76	m^2
Sx =	2.93	m^3
Sz =	2.93	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 450 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**51.48**	ton
Mx =	**7.41**	ton·m
Mz =	**18.56**	ton·m
Fx =	**4.77**	ton
Fz =	**4.53**	ton

Nodo 450 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**56.63**	ton
Mx =	**8.15**	ton·m
Mz =	**20.42**	ton·m
Fx =	**5.25**	ton
Fz =	**4.98**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-51.48	ton	P =	-56.63	ton
Mx =	-7.41	ton·m	Mx =	-8.15	ton·m
Mz =	-18.56	ton·m	Mz =	-20.42	ton·m
Fx =	-4.77	ton	Fx =	-5.25	ton
Fz =	-4.53	ton	Fz =	-4.98	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	51.48	ton	P =	56.63	ton
Mx =	11.94	ton·m	Mx =	13.13	ton·m
Mz =	13.79	ton·m	Mz =	15.17	ton·m
Fx =	4.77	ton	Fx =	5.25	ton
Fz =	4.53	ton	Fz =	4.98	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	5.68	ton	5.68	ton
RELLENO	6.84	ton	6.84	ton
AXIAL (P)	51.48	ton	56.63	ton
TOTAL=	64.66	ton	69.81	ton

Mrx = 84.05 ton·m
Mrz = 84.05 ton·m

REVISIÓN CONTRA VOLTEO

En eje X			**En eje Z**		
Mrx =	84.05	ton·m	Mrz =	84.05	ton·m
Mx =	11.94	ton·m	Mz =	13.79	ton·m
Fvol ≤	(Mrx / Mx)		Fvol ≤	(Mrz / Mz)	
1.5 <	7.04	**Correcto**	1.5 <	6.10	**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.21	m
ez=Mx/Peso=	0.18	m
F = B/2-ez =	1.12	m
E = A/2 -ex =	1.09	m
A =	2.60	m
B =	2.60	m
E/A =	0.42	m
F/B =	0.43	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q_{rev} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 13.64 < 16.04 \ ton/m^2$$

$q_{rev} < q_{ad}$ Correcto

Esfuerzo factorizado para Diseño

$$q_{dis} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 14.73$$

CASO II **No aplica**

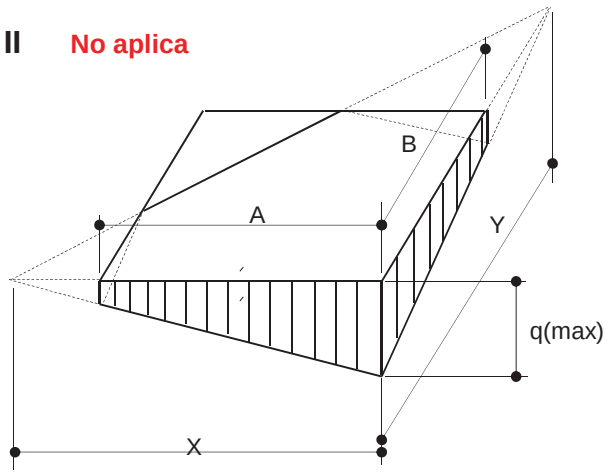


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

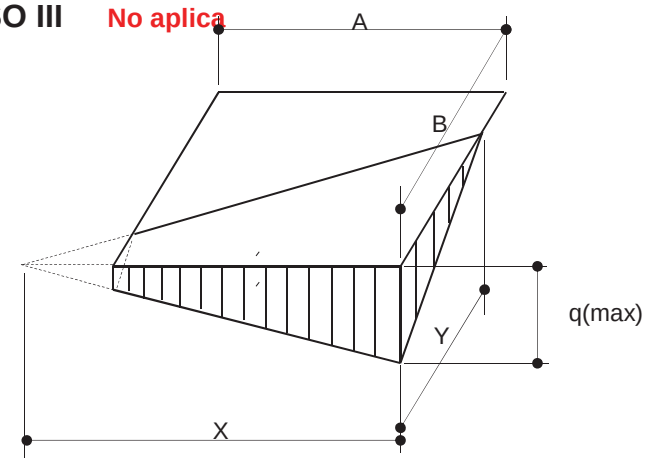


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 14.73 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	12.81	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	0.98	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	6.09	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	12.49	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	7.51578	
PORCENTAJE DE ACERO DE REFUERZO =	0.00182	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	12.49	ton

ϕVc > Vu **Correcto**

REFERENCIAS

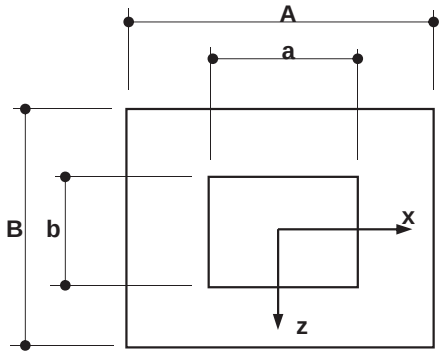
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	73	ton

Vc > Wp **Correcto**

REFERENCIAS

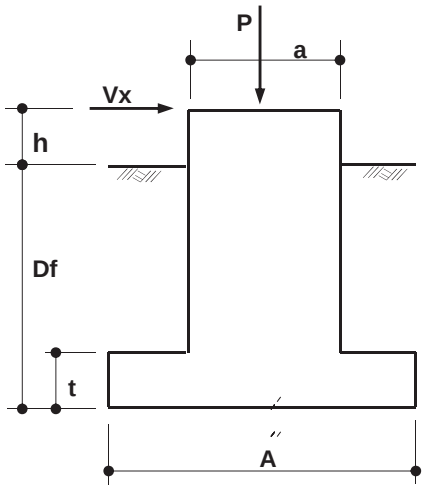
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**4.20**	m
B =	**4.20**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**7.00**	ton/m^2
γs =	**1.66**	ton/m^3

A =	17.64	m^2
Sx =	12.35	m^3
Sz =	12.35	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 475 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**75.90**	ton
Mx =	**3.37**	ton·m
Mz =	**20.48**	ton·m
Fx =	**10.41**	ton
Fz =	**0.98**	ton

Nodo 475 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**83.49**	ton
Mx =	**3.71**	ton·m
Mz =	**22.53**	ton·m
Fx =	**11.45**	ton
Fz =	**1.08**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-75.90	ton	P =	-83.49	ton
Mx =	-3.37	ton·m	Mx =	-3.71	ton·m
Mz =	-20.48	ton·m	Mz =	-22.53	ton·m
Fx =	-10.41	ton	Fx =	-11.45	ton
Fz =	-0.98	ton	Fz =	-1.08	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	75.90	ton	P =	83.49	ton
Mx =	4.35	ton·m	Mx =	4.79	ton·m
Mz =	10.08	ton·m	Mz =	11.09	ton·m
Fx =	10.41	ton	Fx =	11.45	ton
Fz =	0.98	ton	Fz =	1.08	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	14.82	ton	14.82	ton
RELLENO	18.58	ton	18.58	ton
AXIAL (P)	75.90	ton	83.49	ton
TOTAL=	109.95	ton	117.54	ton

Mrx = 230.90 ton·m
Mrz = 230.90 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	230.90	ton·m		Mrz =	230.90	ton·m	
Mx =	4.35	ton·m		Mz =	10.08	ton·m	
Fvol	≤	(Mrx / Mx)		Fvol	≤	(Mrz / Mz)	
1.5	<	53.03	**Correcto**	1.5	<	22.91	**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.09	m
ez=Mx/Peso=	0.04	m
F = B/2-ez =	2.06	m
E = A/2 -ex =	2.01	m
A =	4.20	m
B =	4.20	m
E/A =	0.48	m
F/B =	0.49	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.59 < 7.00\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.04$$

CASO II **No aplica**

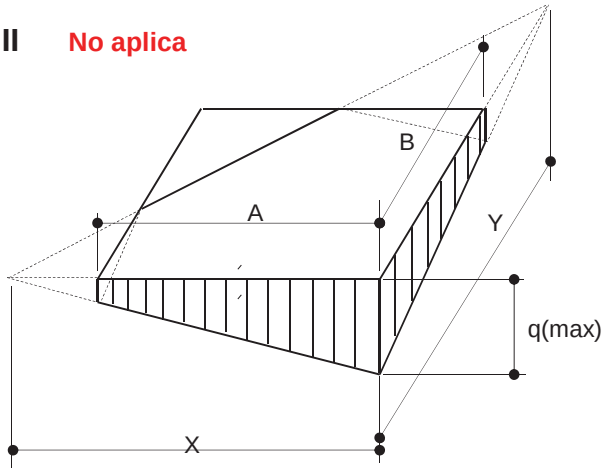


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

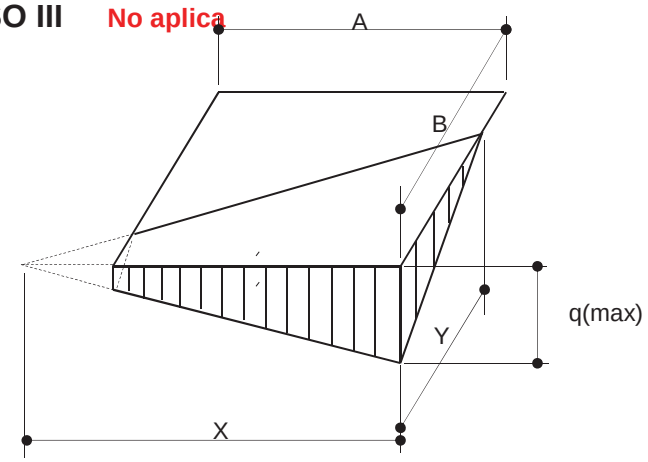


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 7.04 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	5.12	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.78	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	8.07	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	9.09	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	9.96015	
PORCENTAJE DE ACERO DE REFUERZO =	0.00243	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	9.09	ton

ϕVc > Vu **Correcto**

REFERENCIAS

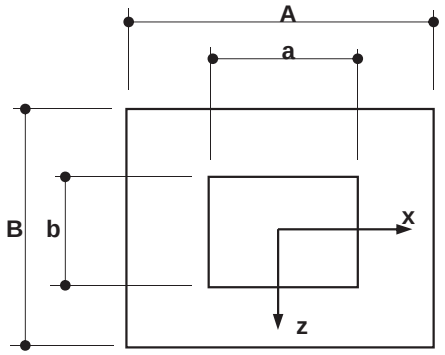
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	107	ton

Vc > Wp **Correcto**

REFERENCIAS

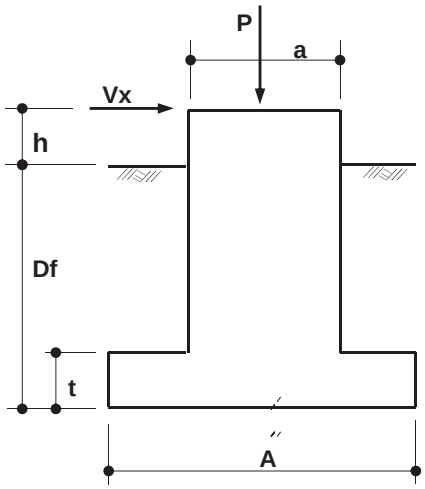
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**2.20**	m
B =	**2.20**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**24.96**	ton/m^2
γs =	**1.66**	ton/m^3

A =	4.84	m^2
Sx =	1.77	m^3
Sz =	1.77	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 475 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**75.90**	ton
Mx =	**3.37**	ton·m
Mz =	**20.48**	ton·m
Fx =	**10.41**	ton
Fz =	**0.98**	ton

Nodo 475 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**83.49**	ton
Mx =	**3.71**	ton·m
Mz =	**22.53**	ton·m
Fx =	**11.45**	ton
Fz =	**1.08**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-75.90	ton	P =	-83.49	ton
Mx =	-3.37	ton·m	Mx =	-3.71	ton·m
Mz =	-20.48	ton·m	Mz =	-22.53	ton·m
Fx =	-10.41	ton	Fx =	-11.45	ton
Fz =	-0.98	ton	Fz =	-1.08	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	75.90	ton	P =	83.49	ton
Mx =	4.35	ton·m	Mx =	4.79	ton·m
Mz =	10.08	ton·m	Mz =	11.09	ton·m
Fx =	10.41	ton	Fx =	11.45	ton
Fz =	0.98	ton	Fz =	1.08	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	4.07	ton	4.07	ton
RELLENO	4.77	ton	4.77	ton
AXIAL (P)	75.90	ton	83.49	ton
TOTAL=	85.39	ton	92.98	ton

Mrx = 93.93 ton·m
Mrz = 93.93 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	93.93	ton·m		Mrz =	93.93	ton·m	
Mx =	4.35	ton·m		Mz =	10.08	ton·m	
Fvol	≤ (Mrx / Mx)			Fvol	≤ (Mrz / Mz)		
1.5	< 21.57		**Correcto**	1.5	< 9.32		**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.12	m
ez=Mx/Peso=	0.05	m
F = B/2-ez =	1.05	m
E = A/2 -ex =	0.98	m
A =	2.20	m
B =	2.20	m
E/A =	0.45	m
F/B =	0.48	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 20.10 < 24.96\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 21.88$$

CASO II **No aplica**

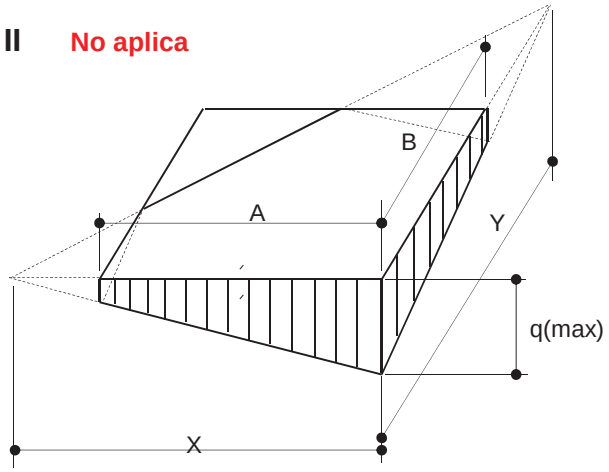


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

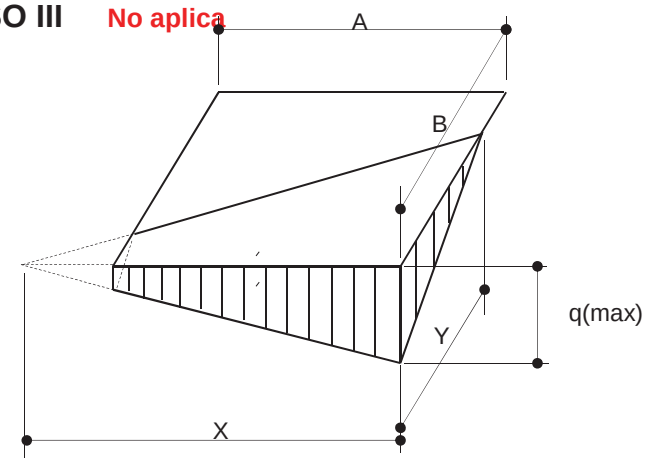


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 21.88 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	19.96	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	0.78	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	6.00	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	15.47	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	7.40143	
PORCENTAJE DE ACERO DE REFUERZO =	0.00179	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	15.47	ton

ϕVc > Vu **Correcto**

REFERENCIAS

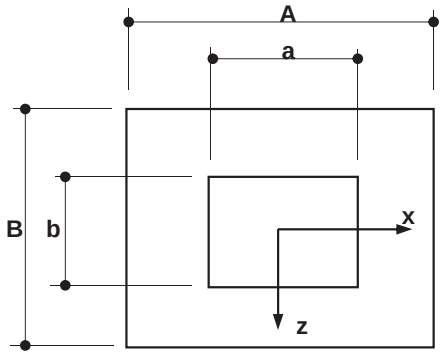
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	107	ton

Vc > Wp **Correcto**

REFERENCIAS

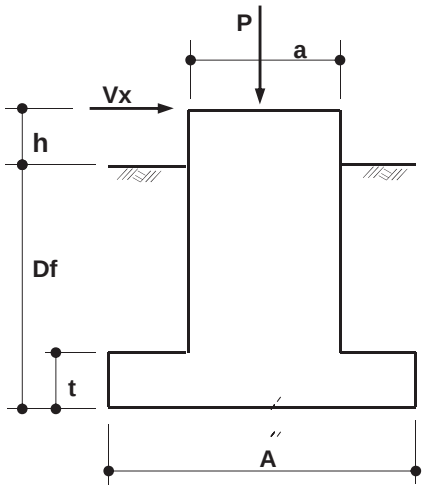
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**1.00**	m
h =	**0.00**	m
t =	**0.35**	m
A =	**2.00**	m
B =	**2.00**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**26.44**	ton/m^2
γs =	**1.66**	ton/m^3

A =	4.00	m^2
Sx =	1.33	m^3
Sz =	1.33	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 475 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**75.90**	ton
Mx =	**3.37**	ton·m
Mz =	**20.48**	ton·m
Fx =	**10.41**	ton
Fz =	**0.98**	ton

Nodo 475 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**83.49**	ton
Mx =	**3.71**	ton·m
Mz =	**22.53**	ton·m
Fx =	**11.45**	ton
Fz =	**1.08**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-75.90	ton	P =	-83.49	ton
Mx =	-3.37	ton·m	Mx =	-3.71	ton·m
Mz =	-20.48	ton·m	Mz =	-22.53	ton·m
Fx =	-10.41	ton	Fx =	-11.45	ton
Fz =	-0.98	ton	Fz =	-1.08	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	75.90	ton	P =	83.49	ton
Mx =	4.35	ton·m	Mx =	4.79	ton·m
Mz =	10.08	ton·m	Mz =	11.09	ton·m
Fx =	10.41	ton	Fx =	11.45	ton
Fz =	0.98	ton	Fz =	1.08	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	0.66	ton	0.66	ton
ZAPATA	3.36	ton	3.36	ton
RELLENO	3.86	ton	3.86	ton
AXIAL (P)	75.90	ton	83.49	ton
TOTAL=	83.78	ton	91.37	ton

Mrx = 83.78 ton·m
Mrz = 83.78 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	83.78	ton·m		Mrz =	83.78	ton·m	
Mx =	4.35	ton·m		Mz =	10.08	ton·m	
Fvol ≤	(Mrx / Mx)			Fvol ≤	(Mrz / Mz)		
1.5 <	19.24	**Correcto**		1.5 <	8.31	**Correcto**	

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.12	m
ez=Mx/Peso=	0.05	m
F = B/2-ez =	0.95	m
E = A/2 -ex =	0.88	m
A =	2.00	m
B =	2.00	m
E/A =	0.44	m
F/B =	0.47	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q_{rev} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 24.21 < 26.44 \ ton/m^2$$

$q_{rev} < q_{ad}$ Correcto

Esfuerzo factorizado para Diseño

$$q_{dis} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 26.40$$

CASO II **No aplica**

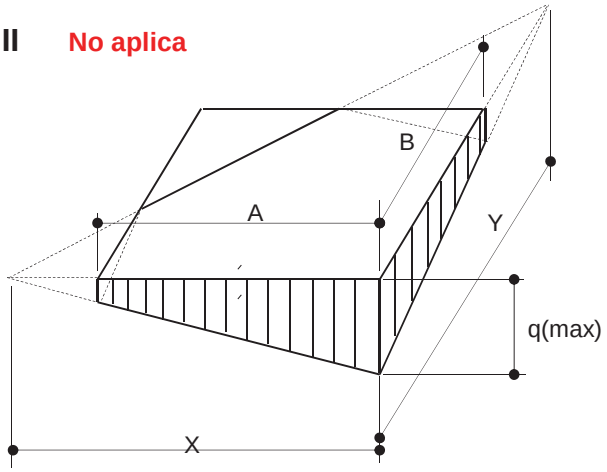


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

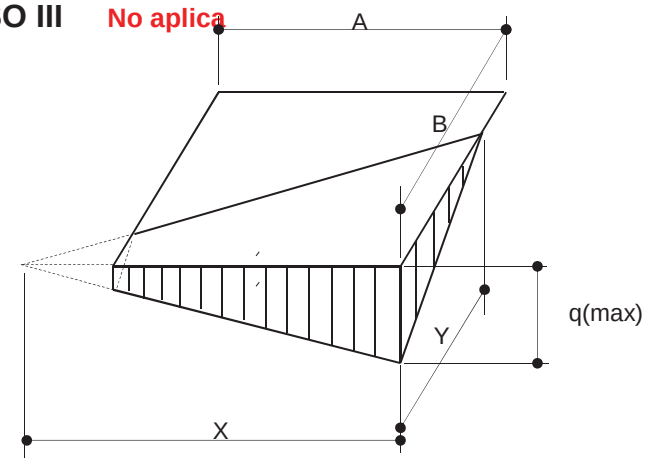


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 26.40 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	1.08	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	24.48	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	0.68	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	5.58	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	16.53	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	6.88617	
PORCENTAJE DE ACERO DE REFUERZO =	0.00167	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	16.53	ton

ϕVc > Vu **Correcto**

REFERENCIAS

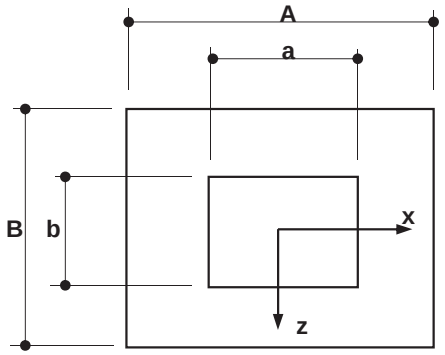
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	107	ton

Vc > Wp **Correcto**

REFERENCIAS

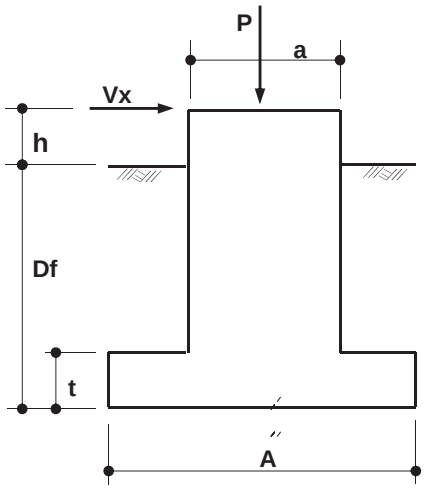
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**2.00**	m
h =	**0.20**	m
t =	**0.35**	m
A =	**3.80**	m
B =	**3.80**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**7.00**	ton/m^2
γs =	**1.66**	ton/m^3

A =	14.44	m^2
Sx =	9.15	m^3
Sz =	9.15	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 29 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**23.69**	ton
Mx =	**4.05**	ton·m
Mz =	**17.93**	ton·m
Fx =	**-7.93**	ton
Fz =	**2.06**	ton

Nodo 29 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**19.72**	ton
Mx =	**4.46**	ton·m
Mz =	**19.72**	ton·m
Fx =	**-8.72**	ton
Fz =	**2.27**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-23.69	ton	P =	-19.72	ton
Mx =	-4.05	ton·m	Mx =	-4.46	ton·m
Mz =	-17.93	ton·m	Mz =	-19.72	ton·m
Fx =	7.93	ton	Fx =	8.72	ton
Fz =	-2.06	ton	Fz =	-2.27	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	23.69	ton	P =	19.72	ton
Mx =	8.59	ton·m	Mx =	9.45	ton·m
Mz =	35.37	ton·m	Mz =	38.90	ton·m
Fx =	7.93	ton	Fx =	8.72	ton
Fz =	2.06	ton	Fz =	2.27	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	1.88	ton	1.88	ton
ZAPATA	12.13	ton	12.13	ton
RELLENO	38.39	ton	38.39	ton
AXIAL (P)	23.69	ton	19.72	ton
TOTAL=	76.09	ton	72.12	ton

Mrx = 144.56 ton·m
Mrz = 144.56 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	144.56	ton·m		Mrz =	144.56	ton·m	
Mx =	8.59	ton·m		Mz =	35.37	ton·m	
Fvol	≤ (Mrx / Mx)			Fvol	≤ (Mrz / Mz)		
1.5	< 16.82	**Correcto**		1.5	< 4.09	**Correcto**	

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.46	m
ez=Mx/Peso=	0.11	m
F = B/2-ez =	1.79	m
E = A/2 -ex =	1.44	m
A =	3.80	m
B =	3.80	m
E/A =	0.38	m
F/B =	0.47	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q_{rev} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.21 < 7.00 \text{ ton/m}^2$$

$q_{rev} < q_{ad}$ Correcto

Esfuerzo factorizado para Diseño

$$q_{dis} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 5.88$$

CASO II **No aplica**

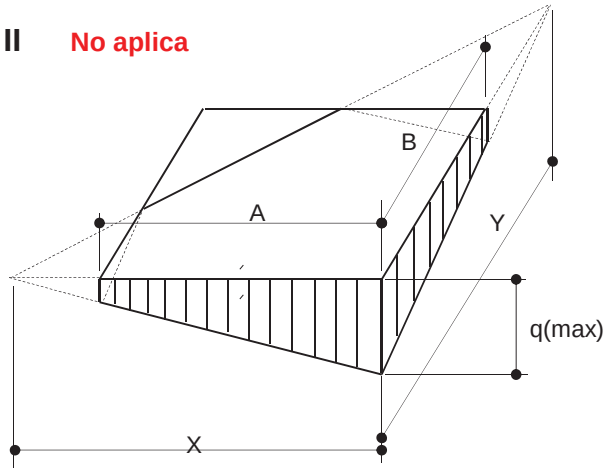


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

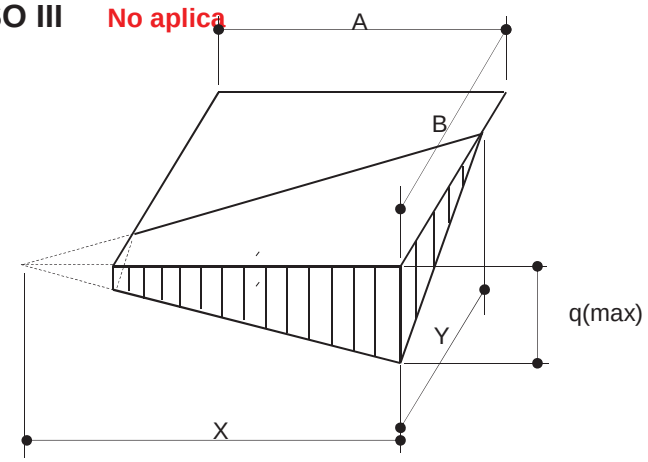


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 5.88 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	2.74	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	2.31	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.58	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	2.86	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	3.63	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	3.53096	
PORCENTAJE DE ACERO DE REFUERZO =	0.00085	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	3.63	ton

ϕVc > Vu **Correcto**

REFERENCIAS

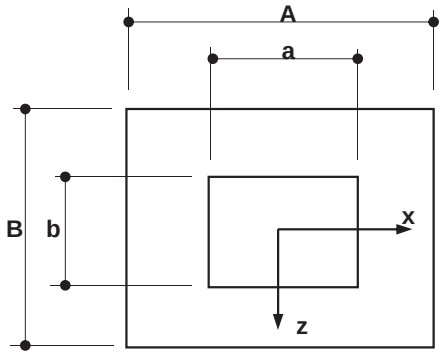
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	36	ton

Vc > Wp **Correcto**

REFERENCIAS

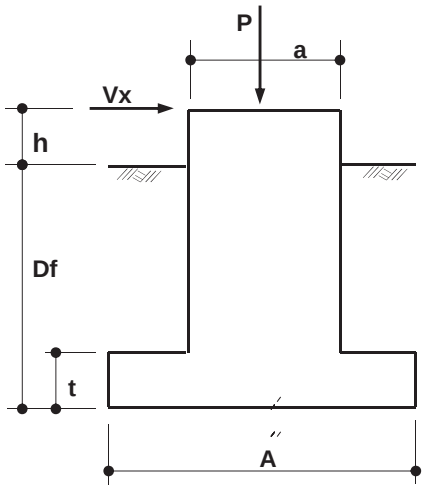
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**2.00**	m
h =	**0.20**	m
t =	**0.35**	m
A =	**3.70**	m
B =	**3.70**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**9.37**	ton/m^2
γs =	**1.66**	ton/m^3

A =	13.69	m^2
Sx =	8.44	m^3
Sz =	8.44	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 29 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**23.69**	ton
Mx =	**4.05**	ton·m
Mz =	**17.93**	ton·m
Fx =	**-7.93**	ton
Fz =	**2.06**	ton

Nodo 29 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**19.72**	ton
Mx =	**4.46**	ton·m
Mz =	**19.72**	ton·m
Fx =	**-8.72**	ton
Fz =	**2.27**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-23.69	ton	P =	-19.72	ton
Mx =	-4.05	ton·m	Mx =	-4.46	ton·m
Mz =	-17.93	ton·m	Mz =	-19.72	ton·m
Fx =	7.93	ton	Fx =	8.72	ton
Fz =	-2.06	ton	Fz =	-2.27	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	23.69	ton	P =	19.72	ton
Mx =	8.59	ton·m	Mx =	9.45	ton·m
Mz =	35.37	ton·m	Mz =	38.90	ton·m
Fx =	7.93	ton	Fx =	8.72	ton
Fz =	2.06	ton	Fz =	2.27	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	1.88	ton	1.88	ton
ZAPATA	11.50	ton	11.50	ton
RELLENO	36.34	ton	36.34	ton
AXIAL (P)	23.69	ton	19.72	ton
TOTAL=	73.40	ton	69.43	ton

Mrx = 135.79 ton·m
Mrz = 135.79 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	135.79	ton·m		Mrz =	135.79	ton·m	
Mx =	8.59	ton·m		Mz =	35.37	ton·m	
Fvol ≤	(Mrx / Mx)			Fvol ≤	(Mrz / Mz)		
1.5 <	15.80	**Correcto**		1.5 <	3.84	**Correcto**	

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.48	m
ez=Mx/Peso=	0.12	m
F = B/2-ez =	1.73	m
E = A/2 -ex =	1.37	m
A =	3.70	m
B =	3.70	m
E/A =	0.37	m
F/B =	0.47	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.38 < 9.37\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.03$$

CASO II **No aplica**

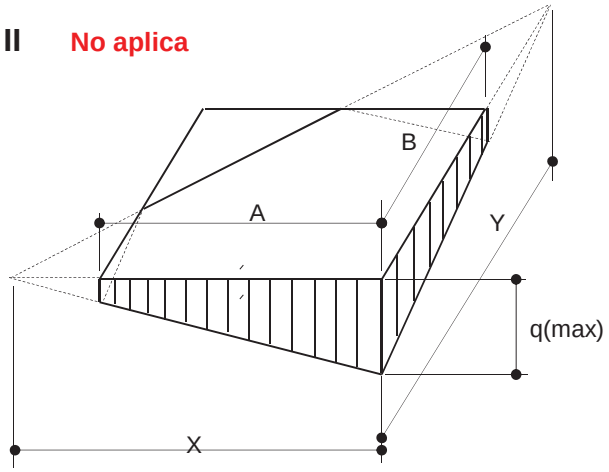


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

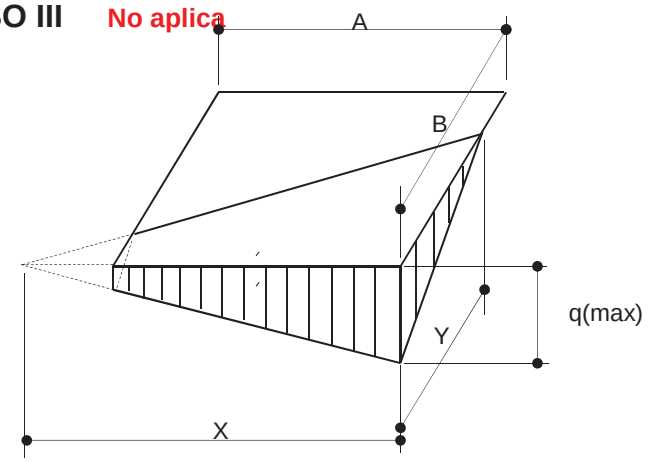


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$\frac{Y}{X} = \frac{3 \times F}{X - E}$ Y = 3 x X / - Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 6.03 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	2.74	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	2.46	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.53	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	2.86	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	3.74	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	3.52535	
PORCENTAJE DE ACERO DE REFUERZO =	0.00085	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	3.74	ton

ϕVc > Vu **Correcto**

REFERENCIAS

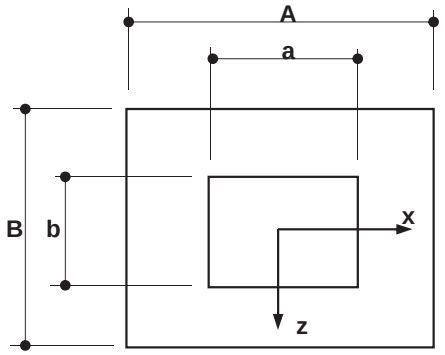
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	36	ton

Vc > Wp **Correcto**

REFERENCIAS

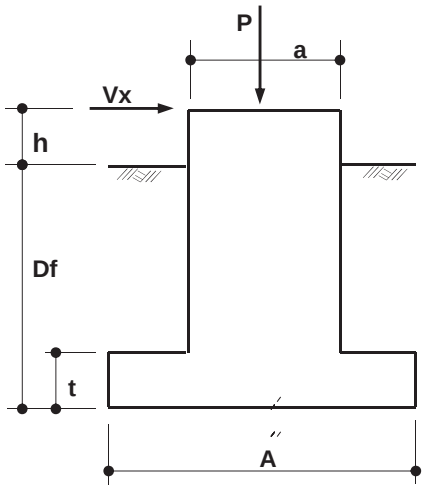
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**2.00**	m
h =	**0.20**	m
t =	**0.35**	m
A =	**3.60**	m
B =	**3.60**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**11.13**	ton/m^2
γs =	**1.66**	ton/m^3

A =	12.96	m^2
Sx =	7.78	m^3
Sz =	7.78	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 29 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**23.69**	ton
Mx =	**4.05**	ton·m
Mz =	**17.93**	ton·m
Fx =	**-7.93**	ton
Fz =	**2.06**	ton

Nodo 29 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**19.72**	ton
Mx =	**4.46**	ton·m
Mz =	**19.72**	ton·m
Fx =	**-8.72**	ton
Fz =	**2.27**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-23.69	ton	P =	-19.72	ton
Mx =	-4.05	ton·m	Mx =	-4.46	ton·m
Mz =	-17.93	ton·m	Mz =	-19.72	ton·m
Fx =	7.93	ton	Fx =	8.72	ton
Fz =	-2.06	ton	Fz =	-2.27	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	23.69	ton	P =	19.72	ton
Mx =	8.59	ton·m	Mx =	9.45	ton·m
Mz =	35.37	ton·m	Mz =	38.90	ton·m
Fx =	7.93	ton	Fx =	8.72	ton
Fz =	2.06	ton	Fz =	2.27	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	1.88	ton	1.88	ton
ZAPATA	10.89	ton	10.89	ton
RELLENO	34.34	ton	34.34	ton
AXIAL (P)	23.69	ton	19.72	ton
TOTAL=	70.79	ton	66.82	ton

Mrx = 127.42 ton·m
Mrz = 127.42 ton·m

REVISIÓN CONTRA VOLTEO

En eje X

Mrx = 127.42 ton·m
Mx = 8.59 ton·m
Fvol ≤ (Mrx / Mx)
1.5 < 14.83 **Correcto**

En eje Z

Mrz = 127.42 ton·m
Mz = 35.37 ton·m
Fvol ≤ (Mrz / Mz)
1.5 < 3.60 **Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.50	m
ez=Mx/Peso=	0.12	m
F = B/2-ez =	1.68	m
E = A/2 -ex =	1.30	m
A =	3.60	m
B =	3.60	m
E/A =	0.36	m
F/B =	0.47	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q_{rev} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.57 < 11.13 \text{ ton/m}^2$$

$q_{rev} < q_{ad}$ Correcto

Esfuerzo factorizado para Diseño

$$q_{dis} = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.20$$

CASO II **No aplica**

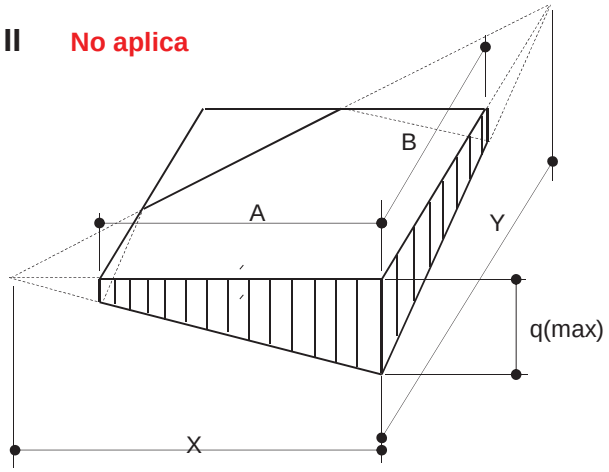


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =		F/B =	(B/Y)1 =
				SE OBTIENE
AHORA PARA	(B/Y)1 =		E/A =	(A/X)2 =

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

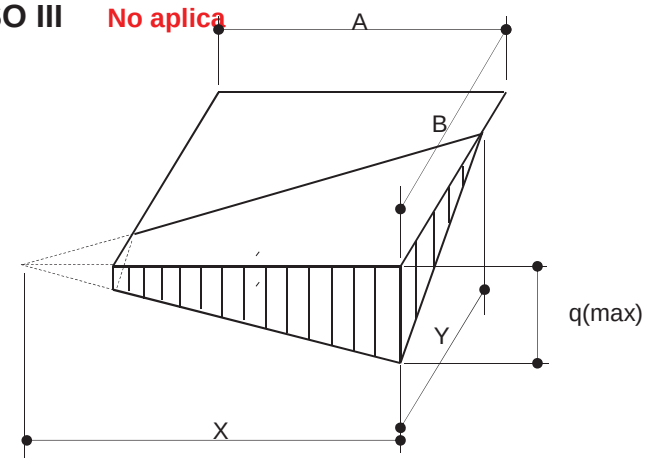


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 6.20 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.84	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	2.74	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	2.62	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.48	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	2.85	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	3.86	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	30	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **6** =	2.84	cm^2
Rn =	3.51871	
PORCENTAJE DE ACERO DE REFUERZO =	0.00084	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	10.36	cm^2/m
VARILLAS 6 @ (ESPACIAMIENTO DE VARILLAS) =	27.42	cm

SE USARA VARILLA No. 6 @ **25** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	26.09	ton
ϕVc =	22.18	ton
Vu =	3.86	ton

ϕVc > Vu **Correcto**

REFERENCIAS

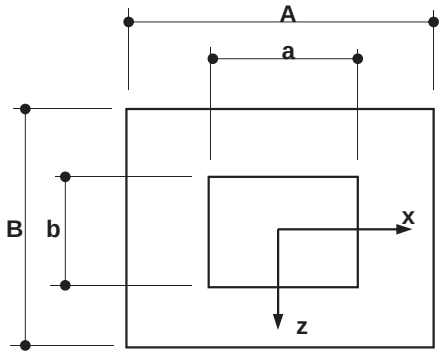
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.80	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	198	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	36	ton

Vc > Wp **Correcto**

REFERENCIAS

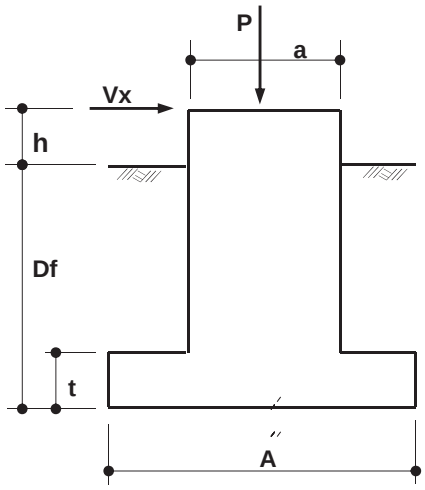
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**2.00**	m
h =	**0.20**	m
t =	**0.30**	m
A =	**3.60**	m
B =	**3.60**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**7.00**	ton/m^2
γs =	**1.66**	ton/m^3

A =	12.96	m^2
Sx =	7.78	m^3
Sz =	7.78	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 7 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**18.27**	ton
Mx =	**4.51**	ton·m
Mz =	**13.21**	ton·m
Fx =	**1.52**	ton
Fz =	**2.43**	ton

Nodo 7 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**20.10**	ton
Mx =	**4.96**	ton·m
Mz =	**14.53**	ton·m
Fx =	**1.68**	ton
Fz =	**2.67**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-18.27	ton	P =	-20.10	ton
Mx =	-4.51	ton·m	Mx =	-4.96	ton·m
Mz =	-13.21	ton·m	Mz =	-14.53	ton·m
Fx =	-1.52	ton	Fx =	-1.68	ton
Fz =	-2.43	ton	Fz =	-2.67	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	18.27	ton	P =	20.10	ton
Mx =	9.86	ton·m	Mx =	10.84	ton·m
Mz =	9.86	ton·m	Mz =	10.84	ton·m
Fx =	1.52	ton	Fx =	1.68	ton
Fz =	2.43	ton	Fz =	2.67	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	1.93	ton	1.93	ton
ZAPATA	9.33	ton	9.33	ton
RELLENO	35.38	ton	35.38	ton
AXIAL (P)	18.27	ton	20.10	ton
TOTAL=	64.91	ton	66.74	ton

Mrx = 116.84 ton·m
Mrz = 116.84 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	116.84	ton·m		Mrz =	116.84	ton·m	
Mx =	9.86	ton·m		Mz =	9.86	ton·m	
Fvol	≤	(Mrx / Mx)		Fvol	≤	(Mrz / Mz)	
1.5	<	11.85	**Correcto**	1.5	<	11.85	**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.15	m
ez=Mx/Peso=	0.15	m
F = B/2-ez =	1.65	m
E = A/2 -ex =	1.65	m
A =	3.60	m
B =	3.60	m
E/A =	0.46	m
F/B =	0.46	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.28 < 7.00\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 6.45$$

CASO II **No aplica**

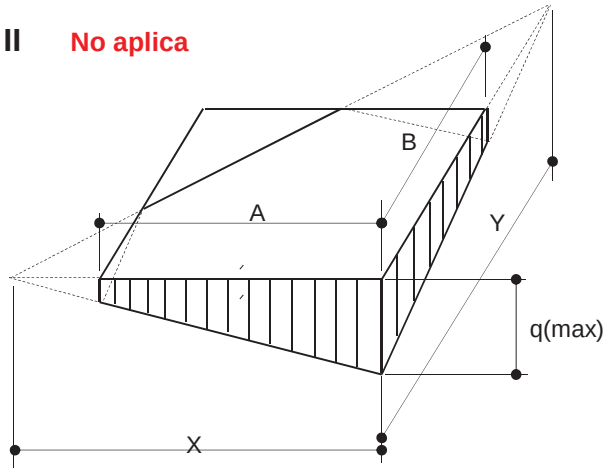


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

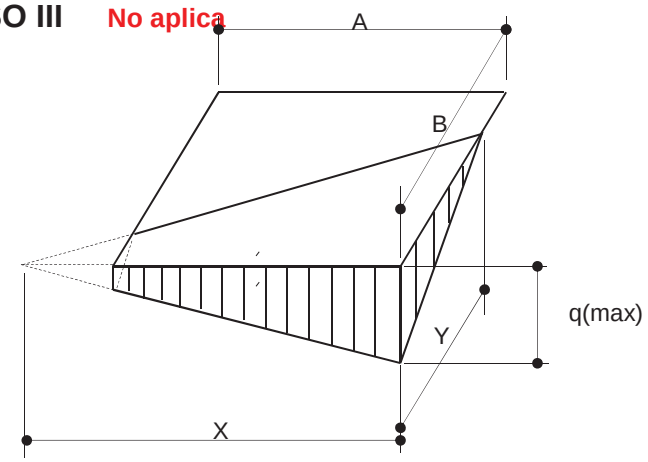


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$\frac{Y}{X} = \frac{3 \times F}{X - E}$ Y = 3 x X / - Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 6.45 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.72	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	2.82	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	2.91	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.48	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	3.17	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	4.29	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	25	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **5** =	1.99	cm^2
Rn =	5.62912	
PORCENTAJE DE ACERO DE REFUERZO =	0.00136	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	8.63	cm^2/m
VARILLAS 5 @ (ESPACIAMIENTO DE VARILLAS) =	23.06	cm

SE USARA VARILLA No. 5 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	21.74	ton
ϕVc =	18.48	ton
Vu =	4.29	ton

ϕVc > Vu **Correcto**

REFERENCIAS

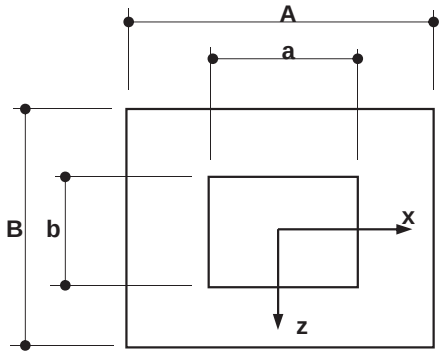
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.60	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	157	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	28	ton

Vc > Wp **Correcto**

REFERENCIAS

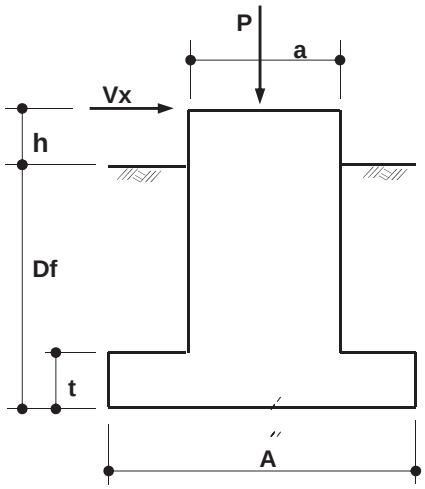
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**2.00**	m
h =	**0.20**	m
t =	**0.30**	m
A =	**3.00**	m
B =	**3.00**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**9.37**	ton/m^2
γs =	**1.66**	ton/m^3

A =	9.00	m^2
Sx =	4.50	m^3
Sz =	4.50	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 7 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**18.27**	ton
Mx =	**4.51**	ton·m
Mz =	**13.21**	ton·m
Fx =	**1.52**	ton
Fz =	**2.43**	ton

Nodo 7 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**20.10**	ton
Mx =	**4.96**	ton·m
Mz =	**14.53**	ton·m
Fx =	**1.68**	ton
Fz =	**2.67**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-18.27	ton	P =	-20.10	ton
Mx =	-4.51	ton·m	Mx =	-4.96	ton·m
Mz =	-13.21	ton·m	Mz =	-14.53	ton·m
Fx =	-1.52	ton	Fx =	-1.68	ton
Fz =	-2.43	ton	Fz =	-2.67	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	18.27	ton	P =	20.10	ton
Mx =	9.86	ton·m	Mx =	10.84	ton·m
Mz =	9.86	ton·m	Mz =	10.84	ton·m
Fx =	1.52	ton	Fx =	1.68	ton
Fz =	2.43	ton	Fz =	2.67	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	1.93	ton	1.93	ton
ZAPATA	6.48	ton	6.48	ton
RELLENO	24.21	ton	24.21	ton
AXIAL (P)	18.27	ton	20.10	ton
TOTAL=	50.88	ton	52.71	ton

Mrx = 76.33 ton·m
Mrz = 76.33 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	76.33	ton·m		Mrz =	76.33	ton·m	
Mx =	9.86	ton·m		Mz =	9.86	ton·m	
Fvol	≤ (Mrx / Mx)			Fvol	≤ (Mrz / Mz)		
1.5	< 7.74		**Correcto**	1.5	< 7.74		**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.19	m
ez=Mx/Peso=	0.19	m
F = B/2-ez =	1.31	m
E = A/2 -ex =	1.31	m
A =	3.00	m
B =	3.00	m
E/A =	0.44	m
F/B =	0.44	m

CASO TIPO : **I**

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 7.84 \quad ton/m^2$$

$q\ rev < q\ ad$ Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 8.13$$

CASO II **No aplica**

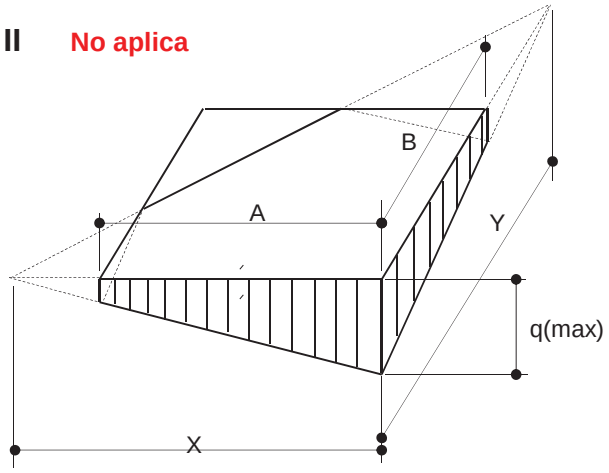


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

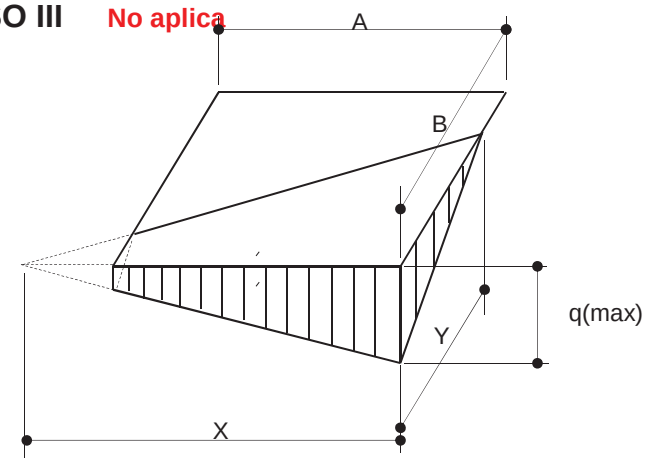


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$$\frac{Y}{X} = \frac{3 \times F}{X - E}$$

Y = 3 x X / -

Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 8.13 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.72	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	2.82	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	4.58	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.18	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	3.16	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	5.39	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	25	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **5** =	1.99	cm^2
Rn =	5.62541	
PORCENTAJE DE ACERO DE REFUERZO =	0.00136	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	8.63	cm^2/m
VARILLAS 5 @ (ESPACIAMIENTO DE VARILLAS) =	23.06	cm

SE USARA VARILLA No. 5 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	21.74	ton
ϕVc =	18.48	ton
Vu =	5.39	ton

ϕVc > Vu **Correcto**

REFERENCIAS

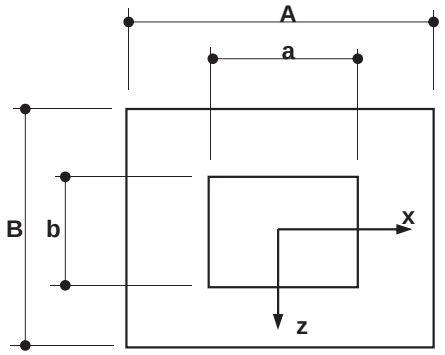
REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.60	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	157	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	28	ton

Vc > Wp **Correcto**

REFERENCIAS

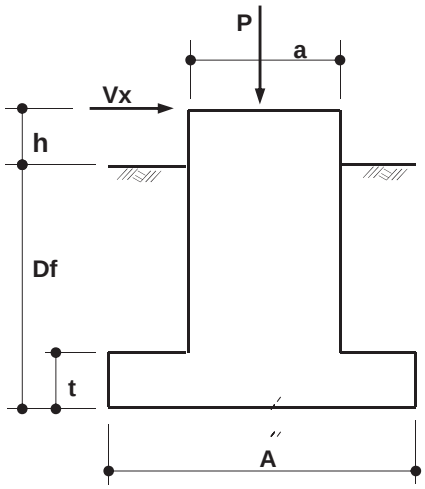
GEOMETRIA DE LA ZAPATA



PLANTA DE CIMENTACIÓN

Df =	**2.00**	m
h =	**0.20**	m
t =	**0.30**	m
A =	**2.90**	m
B =	**2.90**	m
a =	**0.65**	m
b =	**0.65**	m
q ad =	**11.13**	ton/m^2
γs =	**1.66**	ton/m^3

A =	8.41	m^2
Sx =	4.06	m^3
Sz =	4.06	m^3



ELEVACION DE CIMENTACIÓN

COMBINACIONES DE CARGA

REACCIONES

Nodo 7 Comb : 11
Cargas sin Factorizar
Revisión esfuerzos en el terreno

P =	**18.27**	ton
Mx =	**4.51**	ton·m
Mz =	**13.21**	ton·m
Fx =	**1.52**	ton
Fz =	**2.43**	ton

Nodo 7 Comb : 21
Cargas Factorizadas
Diseño estructural de zapata

P =	**20.10**	ton
Mx =	**4.96**	ton·m
Mz =	**14.53**	ton·m
Fx =	**1.68**	ton
Fz =	**2.67**	ton

REFERENCIAS

ACCIONES

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	-18.27	ton	P =	-20.10	ton
Mx =	-4.51	ton·m	Mx =	-4.96	ton·m
Mz =	-13.21	ton·m	Mz =	-14.53	ton·m
Fx =	-1.52	ton	Fx =	-1.68	ton
Fz =	-2.43	ton	Fz =	-2.67	ton

Mx = (Fz*(Df+h))+Mx
Mz = (-Fx*(Df+h))+Mz

ELEMENTOS MECÁNICOS

Revisión esfuerzos en el terreno			Diseño estructural de zapata		
P =	18.27	ton	P =	20.10	ton
Mx =	9.86	ton·m	Mx =	10.84	ton·m
Mz =	9.86	ton·m	Mz =	10.84	ton·m
Fx =	1.52	ton	Fx =	1.68	ton
Fz =	2.43	ton	Fz =	2.67	ton

MOMENTO RESISTENTE

ELEMENTO	PESO (para rev. de esfuerzos)		PESO (para diseño de zapata)	
DADO	1.93	ton	1.93	ton
ZAPATA	6.06	ton	6.06	ton
RELLENO	22.54	ton	22.54	ton
AXIAL (P)	18.27	ton	20.10	ton
TOTAL=	48.79	ton	50.62	ton

Mrx = 70.75 ton·m
Mrz = 70.75 ton·m

REVISIÓN CONTRA VOLTEO

En eje X				**En eje Z**			
Mrx =	70.75	ton·m		Mrz =	70.75	ton·m	
Mx =	9.86	ton·m		Mz =	9.86	ton·m	
Fvol	≤ (Mrx / Mx)			Fvol	≤ (Mrz / Mz)		
1.5	< 7.18		**Correcto**	1.5	< 7.18		**Correcto**

REFERENCIAS

TIPO DE CASO PARA EL DIAGRAMA DE PRESIONES

ex=Mz/Peso=	0.20	m
ez=Mx/Peso=	0.20	m
F = B/2-ez =	1.25	m
E = A/2 -ex =	1.25	m
A =	2.90	m
B =	2.90	m
E/A =	0.43	m
F/B =	0.43	m

CASO TIPO : I

CON LOS VALORES OBTENIDOS DE E/A Y F/B SE ENTRA A LA GRAFICA 8-19A(d) Y DEPENDIENDO DEL AREA DONDE SE INTERSECTEN SERA EL TIPO DE CASO

EL TIPO DE CASO SE OBTIENE DE LA FIGURA 8-19A (d) DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

CASO I

$$q\ rev = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 8.23 < 11.13\ ton/m^2$$

q rev < q ad Correcto

Esfuerzo factorizado para Diseño

$$q\ dis = \frac{Peso}{AB}\left(1+\frac{6ez}{B}\right) = 8.53$$

CASO II **No aplica**

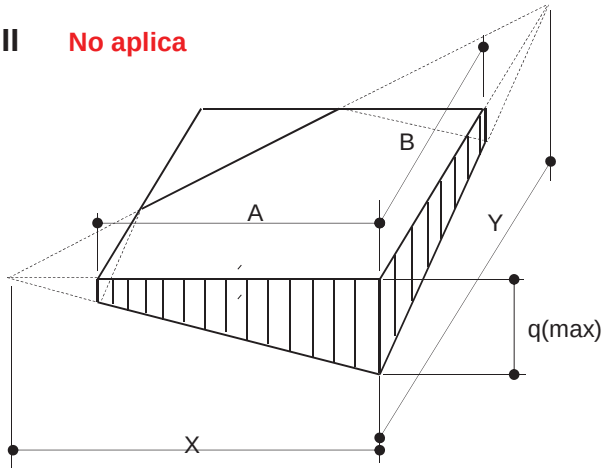


DIAGRAMA DE PRESIONES PARA CASO II FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X; REGRESANDO A LA GRAFICA SUPERIOR SE ENTRA AHORA CON EL VALOR OBTENIDO DE A/X Y DE NUEVO EL VALOR DE F/B, SE OBTIENE B/Y, POR ULTIMO DE NUEVO EN LA GRAFICA DE ABAJO CON B/Y Y E/A ENCONTRAMOS A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO FOUNDATIONS OF STUCTURES DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

				SE OBTIENE
INICIANDO CON	(A/X)1 =	F/B =	(B/Y)1 =	
				SE OBTIENE
AHORA PARA	(B/Y)1 =	E/A =	(A/X)2 =	

REFERENCIAS

SE OBTIENE

AHORA PARA (A/X)2 = F/B = (B/Y)2 =

SE OBTIENE

AHORA PARA (B/Y)2 = E/A = (A/X)3 =

X =
Y =

q rev = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-B/Y)^3-(1-(A/X)^3) =

CASO III **No aplica**

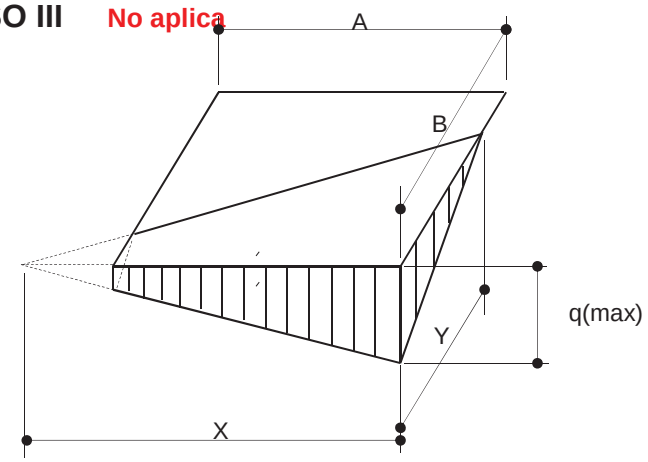


DIAGRAMA DE PRESIONES PARA CASO III FIG. 8-19B DEL LIBRO "FOUNDATIONS OF STRUCTURES" DE CLARENCE W. DUNHAM

SE UTILIZA EL METODO DE PRUEBA Y ERROR, EN EL CUAL SE UTILIZA PRIMERAMENTE LA GRAFICA SUPERIOR ENTRANDO CON LOS VALORES DE A/X=1 Y F/B (YA OBTENIDO), ENCONTRANDO B/Y; AHORA EN LA GRAFICA DE ABAJO SE ENTRA CON ESE VALOR OBTENIDO DE B/Y Y EL VALOR DE E/A (YA OBTENIDO), ENCONTRANDO A/X

UTILIZANDO EL METODO Y GRAFICA DE LA FIG. 8-19A DEL LIBRO "FOUNDATIONS OF STUCTURES" DE CLARENCE W. DUNHAM, SE OBTUVIERON LOS VALORES DE X, Y

SE OBTIENE

INICIANDO CON (A/X)1 = F/B = (B/Y)1 =

SE OBTIENE

AHORA PARA (B/Y)1 = E/A = (A/X)2 =

X =

$\frac{Y}{X} = \frac{3 \times F}{X - E}$ Y = 3 x X / - Y =

q rev = 6*P/((XY(1-(1-(A/X)^3) = > ton/m^2

q rev > qad

Esfuerzo factorizado para Diseño
q dis = 6*P/((XY(1-(1-(A/X)^3) =

REFERENCIAS

PRESIÓN DE CONTACTO CON CARGAS FACTORIZADAS

q dis max = 8.53 ton/m^2

DISEÑO DE LA ZAPATA

ω1 = PESO DE LA LOSA DE LA ZAPATA =	0.72	ton/m^2
ω2 = PESO DEL TERRENO SOBRE LA LOSA =	2.82	ton/m^2
ω = PRESION MAXIMA DE DISEÑO =	4.99	ton/m^2
L = LONGITUD DEL VOLADO DE LA ZAPATA =	1.13	m
Mu = MOMENTO ULTIMO DE DISEÑO = ωL^2/2 =	3.16	ton·m
Vu = CORTANTE ULTIMO DE DISEÑO = ωl	5.62	ton

$$\rho=\frac{0.85f'c}{fy}\left(1-\sqrt{1-\frac{2Rn}{0.85f'c}}\right) \qquad Rn=\frac{Mu}{\phi bd^2}$$

r = RECUBRIMIENTO DEL ACERO DE REFUERZO =	**5**	cm
d = PERALTE EFECTIVO DE LA LOSA =	25	cm
b = ANCHO DEL FRANJA DE LOSA =	**100**	cm
ϕ = FACTOR DE REDUCCION DE RESIST. A LA FLEXION =	**0.90**	
f`'c = RESISTENCIA A LA COMPRESION DEL CONCRETO =	**250**	kg/cm^2
fy = LIMITE DE FLUENCIA DELACERO DE REFUERZO =	**4200**	kg/cm^2
as = AREA DE UNA VARILA DEL No. **5** =	1.99	cm^2
Rn =	5.61701	
PORCENTAJE DE ACERO DE REFUERZO =	0.00136	%
14.5/fy (CAPITULO 10.5 DEL ACI-318) =	0.00345	%
RIGE =	0.00345	
As(min) = ACERO DE REFUERZO MINIMO POR FLEXION =	8.63	cm^2/m
VARILLAS 5 @ (ESPACIAMIENTO DE VARILLAS) =	23.06	cm

SE USARA VARILLA No. 5 @ **20** cm

REVISIÓN POR CORTANTE COMO VIGA ANCHA

SE DEBE CUMPLIR LO SIGUIENTE:
Vud >= f Vn
Vn = Vc + Vs =

Vs = 0 (NO SE CONSIDERA REFUERZO POR CORTANTE)	0	ton
ϕ = FACTOR DE REDUCCION DE RESIST. AL CORTANTE =	**0.85**	
Vc = RES. NOMINAL AL CORT. DEL CONC. =0.55(f'c)^0.5(bwd) =	21.74	ton
ϕVc =	18.48	ton
Vu =	5.62	ton

ϕVc > Vu **Correcto**

REFERENCIAS

REVISIÓN POR PENETRACIÓN

ld = LADO DEL DADO (a) =	0.65	m
ld = LADO DEL DADO (b) =	0.65	m
bo = PERIMETRO CRITICO DE FALLA = PERIM. DEL DADO+4D =	3.60	m
Vc = RESIS. NOMINAL AL CORT. DEL CONC. = 1.1(f'c)^0.5(bod) =	157	ton
Wp = CARGA MAXIMA DE PENETRACION EN LA LOSA =	28	ton

Vc > Wp **Correcto**

ANEXO 1

EDIFICIO DE DELEGACION

```
*****************************************************
*                                                   *
*           STAAD.Pro V8i SELECTseries6             *
*           Version  20.07.11.45                    *
*           Proprietary Program of                  *
*           Bentley Systems, Inc.                   *
*           Date=    FEB 14, 2018                   *
*           Time=    13:15: 1                       *
*                                                   *
*      USER ID: Personal                            *
*****************************************************
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INPUT FILE: C:\Users\GLR\Documents\TRABAJO\CESI INFONAVIT\AGUASCALIENTES\ANALISIS\MODELO DELEGACION\CE.. .STD
    2. START JOB INFORMATION
    3. ENGINEER DATE 22-AUG-17
    4. END JOB INFORMATION
    5. INPUT WIDTH 79
    6. UNIT METER MTON
    7. JOINT COORDINATES
    8. 1 0 3.15 0; 2 0 7.05 0; 3 6 7.05 0; 4 6 3.15 0; 5 12 7.05 0; 6 12 3.15 0
    9. 7 18 7.05 0; 8 18 3.15 0; 9 24 7.05 0; 10 24 3.15 0; 11 30 7.05 0
   10. 12 30 3.15 0; 13 0 3.15 6; 14 0 7.05 6; 15 6 7.05 6; 17 12 7.05 6
   11. 18 12 3.15 6; 19 18 7.05 6; 20 18 3.15 6; 21 24 7.05 6; 23 30 7.05 6
   12. 24 30 3.15 6; 25 0 3.15 12; 26 0 7.05 12; 27 6 7.05 12; 28 6 3.15 12
   13. 29 12 7.05 12; 30 12 3.15 12; 31 18 7.05 12; 32 18 3.15 12; 33 24 7.05 12
   14. 34 24 3.15 12; 35 30 7.05 12; 36 30 3.15 12; 37 0 3.15 18; 38 0 7.05 18
   15. 39 6 7.05 18; 40 6 3.15 18; 41 12 7.05 18; 42 12 3.15 18; 43 18 7.05 18
   16. 44 18 3.15 18; 45 24 7.05 18; 46 24 3.15 18; 47 30 7.05 18; 48 30 3.15 18
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186. 677 359 369; 679 214 480; 680 30 373; 681 373 374; 682 374 32; 683 292 374
187. 684 291 373; 685 375 376; 686 376 80; 691 42 379; 692 379 380; 693 380 44
188. 694 374 500; 695 373 498; 696 54 381; 697 381 382; 698 382 56; 699 380 504
189. 700 379 502; 701 66 383; 702 383 384; 703 384 68; 704 382 508; 705 381 506
190. 706 66 78; 707 68 80; 708 384 376; 709 383 375; 710 376 512; 711 375 510
191. 1008 439 1; 1009 440 13; 1010 441 25; 1011 442 49; 1012 443 73; 1013 444 97
192. 1014 445 109; 1048 479 213; 1050 37 38; 1051 42 41; 1052 44 43; 1053 46 45
193. 1054 48 47; 1055 61 62; 1057 66 65; 1058 68 67; 1059 70 69; 1060 72 71
194. 1061 85 86; 1062 88 87; 1063 90 89; 1064 92 91; 1065 94 93; 1066 96 95
195. 1202 481 15; 1203 482 27; 1204 483 482; 1205 484 26; 1206 484 489
196. 1207 485 141; 1208 486 149; 1209 487 35; 1210 488 486; 1211 488 490
197. 1212 489 483; 1213 489 143; 1214 490 487; 1215 490 150; 1359 491 299
198. 1360 492 307; 1361 493 36; 1362 494 492; 1363 494 495; 1364 495 493
199. 1365 495 308; 1379 40 39; 1380 64 63; 1381 498 499; 1382 499 379; 1383 500 501
200. 1384 498 500; 1385 501 380; 1386 499 501; 1387 502 503; 1388 503 381
201. 1389 504 505; 1390 505 382; 1391 502 504; 1392 503 505; 1393 506 507
202. 1394 507 383; 1395 508 509; 1396 509 384; 1397 506 508; 1398 507 509
203. 1399 510 511; 1400 511 353; 1401 512 513; 1402 513 354; 1403 510 512
204. 1404 511 513
205. MEMBER RELEASE
206. 172 173 178 179 184 185 190 191 196 197 200 204 205 208 209 213 222 TO 229 -
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207. 238 TO 245 254 TO 261 270 TO 277 286 TO 293 306 TO 315 326 TO 335 341 342 -
208. 347 348 514 515 520 521 526 527 532 533 538 539 542 543 546 547 550 551 555 -
209. 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 648 TO 657 -
210. 668 TO 677 683 684 694 695 699 700 704 705 708 TO 711 1213 1215 -
211. 1365 START MX MY
212. 167 380 382 385 387 400 402 405 407 421 423 425 427 429 691 701 1206 1211 -
213. 1363 1384 1386 1391 1392 1397 1398 1403 1404 START MY MZ
214. 346 557 559 561 563 589 591 593 595 621 623 625 627 641 693 703 1212 1214 -
215. 1364 1384 1386 1391 1392 1397 1398 1403 1404 END MY MZ
216. 172 173 178 179 184 185 190 191 196 197 204 205 208 209 222 TO 229 -
217. 238 TO 245 254 TO 261 270 TO 277 286 TO 293 306 TO 315 326 TO 335 341 342 -
218. 347 348 514 515 520 521 526 527 532 533 538 539 542 543 546 547 550 551 564 -
219. 565 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 648 TO 657 668 TO 677 -
220. 683 684 708 709 1204 1210 1213 1215 1362 1365 1382 1385 1388 1390 1394 1396 -
221. 1400 1402 END MX MY
222. DEFINE MATERIAL START
223. ISOTROPIC STEEL
224. E 2.09042E+007
225. POISSON 0.3
226. DENSITY 7.83341
227. ALPHA 1.2E-005
228. DAMP 0.03
229. TYPE STEEL
230. STRENGTH FY 25819.2 FU 41584 RY 1.5 RT 1.2
231. ISOTROPIC CONCRETE
232. E 2.21467E+006
233. POISSON 0.17
234. DENSITY 2.40262
235. ALPHA 1E-005
236. DAMP 0.05
237. TYPE CONCRETE
238. STRENGTH FCU 2812.28
239. ISOTROPIC LOSACERO
240. E 2.21467E+006
241. POISSON 0.17
242. ALPHA 1E-005
243. DAMP 0.05
244. TYPE CONCRETE
245. STRENGTH FCU 2812.28
246. END DEFINE MATERIAL
247. MEMBER PROPERTY AMERICAN
248. 23 25 27 29 31 33 45 47 49 51 53 55 67 69 71 73 75 77 89 91 93 95 97 99 371 -
249. 373 374 376 378 391 393 394 396 398 411 413 415 417 419 433 435 437 439 441 -
250. 1010 TO 1013 TABLE ST W14X90
251. 350 352 354 356 358 361 362 364 366 367 380 382 385 387 400 402 405 407 421 -
252. 423 425 427 429 443 445 447 449 451 510 TO 513 516 TO 519 522 TO 525 528 -
253. 529 TO 531 534 TO 537 556 TO 563 588 TO 595 620 TO 627 640 641 658 TO 667 -
254. 691 TO 693 701 TO 703 1359 TABLE ST W21X44
255. 455 TO 461 463 470 472 479 481 488 490 497 500 TO 506 TABLE ST W21X73
256. 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 648 TO 657 668 TO 676 -
257. 677 TABLE ST W16X45
258. 167 172 173 178 179 184 185 190 191 196 197 200 204 205 208 209 213 -
259. 222 TO 229 306 TO 315 326 TO 335 341 342 345 TO 348 1204 1206 1210 TO 1214 -
260. 1215 TABLE ST W14X34
261. 2 4 6 8 10 13 15 17 19 21 24 26 30 32 72 81 83 85 94 101 103 105 107 109 111 -
262. 112 TO 113 115 TO 121 128 TO 130 137 TO 139 146 TO 148 155 TO 158 160 TO 164 -
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263. 168 TO 171 174 TO 177 180 TO 183 186 TO 189 192 TO 195 198 199 202 203 206 -
264. 207 210 211 280 TO 283 298 TO 301 316 TO 325 338 TO 340 343 344 1202 1203 -
265. 1205 1207 TO 1209 TABLE ST W16X36
266. 1050 TO 1055 1057 TO 1066 1379 1380 TABLE ST W14X90
267. 370 372 375 377 432 434 436 438 440 540 541 544 545 548 549 552 553 -
268. 636 TO 639 642 TO 647 1360 TABLE ST W21X57
269. 514 515 520 521 526 527 532 533 538 539 542 543 546 547 550 551 555 -
270. 1362 TO 1365 TABLE ST W16X36
271. 114 127 131 TO 136 140 TO 145 154 159 165 166 TABLE ST W16X45
272. 466 TO 469 473 TO 475 477 478 482 TO 484 486 487 491 TO 496 706 -
273. 707 TABLE ST W21X93
274. 1 3 5 7 9 11 12 16 18 22 100 102 104 106 108 110 336 337 351 353 355 357 359 -
275. 363 365 368 444 446 448 450 452 679 1008 1009 1014 1048 TABLE ST W14X90
276. 238 TO 245 254 TO 261 270 TO 277 286 TO 293 TABLE ST W14X34
277. 35 37 41 43 46 48 52 54 57 59 63 65 68 70 74 76 79 87 90 92 96 98 122 124 -
278. 125 TO 126 149 TO 153 214 TO 221 230 TO 237 246 TO 253 262 TO 269 278 279 -
279. 284 285 294 TO 297 302 TO 305 TABLE ST W16X50
280. 453 454 462 471 480 489 498 499 1361 TABLE ST W21X57
281. 1384 1386 1391 1392 1397 1398 1403 1404 TABLE ST W8X40
282. 683 684 694 695 699 700 704 705 708 TO 711 1381 TO 1383 1385 1387 TO 1390 -
283. 1393 TO 1396 1399 TO 1402 TABLE ST W18X65
284. 390 392 395 397 410 412 414 416 418 572 TO 579 604 TO 611 680 TO 682 685 686 -
285. 696 TO 698 TABLE ST W21X73
286. 464 465 TABLE ST W24X94
287. 123 TABLE ST W18X65
288. CONSTANTS
289. MATERIAL STEEL ALL
290. SUPPORTS
291. 439 TO 480 FIXED
292. SLAVE ZX MASTER 496 JOINT 1 4 6 8 10 12 13 18 20 24 25 28 30 32 34 36 49 52 -


293. 54 56 58 60 73 76 78 80 82 84 97 100 102 104 106 108 109 112 114 116 118 -
294. 120 213 214
295. SLAVE ZX MASTER 497 JOINT 2 3 5 7 9 11 14 15 17 19 21 23 26 27 29 31 33 35 -
296. 38 39 41 43 45 47 50 51 53 55 57 59 62 63 65 67 69 71 74 75 77 79 81 83 86 -
297. 87 89 91 93 95 98 99 101 103 105 107 110 111 113 115 117 119
298. CUT OFF MODE SHAPE 35
299. *DEFINE REFERENCE LOADS
300. *LOAD R1 LOADTYPE MASS  TITLE REF LOAD CASE 1
301. *SELFWEIGHT Y -1
302. ***********
303. *MEMBER LOAD
304. *111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
305. *1209 UNI GY -0.47
306. *120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
307. *197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
308. *306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY -0.94
309. *453 TO 461 498 500 TO 506 555 1361 UNI GY -0.4
310. *462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
311. *543 546 547 550 551 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 -
312. *648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 -
313. *1365 UNI GY -0.8
314. *************
315. *111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
316. *1209 UNI GY -0.07
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317. *120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
318. *197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
319. *306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY -0.14
320. *453 TO 461 498 TO 506 1361 UNI GY -0.18
321. *462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
322. *543 546 547 550 551 555 564 TO 571 580 TO 587 596 TO 603 612 TO 619 -
323. *628 TO 635 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 -
324. *1362 UNI GY -0.36
325. ***************
326. *MEMBER LOAD
327. *130 204 208 209 CON GY -0.35 2.5 0
328. *342 UNI GY -0.69
329. *130 UNI GY -0.17
330. *341 UNI GY -0.87
331. *END DEFINE REFERENCE LOADS
332. *FLOOR DIAPHRAGM
333. *DIA 1 TYPE RIG HEI 3
334. *DIA 2 TYPE RIG HEI 6.9
335. LOAD 1 LOADTYPE DEAD  TITLE PP
336. SELFWEIGHT Y -1
337. LOAD 2 LOADTYPE DEAD  TITLE CM
338. MEMBER LOAD
339. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
340. 1209 UNI GY -0.47
341. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
342. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
343. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY -0.94
344. 453 TO 461 498 500 TO 506 555 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 -
345. 1395 1397 TO 1399 1401 1403 1404 UNI GY -0.4
346. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
347. 543 546 547 550 551 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 -
348. 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 1365 1382 1385 -
349. 1388 1390 1394 1396 1400 1402 UNI GY -0.8
350. LOAD 3 LOADTYPE LIVE  TITLE CV MAX
351. MEMBER LOAD
352. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
353. 1209 UNI GY -0.1
354. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
355. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
356. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY -0.2
357. 453 TO 461 498 TO 506 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 1395 -
358. 1397 TO 1399 1401 1403 1404 UNI GY -0.25
359. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
360. 543 546 547 550 551 555 564 TO 571 580 TO 587 596 TO 603 612 TO 619 -
361. 628 TO 635 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 -
362. 1382 1385 1388 1390 1394 1396 1400 1402 UNI GY -0.5
363. LOAD 4 LOADTYPE LIVE  TITLE CV INST
364. MEMBER LOAD
365. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
366. 1209 UNI GY -0.07
367. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
368. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
369. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY -0.14
370. 453 TO 461 498 TO 506 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 1395 -
371. 1397 TO 1399 1401 1403 1404 UNI GY -0.18
372. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
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373. 543 546 547 550 551 555 564 TO 571 580 TO 587 596 TO 603 612 TO 619 -
374. 628 TO 635 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 -
375. 1382 1385 1388 1390 1394 1396 1400 1402 UNI GY -0.36
376. LOAD 5 LOADTYPE DEAD  TITLE EQUIPOS
377. MEMBER LOAD
378. 130 204 208 209 CON GY -0.35 4 0
379. *342 UNI GY -0.69
380. *130 UNI GY -0.17
381. *341 UNI GY -0.87
382. 222 225 238 241 CON GY -1 3
383. JOINT LOAD
384. 152 153 FY -1.
385. MEMBER LOAD
386. 215 UNI GY -1 1 2
387. 122 123 CON GY -2 3
388. 37 UNI GY -1 0 1
389. LOAD 6 LOADTYPE SEISMIC  TITLE SISMO EN X
390. ************ PP ***************
391. SELFWEIGHT X 1
392. SELFWEIGHT Y 1
393. SELFWEIGHT Z 1
394. *********** CM *************
395. MEMBER LOAD
396. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
397. 1209 UNI GX 0.47
398. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
399. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
400. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GX 0.94
401. 453 TO 461 498 500 TO 506 555 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 -
402. 1395 1397 TO 1399 1401 1403 1404 UNI GX 0.4
403. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
404. 543 546 547 550 551 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 -
405. 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 1365 1382 1385 -
406. 1388 1390 1394 1396 1400 1402 UNI GX 0.8
407. MEMBER LOAD
408. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
409. 1209 UNI GY 0.47
410. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
411. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
412. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY 0.94
413. 453 TO 461 498 500 TO 506 555 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 -
414. 1395 1397 TO 1399 1401 1403 1404 UNI GY 0.4
415. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
416. 543 546 547 550 551 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 -
417. 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 1365 1382 1385 -
418. 1388 1390 1394 1396 1400 1402 UNI GY 0.8
419. MEMBER LOAD
420. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
421. 1209 UNI GZ 0.47
422. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
423. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
424. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GZ 0.94
425. 453 TO 461 498 500 TO 506 555 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 -
426. 1395 1397 TO 1399 1401 1403 1404 UNI GZ 0.4
427. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
428. 543 546 547 550 551 564 TO 571 580 TO 587 596 TO 603 612 TO 619 628 TO 635 -
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429. 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 1365 1382 1385 -
430. 1388 1390 1394 1396 1400 1402 UNI GZ 0.8
431. ************ EQUIPOS**********
432. MEMBER LOAD
433. 130 204 208 209 CON GX 0.35 4 0
434. 222 225 238 241 CON GX 1 3
435. JOINT LOAD
436. 152 153 FX 1
437. MEMBER LOAD
438. 215 UNI GX 1 1 2
439. 122 123 CON GX 2 3
440. 37 UNI GX 1 0 1
441. MEMBER LOAD
442. 130 204 208 209 CON GY 0.35 4 0
443. 222 225 238 241 CON GY 1 3
444. JOINT LOAD
445. 152 153 FY 1
446. MEMBER LOAD
447. 215 UNI GY 1 1 2
448. 122 123 CON GY 2 3
449. 37 UNI GY 1 0 1
450. MEMBER LOAD
451. 130 204 208 209 CON GZ 0.35 4 0
452. 222 225 238 241 CON GZ 1 3
453. JOINT LOAD
454. 152 153 FZ 1
455. MEMBER LOAD
456. 215 UNI GZ 1 1 2
457. 122 123 CON GZ 2 3
458. 37 UNI GZ 1 0 1
459. ************** CV INST *******
460. MEMBER LOAD
461. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
462. 1209 UNI GX 0.07
463. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
464. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
465. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GX 0.14
466. 453 TO 461 498 TO 506 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 1395 -
467. 1397 TO 1399 1401 1403 1404 UNI GX 0.18
468. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
469. 543 546 547 550 551 555 564 TO 571 580 TO 587 596 TO 603 612 TO 619 -
470. 628 TO 635 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 -
471. 1382 1385 1388 1390 1394 1396 1400 1402 UNI GX 0.36
472. MEMBER LOAD
473. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
474. 1209 UNI GY 0.07
475. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
476. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
477. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GY 0.14
478. 453 TO 461 498 TO 506 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 1395 -
479. 1397 TO 1399 1401 1403 1404 UNI GY 0.18
480. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
481. 543 546 547 550 551 555 564 TO 571 580 TO 587 596 TO 603 612 TO 619 -
482. 628 TO 635 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 -
483. 1382 1385 1388 1390 1394 1396 1400 1402 UNI GY 0.36
484. MEMBER LOAD
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485. 111 113 TO 119 131 TO 135 140 TO 144 156 158 TO 164 200 213 1205 -
486. 1209 UNI GZ 0.07
487. 120 TO 130 136 TO 139 145 TO 155 165 166 172 173 178 179 184 185 190 191 196 -
488. 197 204 205 208 209 222 TO 229 238 TO 245 254 TO 261 270 TO 277 286 TO 293 -
489. 306 TO 315 326 TO 335 341 342 347 348 1204 1210 1213 1215 UNI GZ 0.14
490. 453 TO 461 498 TO 506 1361 1381 1383 1384 1386 1387 1389 1391 TO 1393 1395 -
491. 1397 TO 1399 1401 1403 1404 UNI GZ 0.18
492. 462 TO 475 477 TO 484 486 TO 497 514 515 520 521 526 527 532 533 538 539 542 -
493. 543 546 547 550 551 555 564 TO 571 580 TO 587 596 TO 603 612 TO 619 -
494. 628 TO 635 648 TO 657 668 TO 677 683 684 694 695 699 700 704 TO 711 1362 -
495. 1382 1385 1388 1390 1394 1396 1400 1402 UNI GZ 0.36
496. ********************
497. MEMBER LOAD
498. 1384 1386 1391 1392 1397 1398 1403 1404 UNI GX 1.8
499. 1384 1386 1391 1392 1397 1398 1403 1404 CON GX 0.75 1
500. MEMBER LOAD
501. 1384 1386 1391 1392 1397 1398 1403 1404 UNI GY 1.8
502. 1384 1386 1391 1392 1397 1398 1403 1404 CON GY 0.75 1
503. MEMBER LOAD
504. 1384 1386 1391 1392 1397 1398 1403 1404 UNI GZ 1.8
505. 1384 1386 1391 1392 1397 1398 1403 1404 CON GZ 0.75 1
506. ********************
507. SPECTRUM SRSS X 1 ACC SCALE 9.81 DAMP 0.05 LIN
508. 0 0.12; 0.1 0.163; 0.2 0.207; 0.3 0.25; 0.4 0.25; 0.5 0.25; 0.6 0.25
509. 0.7 0.25; 0.8 0.25; 0.9 0.25; 1 0.25; 1.1 0.25; 1.2 0.25; 1.3 0.25; 1.4 0.25
510. 1.5 0.25; 1.6 0.24; 1.7 0.23; 1.8 0.222; 1.9 0.214; 2 0.207; 2.1 0.2
511. 2.2 0.194; 2.3 0.189; 2.4 0.183; 2.5 0.178; 2.6 0.174; 2.7 0.17; 2.8 0.166
512. 2.9 0.162; 3 0.158; 3.1 0.155; 3.2 0.152; 3.3 0.149; 3.4 0.146; 3.5 0.143
513. 3.6 0.14; 3.7 0.138; 3.8 0.135; 3.9 0.133; 4 0.131; 4.1 0.129; 4.2 0.127
514. 4.3 0.125; 4.4 0.123; 4.5 0.121; 4.6 0.119; 4.7 0.118; 4.8 0.116; 4.9 0.114
515. 5 0.113
516. LOAD 7 LOADTYPE SEISMIC  TITLE SISMO EN Z
517. SPECTRUM SRSS Z 1 ACC SCALE 9.81 DAMP 0.05 LIN
518. 0 0.12; 0.1 0.163; 0.2 0.207; 0.3 0.25; 0.4 0.25; 0.5 0.25; 0.6 0.25
519. 0.7 0.25; 0.8 0.25; 0.9 0.25; 1 0.25; 1.1 0.25; 1.2 0.25; 1.3 0.25; 1.4 0.25
520. 1.5 0.25; 1.6 0.24; 1.7 0.23; 1.8 0.222; 1.9 0.214; 2 0.207; 2.1 0.2
521. 2.2 0.194; 2.3 0.189; 2.4 0.183; 2.5 0.178; 2.6 0.174; 2.7 0.17; 2.8 0.166
522. 2.9 0.162; 3 0.158; 3.1 0.155; 3.2 0.152; 3.3 0.149; 3.4 0.146; 3.5 0.143
523. 3.6 0.14; 3.7 0.138; 3.8 0.135; 3.9 0.133; 4 0.131; 4.1 0.129; 4.2 0.127
524. 4.3 0.125; 4.4 0.123; 4.5 0.121; 4.6 0.119; 4.7 0.118; 4.8 0.116; 4.9 0.114
525. 5 0.113
526. LOAD 8 LOADTYPE NONE  TITLE ARRIATES
527. MEMBER LOAD
528. 1384 1386 1391 1392 1397 1398 1403 1404 UNI GY -1.8
529. 1384 1386 1391 1392 1397 1398 1403 1404 CON GY -0.75 1
530. ********** SERVICIO ************
531. LOAD COMB 10 1.0 (PP+CM+CVMAX+EQU+ARR)
532. 1 1.0 2 1.0 3 1.0 5 1.0 8 1.0
533. LOAD COMB 11 1.0 (PP+CM+CVINST+EQU+ARR+ SX+ 0.3 SZ)
534. 1 1.0 2 1.0 4 1.0 5 1.0 6 1.0 7 0.3 8 1.0
535. LOAD COMB 12 1.0 (PP+CM+CVINST+EQU+ARR+ SX- 0.3 SZ)
536. 1 1.0 2 1.0 4 1.0 5 1.0 6 1.0 7 -0.3 8 1.0
537. LOAD COMB 13 1.0 (PP+CM+CVINST+EQU+ARR- SX+ 0.3 SZ)
538. 1 1.0 2 1.0 4 1.0 5 1.0 6 -1.0 7 0.3 8 1.0
539. LOAD COMB 14 1.0 (PP+CM+CVINST+EQU+ARR- SX- 0.3 SZ)
540. 1 1.0 2 1.0 4 1.0 5 1.0 6 -1.0 7 -0.3 8 1.0
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541. LOAD COMB 15 1.0 (PP+CM+CVINST+EQU+ARR+ 0.3 SX+ SZ)
542. 1 1.0 2 1.0 4 1.0 5 1.0 6 0.3 7 1.0 8 1.0
543. LOAD COMB 16 1.0 (PP+CM+CVINST+EQU+ARR+ 0.3 SX- SZ)
544. 1 1.0 2 1.0 4 1.0 5 1.0 6 0.3 7 -1.0 8 1.0
545. LOAD COMB 17 1.0 (PP+CM+CVINST+EQU+ARR- 0.3 SX+ SZ)
546. 1 1.0 2 1.0 4 1.0 5 1.0 6 -0.3 7 1.0 8 1.0
547. LOAD COMB 18 1.0 (PP+CM+CVINST+EQU+ARR- 0.3 SX- SZ)
548. 1 1.0 2 1.0 4 1.0 5 1.0 6 -0.3 7 -1.0 8 1.0
549. LOAD COMB 19 1.0 (PP+CM+CVINST+EQU)
550. 1 1.0 2 1.0 4 1.0 5 1.0 8 1.0
551. ********* DISE?O ********
552. LOAD COMB 20 1.4 (PP+CM+CVMAX+EQU+ARR)
553. 1 1.4 2 1.4 3 1.4 5 1.4 8 1.4
554. LOAD COMB 21 1.1 (PP+CM+CVINST+EQU+ARR+ SX+ 0.3 SZ)
555. 1 1.1 2 1.1 4 1.1 5 1.1 6 1.1 7 0.33 8 1.1
556. LOAD COMB 22 1.1 (PP+CM+CVINST+EQU+ARR+ SX- 0.3 SZ)
557. 1 1.1 2 1.1 4 1.1 5 1.1 6 1.1 7 -0.33 8 1.1
558. LOAD COMB 23 1.1 (PP+CM+CVINST+EQU+ARR- SX+ 0.3 SZ)
559. 1 1.1 2 1.1 4 1.1 5 1.1 6 -1.1 7 0.33 8 1.1
560. LOAD COMB 24 1.1 (PP+CM+CVINST+EQU+ARR- SX- 0.3 SZ)
561. 1 1.1 2 1.1 4 1.1 5 1.1 6 -1.1 7 -0.33 8 1.1
562. LOAD COMB 25 1.1 (PP+CM+CVINST+EQU+ARR+ 0.3 SX+ SZ)
563. 1 1.1 2 1.1 4 1.1 5 1.1 6 0.33 7 1.1 8 1.1
564. LOAD COMB 26 1.1 (PP+CM+CVINST+EQU+ARR+ 0.3 SX- SZ)
565. 1 1.1 2 1.1 4 1.1 5 1.1 6 0.33 7 -1.1 8 1.1
566. LOAD COMB 27 1.1 (PP+CM+CVINST+EQU+ARR- 0.3 SX+ SZ)
567. 1 1.1 2 1.1 4 1.1 5 1.1 6 -0.33 7 1.1 8 1.1
568. LOAD COMB 28 1.1 (PP+CM+CVINST+EQU+ARR- 0.3 SX- SZ)
569. 1 1.1 2 1.1 4 1.1 5 1.1 6 -0.33 7 -1.1 8 1.1
570. PERFORM ANALYSIS PRINT ALL
```

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS	**393**	**NUMBER OF MEMBERS**	**720**
NUMBER OF PLATES	**0**	**NUMBER OF SOLIDS**	**0**
NUMBER OF SURFACES	**0**	**NUMBER OF SUPPORTS**	**42**

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 351/ 29/ 1800 DOF
TOTAL PRIMARY LOAD CASES = 8, TOTAL DEGREES OF FREEDOM = 1800
TOTAL LOAD COMBINATION CASES = 19 SO FAR.
SIZE OF STIFFNESS MATRIX = 3240 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 62.9/ 423048.9 MB

LOADING 1 LOADTYPE DEAD TITLE PP

SELFWEIGHT Y -1.000

ACTUAL WEIGHT OF THE STRUCTURE = 211.774 MTON

LOADING 2 LOADTYPE DEAD TITLE CM

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
111	-0.4700 GY	0.00	6.00				
113	-0.4700 GY	0.00	6.00				
114	-0.4700 GY	0.00	6.00				
115	-0.4700 GY	0.00	6.00				
116	-0.4700 GY	0.00	6.00				
117	-0.4700 GY	0.00	6.00				
118	-0.4700 GY	0.00	6.00				
119	-0.4700 GY	0.00	6.00				
131	-0.4700 GY	0.00	6.00				
132	-0.4700 GY	0.00	6.00				
133	-0.4700 GY	0.00	6.00				
134	-0.4700 GY	0.00	3.00				
135	-0.4700 GY	0.00	6.00				
140	-0.4700 GY	0.00	6.00				
141	-0.4700 GY	0.00	6.00				
142	-0.4700 GY	0.00	6.00				
143	-0.4700 GY	0.00	3.00				
144	-0.4700 GY	0.00	6.00				
156	-0.4700 GY	0.00	6.00				
158	-0.4700 GY	0.00	6.00				
159	-0.4700 GY	0.00	6.00				
160	-0.4700 GY	0.00	6.00				
161	-0.4700 GY	0.00	6.00				
162	-0.4700 GY	0.00	6.00				
163	-0.4700 GY	0.00	6.00				
164	-0.4700 GY	0.00	6.00				
200	-0.4700 GY	0.00	3.00				
213	-0.4700 GY	0.00	3.00				
1205	-0.4700 GY	0.00	3.00				
1209	-0.4700 GY	0.00	3.00				
120	-0.9400 GY	0.00	6.00				
121	-0.9400 GY	0.00	6.00				
122	-0.9400 GY	0.00	6.00				
123	-0.9400 GY	0.00	6.00				
124	-0.9400 GY	0.00	6.00				
125	-0.9400 GY	0.00	6.00				
126	-0.9400 GY	0.00	6.00				
127	-0.9400 GY	0.00	6.00				

128	-0.9400 GY	0.00	6.00
129	-0.9400 GY	0.00	6.00
130	-0.9400 GY	0.00	6.00
136	-0.9400 GY	0.00	6.00
137	-0.9400 GY	0.00	6.00
138	-0.9400 GY	0.00	6.00
139	-0.9400 GY	0.00	6.00
145	-0.9400 GY	0.00	6.00
146	-0.9400 GY	0.00	6.00
147	-0.9400 GY	0.00	6.00
148	-0.9400 GY	0.00	6.00
149	-0.9400 GY	0.00	6.00
150	-0.9400 GY	0.00	6.00
151	-0.9400 GY	0.00	6.00
152	-0.9400 GY	0.00	6.00
153	-0.9400 GY	0.00	6.00
154	-0.9400 GY	0.00	6.00
155	-0.9400 GY	0.00	6.00
165	-0.9400 GY	0.00	3.00
166	-0.9400 GY	0.00	3.00
172	-0.9400 GY	0.00	6.00
173	-0.9400 GY	0.00	6.00
178	-0.9400 GY	0.00	6.00
179	-0.9400 GY	0.00	6.00
184	-0.9400 GY	0.00	6.00
185	-0.9400 GY	0.00	6.00
190	-0.9400 GY	0.00	6.00
191	-0.9400 GY	0.00	6.00
196	-0.9400 GY	0.00	6.00
197	-0.9400 GY	0.00	6.00
204	-0.9400 GY	0.00	6.00
205	-0.9400 GY	0.00	6.00
208	-0.9400 GY	0.00	6.00
209	-0.9400 GY	0.00	6.00
222	-0.9400 GY	0.00	6.00
223	-0.9400 GY	0.00	6.00
224	-0.9400 GY	0.00	6.00
225	-0.9400 GY	0.00	6.00
226	-0.9400 GY	0.00	6.00
227	-0.9400 GY	0.00	6.00
228	-0.9400 GY	0.00	6.00
229	-0.9400 GY	0.00	6.00
238	-0.9400 GY	0.00	6.00
239	-0.9400 GY	0.00	6.00
240	-0.9400 GY	0.00	6.00
241	-0.9400 GY	0.00	6.00
242	-0.9400 GY	0.00	6.00
243	-0.9400 GY	0.00	6.00
244	-0.9400 GY	0.00	6.00
245	-0.9400 GY	0.00	6.00
254	-0.9400 GY	0.00	6.00
255	-0.9400 GY	0.00	6.00
256	-0.9400 GY	0.00	6.00
257	-0.9400 GY	0.00	6.00
258	-0.9400 GY	0.00	6.00
259	-0.9400 GY	0.00	6.00

260	-0.9400 GY	0.00	6.00
261	-0.9400 GY	0.00	6.00
270	-0.9400 GY	0.00	6.00
271	-0.9400 GY	0.00	6.00
272	-0.9400 GY	0.00	6.00
273	-0.9400 GY	0.00	6.00
274	-0.9400 GY	0.00	6.00
275	-0.9400 GY	0.00	6.00
276	-0.9400 GY	0.00	6.00
277	-0.9400 GY	0.00	6.00
286	-0.9400 GY	0.00	6.00
287	-0.9400 GY	0.00	6.00
288	-0.9400 GY	0.00	6.00
289	-0.9400 GY	0.00	6.00
290	-0.9400 GY	0.00	6.00
291	-0.9400 GY	0.00	6.00
292	-0.9400 GY	0.00	6.00
293	-0.9400 GY	0.00	6.00
306	-0.9400 GY	0.00	6.00
307	-0.9400 GY	0.00	6.00
308	-0.9400 GY	0.00	6.00
309	-0.9400 GY	0.00	6.00
310	-0.9400 GY	0.00	6.00
311	-0.9400 GY	0.00	6.00
312	-0.9400 GY	0.00	6.00
313	-0.9400 GY	0.00	6.00
314	-0.9400 GY	0.00	6.00
315	-0.9400 GY	0.00	6.00
326	-0.9400 GY	0.00	6.00
327	-0.9400 GY	0.00	6.00
328	-0.9400 GY	0.00	6.00
329	-0.9400 GY	0.00	6.00
330	-0.9400 GY	0.00	6.00
331	-0.9400 GY	0.00	6.00
332	-0.9400 GY	0.00	6.00
333	-0.9400 GY	0.00	6.00
334	-0.9400 GY	0.00	6.00
335	-0.9400 GY	0.00	6.00
341	-0.9400 GY	0.00	6.00
342	-0.9400 GY	0.00	6.00
347	-0.9400 GY	0.00	3.00
348	-0.9400 GY	0.00	3.00
1204	-0.9400 GY	0.00	3.00
1210	-0.9400 GY	0.00	3.00
1213	-0.9400 GY	0.00	3.00
1215	-0.9400 GY	0.00	3.00
453	-0.4000 GY	0.00	6.00
454	-0.4000 GY	0.00	6.00
455	-0.4000 GY	0.00	6.00
456	-0.4000 GY	0.00	6.00
457	-0.4000 GY	0.00	6.00
458	-0.4000 GY	0.00	6.00
459	-0.4000 GY	0.00	6.00
460	-0.4000 GY	0.00	6.00
461	-0.4000 GY	0.00	6.00
498	-0.4000 GY	0.00	6.00

500	-0.4000 GY	0.00	6.00
501	-0.4000 GY	0.00	6.00
502	-0.4000 GY	0.00	6.00
503	-0.4000 GY	0.00	6.00
504	-0.4000 GY	0.00	6.00
505	-0.4000 GY	0.00	6.00
506	-0.4000 GY	0.00	6.00
555	-0.4000 GY	0.00	3.00
1361	-0.4000 GY	0.00	3.00
1381	-0.4000 GY	0.00	2.00
1383	-0.4000 GY	0.00	2.00
1384	-0.4000 GY	0.00	2.00
1386	-0.4000 GY	0.00	2.00
1387	-0.4000 GY	0.00	2.00
1389	-0.4000 GY	0.00	2.00
1391	-0.4000 GY	0.00	2.00
1392	-0.4000 GY	0.00	2.00
1393	-0.4000 GY	0.00	2.00
1395	-0.4000 GY	0.00	2.00
1397	-0.4000 GY	0.00	2.00
1398	-0.4000 GY	0.00	2.00
1399	-0.4000 GY	0.00	2.00
1401	-0.4000 GY	0.00	2.00
1403	-0.4000 GY	0.00	2.00
1404	-0.4000 GY	0.00	2.00
462	-0.8000 GY	0.00	6.00
463	-0.8000 GY	0.00	6.00
464	-0.8000 GY	0.00	6.00
465	-0.8000 GY	0.00	6.00
466	-0.8000 GY	0.00	6.00
467	-0.8000 GY	0.00	6.00
468	-0.8000 GY	0.00	6.00
469	-0.8000 GY	0.00	6.00
470	-0.8000 GY	0.00	6.00
471	-0.8000 GY	0.00	6.00
472	-0.8000 GY	0.00	6.00
473	-0.8000 GY	0.00	6.00
474	-0.8000 GY	0.00	6.00
475	-0.8000 GY	0.00	6.00
477	-0.8000 GY	0.00	6.00
478	-0.8000 GY	0.00	6.00
479	-0.8000 GY	0.00	6.00
480	-0.8000 GY	0.00	6.00
481	-0.8000 GY	0.00	6.00
482	-0.8000 GY	0.00	6.00
483	-0.8000 GY	0.00	6.00
484	-0.8000 GY	0.00	6.00
486	-0.8000 GY	0.00	6.00
487	-0.8000 GY	0.00	6.00
488	-0.8000 GY	0.00	6.00
489	-0.8000 GY	0.00	6.00
490	-0.8000 GY	0.00	6.00
491	-0.8000 GY	0.00	6.00
492	-0.8000 GY	0.00	6.00
493	-0.8000 GY	0.00	6.00
494	-0.8000 GY	0.00	6.00

495	-0.8000 GY	0.00	6.00
496	-0.8000 GY	0.00	6.00
497	-0.8000 GY	0.00	6.00
514	-0.8000 GY	0.00	6.00
515	-0.8000 GY	0.00	6.00
520	-0.8000 GY	0.00	6.00
521	-0.8000 GY	0.00	6.00
526	-0.8000 GY	0.00	6.00
527	-0.8000 GY	0.00	6.00
532	-0.8000 GY	0.00	6.00
533	-0.8000 GY	0.00	6.00
538	-0.8000 GY	0.00	6.00
539	-0.8000 GY	0.00	6.00
542	-0.8000 GY	0.00	6.00
543	-0.8000 GY	0.00	6.00
546	-0.8000 GY	0.00	6.00
547	-0.8000 GY	0.00	6.00
550	-0.8000 GY	0.00	6.00
551	-0.8000 GY	0.00	6.00
564	-0.8000 GY	0.00	6.00
565	-0.8000 GY	0.00	6.00
566	-0.8000 GY	0.00	6.00
567	-0.8000 GY	0.00	6.00
568	-0.8000 GY	0.00	6.00
569	-0.8000 GY	0.00	6.00
570	-0.8000 GY	0.00	6.00
571	-0.8000 GY	0.00	6.00
580	-0.8000 GY	0.00	6.00
581	-0.8000 GY	0.00	6.00
582	-0.8000 GY	0.00	6.00
583	-0.8000 GY	0.00	6.00
584	-0.8000 GY	0.00	6.00
585	-0.8000 GY	0.00	6.00
586	-0.8000 GY	0.00	6.00
587	-0.8000 GY	0.00	6.00
596	-0.8000 GY	0.00	6.00
597	-0.8000 GY	0.00	6.00
598	-0.8000 GY	0.00	6.00
599	-0.8000 GY	0.00	6.00
600	-0.8000 GY	0.00	6.00
601	-0.8000 GY	0.00	6.00
602	-0.8000 GY	0.00	6.00
603	-0.8000 GY	0.00	6.00
612	-0.8000 GY	0.00	6.00
613	-0.8000 GY	0.00	6.00
614	-0.8000 GY	0.00	6.00
615	-0.8000 GY	0.00	6.00
616	-0.8000 GY	0.00	6.00
617	-0.8000 GY	0.00	6.00
618	-0.8000 GY	0.00	6.00
619	-0.8000 GY	0.00	6.00
628	-0.8000 GY	0.00	6.00
629	-0.8000 GY	0.00	6.00
630	-0.8000 GY	0.00	6.00
631	-0.8000 GY	0.00	6.00
632	-0.8000 GY	0.00	6.00

633	-0.8000 GY	0.00	6.00
634	-0.8000 GY	0.00	6.00
635	-0.8000 GY	0.00	6.00
648	-0.8000 GY	0.00	6.00
649	-0.8000 GY	0.00	6.00
650	-0.8000 GY	0.00	6.00
651	-0.8000 GY	0.00	6.00
652	-0.8000 GY	0.00	6.00
653	-0.8000 GY	0.00	6.00
654	-0.8000 GY	0.00	6.00
655	-0.8000 GY	0.00	6.00
656	-0.8000 GY	0.00	6.00
657	-0.8000 GY	0.00	6.00
668	-0.8000 GY	0.00	6.00
669	-0.8000 GY	0.00	6.00
670	-0.8000 GY	0.00	6.00
671	-0.8000 GY	0.00	6.00
672	-0.8000 GY	0.00	6.00
673	-0.8000 GY	0.00	6.00
674	-0.8000 GY	0.00	6.00
675	-0.8000 GY	0.00	6.00
676	-0.8000 GY	0.00	6.00
677	-0.8000 GY	0.00	6.00
683	-0.8000 GY	0.00	6.00
684	-0.8000 GY	0.00	6.00
694	-0.8000 GY	0.00	2.00
695	-0.8000 GY	0.00	2.00
699	-0.8000 GY	0.00	2.00
700	-0.8000 GY	0.00	2.00
704	-0.8000 GY	0.00	2.00
705	-0.8000 GY	0.00	2.00
706	-0.8000 GY	0.00	6.00
707	-0.8000 GY	0.00	6.00
708	-0.8000 GY	0.00	6.00
709	-0.8000 GY	0.00	6.00
710	-0.8000 GY	0.00	2.00
711	-0.8000 GY	0.00	2.00
1362	-0.8000 GY	0.00	3.00
1365	-0.8000 GY	0.00	3.00
1382	-0.8000 GY	0.00	2.00
1385	-0.8000 GY	0.00	2.00
1388	-0.8000 GY	0.00	2.00
1390	-0.8000 GY	0.00	2.00
1394	-0.8000 GY	0.00	2.00
1396	-0.8000 GY	0.00	2.00
1400	-0.8000 GY	0.00	2.00
1402	-0.8000 GY	0.00	2.00

LOADING 3 LOADTYPE LIVE TITLE CV MAX

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
111	-0.1000 GY	0.00	6.00				
113	-0.1000 GY	0.00	6.00				
114	-0.1000 GY	0.00	6.00				
115	-0.1000 GY	0.00	6.00				
116	-0.1000 GY	0.00	6.00				
117	-0.1000 GY	0.00	6.00				
118	-0.1000 GY	0.00	6.00				
119	-0.1000 GY	0.00	6.00				
131	-0.1000 GY	0.00	6.00				
132	-0.1000 GY	0.00	6.00				
133	-0.1000 GY	0.00	6.00				
134	-0.1000 GY	0.00	3.00				
135	-0.1000 GY	0.00	6.00				
140	-0.1000 GY	0.00	6.00				
141	-0.1000 GY	0.00	6.00				
142	-0.1000 GY	0.00	6.00				
143	-0.1000 GY	0.00	3.00				
144	-0.1000 GY	0.00	6.00				
156	-0.1000 GY	0.00	6.00				
158	-0.1000 GY	0.00	6.00				
159	-0.1000 GY	0.00	6.00				
160	-0.1000 GY	0.00	6.00				
161	-0.1000 GY	0.00	6.00				
162	-0.1000 GY	0.00	6.00				
163	-0.1000 GY	0.00	6.00				
164	-0.1000 GY	0.00	6.00				
200	-0.1000 GY	0.00	3.00				
213	-0.1000 GY	0.00	3.00				
1205	-0.1000 GY	0.00	3.00				
1209	-0.1000 GY	0.00	3.00				
120	-0.2000 GY	0.00	6.00				
121	-0.2000 GY	0.00	6.00				
122	-0.2000 GY	0.00	6.00				
123	-0.2000 GY	0.00	6.00				
124	-0.2000 GY	0.00	6.00				
125	-0.2000 GY	0.00	6.00				
126	-0.2000 GY	0.00	6.00				
127	-0.2000 GY	0.00	6.00				
128	-0.2000 GY	0.00	6.00				
129	-0.2000 GY	0.00	6.00				
130	-0.2000 GY	0.00	6.00				
136	-0.2000 GY	0.00	6.00				
137	-0.2000 GY	0.00	6.00				
138	-0.2000 GY	0.00	6.00				
139	-0.2000 GY	0.00	6.00				
145	-0.2000 GY	0.00	6.00				
146	-0.2000 GY	0.00	6.00				
147	-0.2000 GY	0.00	6.00				
148	-0.2000 GY	0.00	6.00				
149	-0.2000 GY	0.00	6.00				

150	-0.2000 GY	0.00	6.00
151	-0.2000 GY	0.00	6.00
152	-0.2000 GY	0.00	6.00
153	-0.2000 GY	0.00	6.00
154	-0.2000 GY	0.00	6.00
155	-0.2000 GY	0.00	6.00
165	-0.2000 GY	0.00	3.00
166	-0.2000 GY	0.00	3.00
172	-0.2000 GY	0.00	6.00
173	-0.2000 GY	0.00	6.00
178	-0.2000 GY	0.00	6.00
179	-0.2000 GY	0.00	6.00
184	-0.2000 GY	0.00	6.00
185	-0.2000 GY	0.00	6.00
190	-0.2000 GY	0.00	6.00
191	-0.2000 GY	0.00	6.00
196	-0.2000 GY	0.00	6.00
197	-0.2000 GY	0.00	6.00
204	-0.2000 GY	0.00	6.00
205	-0.2000 GY	0.00	6.00
208	-0.2000 GY	0.00	6.00
209	-0.2000 GY	0.00	6.00
222	-0.2000 GY	0.00	6.00
223	-0.2000 GY	0.00	6.00
224	-0.2000 GY	0.00	6.00
225	-0.2000 GY	0.00	6.00
226	-0.2000 GY	0.00	6.00
227	-0.2000 GY	0.00	6.00
228	-0.2000 GY	0.00	6.00
229	-0.2000 GY	0.00	6.00
238	-0.2000 GY	0.00	6.00
239	-0.2000 GY	0.00	6.00
240	-0.2000 GY	0.00	6.00
241	-0.2000 GY	0.00	6.00
242	-0.2000 GY	0.00	6.00
243	-0.2000 GY	0.00	6.00
244	-0.2000 GY	0.00	6.00
245	-0.2000 GY	0.00	6.00
254	-0.2000 GY	0.00	6.00
255	-0.2000 GY	0.00	6.00
256	-0.2000 GY	0.00	6.00
257	-0.2000 GY	0.00	6.00
258	-0.2000 GY	0.00	6.00
259	-0.2000 GY	0.00	6.00
260	-0.2000 GY	0.00	6.00
261	-0.2000 GY	0.00	6.00
270	-0.2000 GY	0.00	6.00
271	-0.2000 GY	0.00	6.00
272	-0.2000 GY	0.00	6.00
273	-0.2000 GY	0.00	6.00
274	-0.2000 GY	0.00	6.00
275	-0.2000 GY	0.00	6.00
276	-0.2000 GY	0.00	6.00
277	-0.2000 GY	0.00	6.00
286	-0.2000 GY	0.00	6.00
287	-0.2000 GY	0.00	6.00

288	-0.2000 GY	0.00	6.00
289	-0.2000 GY	0.00	6.00
290	-0.2000 GY	0.00	6.00
291	-0.2000 GY	0.00	6.00
292	-0.2000 GY	0.00	6.00
293	-0.2000 GY	0.00	6.00
306	-0.2000 GY	0.00	6.00
307	-0.2000 GY	0.00	6.00
308	-0.2000 GY	0.00	6.00
309	-0.2000 GY	0.00	6.00
310	-0.2000 GY	0.00	6.00
311	-0.2000 GY	0.00	6.00
312	-0.2000 GY	0.00	6.00
313	-0.2000 GY	0.00	6.00
314	-0.2000 GY	0.00	6.00
315	-0.2000 GY	0.00	6.00
326	-0.2000 GY	0.00	6.00
327	-0.2000 GY	0.00	6.00
328	-0.2000 GY	0.00	6.00
329	-0.2000 GY	0.00	6.00
330	-0.2000 GY	0.00	6.00
331	-0.2000 GY	0.00	6.00
332	-0.2000 GY	0.00	6.00
333	-0.2000 GY	0.00	6.00
334	-0.2000 GY	0.00	6.00
335	-0.2000 GY	0.00	6.00
341	-0.2000 GY	0.00	6.00
342	-0.2000 GY	0.00	6.00
347	-0.2000 GY	0.00	3.00
348	-0.2000 GY	0.00	3.00
1204	-0.2000 GY	0.00	3.00
1210	-0.2000 GY	0.00	3.00
1213	-0.2000 GY	0.00	3.00
1215	-0.2000 GY	0.00	3.00
453	-0.2500 GY	0.00	6.00
454	-0.2500 GY	0.00	6.00
455	-0.2500 GY	0.00	6.00
456	-0.2500 GY	0.00	6.00
457	-0.2500 GY	0.00	6.00
458	-0.2500 GY	0.00	6.00
459	-0.2500 GY	0.00	6.00
460	-0.2500 GY	0.00	6.00
461	-0.2500 GY	0.00	6.00
498	-0.2500 GY	0.00	6.00
499	-0.2500 GY	0.00	3.00
500	-0.2500 GY	0.00	6.00
501	-0.2500 GY	0.00	6.00
502	-0.2500 GY	0.00	6.00
503	-0.2500 GY	0.00	6.00
504	-0.2500 GY	0.00	6.00
505	-0.2500 GY	0.00	6.00
506	-0.2500 GY	0.00	6.00
1361	-0.2500 GY	0.00	3.00
1381	-0.2500 GY	0.00	2.00
1383	-0.2500 GY	0.00	2.00
1384	-0.2500 GY	0.00	2.00

1386	-0.2500 GY	0.00	2.00
1387	-0.2500 GY	0.00	2.00
1389	-0.2500 GY	0.00	2.00
1391	-0.2500 GY	0.00	2.00
1392	-0.2500 GY	0.00	2.00
1393	-0.2500 GY	0.00	2.00
1395	-0.2500 GY	0.00	2.00
1397	-0.2500 GY	0.00	2.00
1398	-0.2500 GY	0.00	2.00
1399	-0.2500 GY	0.00	2.00
1401	-0.2500 GY	0.00	2.00
1403	-0.2500 GY	0.00	2.00
1404	-0.2500 GY	0.00	2.00
462	-0.5000 GY	0.00	6.00
463	-0.5000 GY	0.00	6.00
464	-0.5000 GY	0.00	6.00
465	-0.5000 GY	0.00	6.00
466	-0.5000 GY	0.00	6.00
467	-0.5000 GY	0.00	6.00
468	-0.5000 GY	0.00	6.00
469	-0.5000 GY	0.00	6.00
470	-0.5000 GY	0.00	6.00
471	-0.5000 GY	0.00	6.00
472	-0.5000 GY	0.00	6.00
473	-0.5000 GY	0.00	6.00
474	-0.5000 GY	0.00	6.00
475	-0.5000 GY	0.00	6.00
477	-0.5000 GY	0.00	6.00
478	-0.5000 GY	0.00	6.00
479	-0.5000 GY	0.00	6.00
480	-0.5000 GY	0.00	6.00
481	-0.5000 GY	0.00	6.00
482	-0.5000 GY	0.00	6.00
483	-0.5000 GY	0.00	6.00
484	-0.5000 GY	0.00	6.00
486	-0.5000 GY	0.00	6.00
487	-0.5000 GY	0.00	6.00
488	-0.5000 GY	0.00	6.00
489	-0.5000 GY	0.00	6.00
490	-0.5000 GY	0.00	6.00
491	-0.5000 GY	0.00	6.00
492	-0.5000 GY	0.00	6.00
493	-0.5000 GY	0.00	6.00
494	-0.5000 GY	0.00	6.00
495	-0.5000 GY	0.00	6.00
496	-0.5000 GY	0.00	6.00
497	-0.5000 GY	0.00	6.00
514	-0.5000 GY	0.00	6.00
515	-0.5000 GY	0.00	6.00
520	-0.5000 GY	0.00	6.00
521	-0.5000 GY	0.00	6.00
526	-0.5000 GY	0.00	6.00
527	-0.5000 GY	0.00	6.00
532	-0.5000 GY	0.00	6.00
533	-0.5000 GY	0.00	6.00
538	-0.5000 GY	0.00	6.00

539	-0.5000 GY	0.00	6.00
542	-0.5000 GY	0.00	6.00
543	-0.5000 GY	0.00	6.00
546	-0.5000 GY	0.00	6.00
547	-0.5000 GY	0.00	6.00
550	-0.5000 GY	0.00	6.00
551	-0.5000 GY	0.00	6.00
555	-0.5000 GY	0.00	3.00
564	-0.5000 GY	0.00	6.00
565	-0.5000 GY	0.00	6.00
566	-0.5000 GY	0.00	6.00
567	-0.5000 GY	0.00	6.00
568	-0.5000 GY	0.00	6.00
569	-0.5000 GY	0.00	6.00
570	-0.5000 GY	0.00	6.00
571	-0.5000 GY	0.00	6.00
580	-0.5000 GY	0.00	6.00
581	-0.5000 GY	0.00	6.00
582	-0.5000 GY	0.00	6.00
583	-0.5000 GY	0.00	6.00
584	-0.5000 GY	0.00	6.00
585	-0.5000 GY	0.00	6.00
586	-0.5000 GY	0.00	6.00
587	-0.5000 GY	0.00	6.00
596	-0.5000 GY	0.00	6.00
597	-0.5000 GY	0.00	6.00
598	-0.5000 GY	0.00	6.00
599	-0.5000 GY	0.00	6.00
600	-0.5000 GY	0.00	6.00
601	-0.5000 GY	0.00	6.00
602	-0.5000 GY	0.00	6.00
603	-0.5000 GY	0.00	6.00
612	-0.5000 GY	0.00	6.00
613	-0.5000 GY	0.00	6.00
614	-0.5000 GY	0.00	6.00
615	-0.5000 GY	0.00	6.00
616	-0.5000 GY	0.00	6.00
617	-0.5000 GY	0.00	6.00
618	-0.5000 GY	0.00	6.00
619	-0.5000 GY	0.00	6.00
628	-0.5000 GY	0.00	6.00
629	-0.5000 GY	0.00	6.00
630	-0.5000 GY	0.00	6.00
631	-0.5000 GY	0.00	6.00
632	-0.5000 GY	0.00	6.00
633	-0.5000 GY	0.00	6.00
634	-0.5000 GY	0.00	6.00
635	-0.5000 GY	0.00	6.00
648	-0.5000 GY	0.00	6.00
649	-0.5000 GY	0.00	6.00
650	-0.5000 GY	0.00	6.00
651	-0.5000 GY	0.00	6.00
652	-0.5000 GY	0.00	6.00
653	-0.5000 GY	0.00	6.00
654	-0.5000 GY	0.00	6.00
655	-0.5000 GY	0.00	6.00

656	-0.5000	GY	0.00	6.00
657	-0.5000	GY	0.00	6.00
668	-0.5000	GY	0.00	6.00
669	-0.5000	GY	0.00	6.00
670	-0.5000	GY	0.00	6.00
671	-0.5000	GY	0.00	6.00
672	-0.5000	GY	0.00	6.00
673	-0.5000	GY	0.00	6.00
674	-0.5000	GY	0.00	6.00
675	-0.5000	GY	0.00	6.00
676	-0.5000	GY	0.00	6.00
677	-0.5000	GY	0.00	6.00
683	-0.5000	GY	0.00	6.00
684	-0.5000	GY	0.00	6.00
694	-0.5000	GY	0.00	2.00
695	-0.5000	GY	0.00	2.00
699	-0.5000	GY	0.00	2.00
700	-0.5000	GY	0.00	2.00
704	-0.5000	GY	0.00	2.00
705	-0.5000	GY	0.00	2.00
706	-0.5000	GY	0.00	6.00
707	-0.5000	GY	0.00	6.00
708	-0.5000	GY	0.00	6.00
709	-0.5000	GY	0.00	6.00
710	-0.5000	GY	0.00	2.00
711	-0.5000	GY	0.00	2.00
1362	-0.5000	GY	0.00	3.00
1382	-0.5000	GY	0.00	2.00
1385	-0.5000	GY	0.00	2.00
1388	-0.5000	GY	0.00	2.00
1390	-0.5000	GY	0.00	2.00
1394	-0.5000	GY	0.00	2.00
1396	-0.5000	GY	0.00	2.00
1400	-0.5000	GY	0.00	2.00
1402	-0.5000	GY	0.00	2.00

LOADING 4 LOADTYPE LIVE TITLE CV INST

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
111	-0.0700	GY	0.00	6.00			
113	-0.0700	GY	0.00	6.00			
114	-0.0700	GY	0.00	6.00			
115	-0.0700	GY	0.00	6.00			
116	-0.0700	GY	0.00	6.00			
117	-0.0700	GY	0.00	6.00			
118	-0.0700	GY	0.00	6.00			
119	-0.0700	GY	0.00	6.00			
131	-0.0700	GY	0.00	6.00			
132	-0.0700	GY	0.00	6.00			
133	-0.0700	GY	0.00	6.00			

134	-0.0700 GY	0.00	3.00
135	-0.0700 GY	0.00	6.00
140	-0.0700 GY	0.00	6.00
141	-0.0700 GY	0.00	6.00
142	-0.0700 GY	0.00	6.00
143	-0.0700 GY	0.00	3.00
144	-0.0700 GY	0.00	6.00
156	-0.0700 GY	0.00	6.00
158	-0.0700 GY	0.00	6.00
159	-0.0700 GY	0.00	6.00
160	-0.0700 GY	0.00	6.00
161	-0.0700 GY	0.00	6.00
162	-0.0700 GY	0.00	6.00
163	-0.0700 GY	0.00	6.00
164	-0.0700 GY	0.00	6.00
200	-0.0700 GY	0.00	3.00
213	-0.0700 GY	0.00	3.00
1205	-0.0700 GY	0.00	3.00
1209	-0.0700 GY	0.00	3.00
120	-0.1400 GY	0.00	6.00
121	-0.1400 GY	0.00	6.00
122	-0.1400 GY	0.00	6.00
123	-0.1400 GY	0.00	6.00
124	-0.1400 GY	0.00	6.00
125	-0.1400 GY	0.00	6.00
126	-0.1400 GY	0.00	6.00
127	-0.1400 GY	0.00	6.00
128	-0.1400 GY	0.00	6.00
129	-0.1400 GY	0.00	6.00
130	-0.1400 GY	0.00	6.00
136	-0.1400 GY	0.00	6.00
137	-0.1400 GY	0.00	6.00
138	-0.1400 GY	0.00	6.00
139	-0.1400 GY	0.00	6.00
145	-0.1400 GY	0.00	6.00
146	-0.1400 GY	0.00	6.00
147	-0.1400 GY	0.00	6.00
148	-0.1400 GY	0.00	6.00
149	-0.1400 GY	0.00	6.00
150	-0.1400 GY	0.00	6.00
151	-0.1400 GY	0.00	6.00
152	-0.1400 GY	0.00	6.00
153	-0.1400 GY	0.00	6.00
154	-0.1400 GY	0.00	6.00
155	-0.1400 GY	0.00	6.00
165	-0.1400 GY	0.00	3.00
166	-0.1400 GY	0.00	3.00
172	-0.1400 GY	0.00	6.00
173	-0.1400 GY	0.00	6.00
178	-0.1400 GY	0.00	6.00
179	-0.1400 GY	0.00	6.00
184	-0.1400 GY	0.00	6.00
185	-0.1400 GY	0.00	6.00
190	-0.1400 GY	0.00	6.00
191	-0.1400 GY	0.00	6.00
196	-0.1400 GY	0.00	6.00

197	-0.1400 GY	0.00	6.00
204	-0.1400 GY	0.00	6.00
205	-0.1400 GY	0.00	6.00
208	-0.1400 GY	0.00	6.00
209	-0.1400 GY	0.00	6.00
222	-0.1400 GY	0.00	6.00
223	-0.1400 GY	0.00	6.00
224	-0.1400 GY	0.00	6.00
225	-0.1400 GY	0.00	6.00
226	-0.1400 GY	0.00	6.00
227	-0.1400 GY	0.00	6.00
228	-0.1400 GY	0.00	6.00
229	-0.1400 GY	0.00	6.00
238	-0.1400 GY	0.00	6.00
239	-0.1400 GY	0.00	6.00
240	-0.1400 GY	0.00	6.00
241	-0.1400 GY	0.00	6.00
242	-0.1400 GY	0.00	6.00
243	-0.1400 GY	0.00	6.00
244	-0.1400 GY	0.00	6.00
245	-0.1400 GY	0.00	6.00
254	-0.1400 GY	0.00	6.00
255	-0.1400 GY	0.00	6.00
256	-0.1400 GY	0.00	6.00
257	-0.1400 GY	0.00	6.00
258	-0.1400 GY	0.00	6.00
259	-0.1400 GY	0.00	6.00
260	-0.1400 GY	0.00	6.00
261	-0.1400 GY	0.00	6.00
270	-0.1400 GY	0.00	6.00
271	-0.1400 GY	0.00	6.00
272	-0.1400 GY	0.00	6.00
273	-0.1400 GY	0.00	6.00
274	-0.1400 GY	0.00	6.00
275	-0.1400 GY	0.00	6.00
276	-0.1400 GY	0.00	6.00
277	-0.1400 GY	0.00	6.00
286	-0.1400 GY	0.00	6.00
287	-0.1400 GY	0.00	6.00
288	-0.1400 GY	0.00	6.00
289	-0.1400 GY	0.00	6.00
290	-0.1400 GY	0.00	6.00
291	-0.1400 GY	0.00	6.00
292	-0.1400 GY	0.00	6.00
293	-0.1400 GY	0.00	6.00
306	-0.1400 GY	0.00	6.00
307	-0.1400 GY	0.00	6.00
308	-0.1400 GY	0.00	6.00
309	-0.1400 GY	0.00	6.00
310	-0.1400 GY	0.00	6.00
311	-0.1400 GY	0.00	6.00
312	-0.1400 GY	0.00	6.00
313	-0.1400 GY	0.00	6.00
314	-0.1400 GY	0.00	6.00
315	-0.1400 GY	0.00	6.00
326	-0.1400 GY	0.00	6.00

327	-0.1400 GY	0.00	6.00
328	-0.1400 GY	0.00	6.00
329	-0.1400 GY	0.00	6.00
330	-0.1400 GY	0.00	6.00
331	-0.1400 GY	0.00	6.00
332	-0.1400 GY	0.00	6.00
333	-0.1400 GY	0.00	6.00
334	-0.1400 GY	0.00	6.00
335	-0.1400 GY	0.00	6.00
341	-0.1400 GY	0.00	6.00
342	-0.1400 GY	0.00	6.00
347	-0.1400 GY	0.00	3.00
348	-0.1400 GY	0.00	3.00
1204	-0.1400 GY	0.00	3.00
1210	-0.1400 GY	0.00	3.00
1213	-0.1400 GY	0.00	3.00
1215	-0.1400 GY	0.00	3.00
453	-0.1800 GY	0.00	6.00
454	-0.1800 GY	0.00	6.00
455	-0.1800 GY	0.00	6.00
456	-0.1800 GY	0.00	6.00
457	-0.1800 GY	0.00	6.00
458	-0.1800 GY	0.00	6.00
459	-0.1800 GY	0.00	6.00
460	-0.1800 GY	0.00	6.00
461	-0.1800 GY	0.00	6.00
498	-0.1800 GY	0.00	6.00
499	-0.1800 GY	0.00	3.00
500	-0.1800 GY	0.00	6.00
501	-0.1800 GY	0.00	6.00
502	-0.1800 GY	0.00	6.00
503	-0.1800 GY	0.00	6.00
504	-0.1800 GY	0.00	6.00
505	-0.1800 GY	0.00	6.00
506	-0.1800 GY	0.00	6.00
1361	-0.1800 GY	0.00	3.00
1381	-0.1800 GY	0.00	2.00
1383	-0.1800 GY	0.00	2.00
1384	-0.1800 GY	0.00	2.00
1386	-0.1800 GY	0.00	2.00
1387	-0.1800 GY	0.00	2.00
1389	-0.1800 GY	0.00	2.00
1391	-0.1800 GY	0.00	2.00
1392	-0.1800 GY	0.00	2.00
1393	-0.1800 GY	0.00	2.00
1395	-0.1800 GY	0.00	2.00
1397	-0.1800 GY	0.00	2.00
1398	-0.1800 GY	0.00	2.00
1399	-0.1800 GY	0.00	2.00
1401	-0.1800 GY	0.00	2.00
1403	-0.1800 GY	0.00	2.00
1404	-0.1800 GY	0.00	2.00
462	-0.3600 GY	0.00	6.00
463	-0.3600 GY	0.00	6.00
464	-0.3600 GY	0.00	6.00
465	-0.3600 GY	0.00	6.00

466	-0.3600 GY	0.00	6.00
467	-0.3600 GY	0.00	6.00
468	-0.3600 GY	0.00	6.00
469	-0.3600 GY	0.00	6.00
470	-0.3600 GY	0.00	6.00
471	-0.3600 GY	0.00	6.00
472	-0.3600 GY	0.00	6.00
473	-0.3600 GY	0.00	6.00
474	-0.3600 GY	0.00	6.00
475	-0.3600 GY	0.00	6.00
477	-0.3600 GY	0.00	6.00
478	-0.3600 GY	0.00	6.00
479	-0.3600 GY	0.00	6.00
480	-0.3600 GY	0.00	6.00
481	-0.3600 GY	0.00	6.00
482	-0.3600 GY	0.00	6.00
483	-0.3600 GY	0.00	6.00
484	-0.3600 GY	0.00	6.00
486	-0.3600 GY	0.00	6.00
487	-0.3600 GY	0.00	6.00
488	-0.3600 GY	0.00	6.00
489	-0.3600 GY	0.00	6.00
490	-0.3600 GY	0.00	6.00
491	-0.3600 GY	0.00	6.00
492	-0.3600 GY	0.00	6.00
493	-0.3600 GY	0.00	6.00
494	-0.3600 GY	0.00	6.00
495	-0.3600 GY	0.00	6.00
496	-0.3600 GY	0.00	6.00
497	-0.3600 GY	0.00	6.00
514	-0.3600 GY	0.00	6.00
515	-0.3600 GY	0.00	6.00
520	-0.3600 GY	0.00	6.00
521	-0.3600 GY	0.00	6.00
526	-0.3600 GY	0.00	6.00
527	-0.3600 GY	0.00	6.00
532	-0.3600 GY	0.00	6.00
533	-0.3600 GY	0.00	6.00
538	-0.3600 GY	0.00	6.00
539	-0.3600 GY	0.00	6.00
542	-0.3600 GY	0.00	6.00
543	-0.3600 GY	0.00	6.00
546	-0.3600 GY	0.00	6.00
547	-0.3600 GY	0.00	6.00
550	-0.3600 GY	0.00	6.00
551	-0.3600 GY	0.00	6.00
555	-0.3600 GY	0.00	3.00
564	-0.3600 GY	0.00	6.00
565	-0.3600 GY	0.00	6.00
566	-0.3600 GY	0.00	6.00
567	-0.3600 GY	0.00	6.00
568	-0.3600 GY	0.00	6.00
569	-0.3600 GY	0.00	6.00
570	-0.3600 GY	0.00	6.00
571	-0.3600 GY	0.00	6.00
580	-0.3600 GY	0.00	6.00

581	-0.3600 GY	0.00	6.00
582	-0.3600 GY	0.00	6.00
583	-0.3600 GY	0.00	6.00
584	-0.3600 GY	0.00	6.00
585	-0.3600 GY	0.00	6.00
586	-0.3600 GY	0.00	6.00
587	-0.3600 GY	0.00	6.00
596	-0.3600 GY	0.00	6.00
597	-0.3600 GY	0.00	6.00
598	-0.3600 GY	0.00	6.00
599	-0.3600 GY	0.00	6.00
600	-0.3600 GY	0.00	6.00
601	-0.3600 GY	0.00	6.00
602	-0.3600 GY	0.00	6.00
603	-0.3600 GY	0.00	6.00
612	-0.3600 GY	0.00	6.00
613	-0.3600 GY	0.00	6.00
614	-0.3600 GY	0.00	6.00
615	-0.3600 GY	0.00	6.00
616	-0.3600 GY	0.00	6.00
617	-0.3600 GY	0.00	6.00
618	-0.3600 GY	0.00	6.00
619	-0.3600 GY	0.00	6.00
628	-0.3600 GY	0.00	6.00
629	-0.3600 GY	0.00	6.00
630	-0.3600 GY	0.00	6.00
631	-0.3600 GY	0.00	6.00
632	-0.3600 GY	0.00	6.00
633	-0.3600 GY	0.00	6.00
634	-0.3600 GY	0.00	6.00
635	-0.3600 GY	0.00	6.00
648	-0.3600 GY	0.00	6.00
649	-0.3600 GY	0.00	6.00
650	-0.3600 GY	0.00	6.00
651	-0.3600 GY	0.00	6.00
652	-0.3600 GY	0.00	6.00
653	-0.3600 GY	0.00	6.00
654	-0.3600 GY	0.00	6.00
655	-0.3600 GY	0.00	6.00
656	-0.3600 GY	0.00	6.00
657	-0.3600 GY	0.00	6.00
668	-0.3600 GY	0.00	6.00
669	-0.3600 GY	0.00	6.00
670	-0.3600 GY	0.00	6.00
671	-0.3600 GY	0.00	6.00
672	-0.3600 GY	0.00	6.00
673	-0.3600 GY	0.00	6.00
674	-0.3600 GY	0.00	6.00
675	-0.3600 GY	0.00	6.00
676	-0.3600 GY	0.00	6.00
677	-0.3600 GY	0.00	6.00
683	-0.3600 GY	0.00	6.00
684	-0.3600 GY	0.00	6.00
694	-0.3600 GY	0.00	2.00
695	-0.3600 GY	0.00	2.00
699	-0.3600 GY	0.00	2.00

700	-0.3600	GY	0.00	2.00			
704	-0.3600	GY	0.00	2.00			
705	-0.3600	GY	0.00	2.00			
706	-0.3600	GY	0.00	6.00			
707	-0.3600	GY	0.00	6.00			
708	-0.3600	GY	0.00	6.00			
709	-0.3600	GY	0.00	6.00			
710	-0.3600	GY	0.00	2.00			
711	-0.3600	GY	0.00	2.00			
1362	-0.3600	GY	0.00	3.00			
1382	-0.3600	GY	0.00	2.00			
1385	-0.3600	GY	0.00	2.00			
1388	-0.3600	GY	0.00	2.00			
1390	-0.3600	GY	0.00	2.00			
1394	-0.3600	GY	0.00	2.00			
1396	-0.3600	GY	0.00	2.00			
1400	-0.3600	GY	0.00	2.00			
1402	-0.3600	GY	0.00	2.00			

LOADING 5 LOADTYPE DEAD TITLE EQUIPOS

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
130				-0.3500 GY	4.00		
204				-0.3500 GY	4.00		
208				-0.3500 GY	4.00		
209				-0.3500 GY	4.00		
222				-1.0000 GY	3.00		
225				-1.0000 GY	3.00		
238				-1.0000 GY	3.00		
241				-1.0000 GY	3.00		

JOINT LOAD - UNIT MTON METE

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
152	0.00	-1.00	0.00	0.00	0.00	0.00
153	0.00	-1.00	0.00	0.00	0.00	0.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
215	-1.0000 GY	1.00	2.00				
122				-2.0000 GY	3.00		
123				-2.0000 GY	3.00		
37	-1.0000 GY	0.00	1.00				

LOADING 6 LOADTYPE SEISMIC TITLE SISMO EN X

SELFWEIGHT X 1.000

ACTUAL WEIGHT OF THE STRUCTURE = 211.774 MTON

SELFWEIGHT Y 1.000

ACTUAL WEIGHT OF THE STRUCTURE = 211.774 MTON

SELFWEIGHT Z 1.000

ACTUAL WEIGHT OF THE STRUCTURE = 211.774 MTON

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
111	0.4700 GX	0.00	6.00				
113	0.4700 GX	0.00	6.00				
114	0.4700 GX	0.00	6.00				
115	0.4700 GX	0.00	6.00				
116	0.4700 GX	0.00	6.00				
117	0.4700 GX	0.00	6.00				
118	0.4700 GX	0.00	6.00				
119	0.4700 GX	0.00	6.00				
131	0.4700 GX	0.00	6.00				
132	0.4700 GX	0.00	6.00				
133	0.4700 GX	0.00	6.00				
134	0.4700 GX	0.00	3.00				
135	0.4700 GX	0.00	6.00				
140	0.4700 GX	0.00	6.00				
141	0.4700 GX	0.00	6.00				
142	0.4700 GX	0.00	6.00				
143	0.4700 GX	0.00	3.00				
144	0.4700 GX	0.00	6.00				
156	0.4700 GX	0.00	6.00				
158	0.4700 GX	0.00	6.00				
159	0.4700 GX	0.00	6.00				
160	0.4700 GX	0.00	6.00				
161	0.4700 GX	0.00	6.00				
162	0.4700 GX	0.00	6.00				
163	0.4700 GX	0.00	6.00				
164	0.4700 GX	0.00	6.00				
200	0.4700 GX	0.00	3.00				
213	0.4700 GX	0.00	3.00				
1205	0.4700 GX	0.00	3.00				
1209	0.4700 GX	0.00	3.00				
120	0.9400 GX	0.00	6.00				
121	0.9400 GX	0.00	6.00				
122	0.9400 GX	0.00	6.00				
123	0.9400 GX	0.00	6.00				

124	0.9400 GX	0.00	6.00
125	0.9400 GX	0.00	6.00
126	0.9400 GX	0.00	6.00
127	0.9400 GX	0.00	6.00
128	0.9400 GX	0.00	6.00
129	0.9400 GX	0.00	6.00
130	0.9400 GX	0.00	6.00
136	0.9400 GX	0.00	6.00
137	0.9400 GX	0.00	6.00
138	0.9400 GX	0.00	6.00
139	0.9400 GX	0.00	6.00
145	0.9400 GX	0.00	6.00
146	0.9400 GX	0.00	6.00
147	0.9400 GX	0.00	6.00
148	0.9400 GX	0.00	6.00
149	0.9400 GX	0.00	6.00
150	0.9400 GX	0.00	6.00
151	0.9400 GX	0.00	6.00
152	0.9400 GX	0.00	6.00
153	0.9400 GX	0.00	6.00
154	0.9400 GX	0.00	6.00
155	0.9400 GX	0.00	6.00
165	0.9400 GX	0.00	3.00
166	0.9400 GX	0.00	3.00
172	0.9400 GX	0.00	6.00
173	0.9400 GX	0.00	6.00
178	0.9400 GX	0.00	6.00
179	0.9400 GX	0.00	6.00
184	0.9400 GX	0.00	6.00
185	0.9400 GX	0.00	6.00
190	0.9400 GX	0.00	6.00
191	0.9400 GX	0.00	6.00
196	0.9400 GX	0.00	6.00
197	0.9400 GX	0.00	6.00
204	0.9400 GX	0.00	6.00
205	0.9400 GX	0.00	6.00
208	0.9400 GX	0.00	6.00
209	0.9400 GX	0.00	6.00
222	0.9400 GX	0.00	6.00
223	0.9400 GX	0.00	6.00
224	0.9400 GX	0.00	6.00
225	0.9400 GX	0.00	6.00
226	0.9400 GX	0.00	6.00
227	0.9400 GX	0.00	6.00
228	0.9400 GX	0.00	6.00
229	0.9400 GX	0.00	6.00
238	0.9400 GX	0.00	6.00
239	0.9400 GX	0.00	6.00
240	0.9400 GX	0.00	6.00
241	0.9400 GX	0.00	6.00
242	0.9400 GX	0.00	6.00
243	0.9400 GX	0.00	6.00
244	0.9400 GX	0.00	6.00
245	0.9400 GX	0.00	6.00
254	0.9400 GX	0.00	6.00
255	0.9400 GX	0.00	6.00

256	0.9400 GX	0.00	6.00
257	0.9400 GX	0.00	6.00
258	0.9400 GX	0.00	6.00
259	0.9400 GX	0.00	6.00
260	0.9400 GX	0.00	6.00
261	0.9400 GX	0.00	6.00
270	0.9400 GX	0.00	6.00
271	0.9400 GX	0.00	6.00
272	0.9400 GX	0.00	6.00
273	0.9400 GX	0.00	6.00
274	0.9400 GX	0.00	6.00
275	0.9400 GX	0.00	6.00
276	0.9400 GX	0.00	6.00
277	0.9400 GX	0.00	6.00
286	0.9400 GX	0.00	6.00
287	0.9400 GX	0.00	6.00
288	0.9400 GX	0.00	6.00
289	0.9400 GX	0.00	6.00
290	0.9400 GX	0.00	6.00
291	0.9400 GX	0.00	6.00
292	0.9400 GX	0.00	6.00
293	0.9400 GX	0.00	6.00
306	0.9400 GX	0.00	6.00
307	0.9400 GX	0.00	6.00
308	0.9400 GX	0.00	6.00
309	0.9400 GX	0.00	6.00
310	0.9400 GX	0.00	6.00
311	0.9400 GX	0.00	6.00
312	0.9400 GX	0.00	6.00
313	0.9400 GX	0.00	6.00
314	0.9400 GX	0.00	6.00
315	0.9400 GX	0.00	6.00
326	0.9400 GX	0.00	6.00
327	0.9400 GX	0.00	6.00
328	0.9400 GX	0.00	6.00
329	0.9400 GX	0.00	6.00
330	0.9400 GX	0.00	6.00
331	0.9400 GX	0.00	6.00
332	0.9400 GX	0.00	6.00
333	0.9400 GX	0.00	6.00
334	0.9400 GX	0.00	6.00
335	0.9400 GX	0.00	6.00
341	0.9400 GX	0.00	6.00
342	0.9400 GX	0.00	6.00
347	0.9400 GX	0.00	3.00
348	0.9400 GX	0.00	3.00
1204	0.9400 GX	0.00	3.00
1210	0.9400 GX	0.00	3.00
1213	0.9400 GX	0.00	3.00
1215	0.9400 GX	0.00	3.00
453	0.4000 GX	0.00	6.00
454	0.4000 GX	0.00	6.00
455	0.4000 GX	0.00	6.00
456	0.4000 GX	0.00	6.00
457	0.4000 GX	0.00	6.00
458	0.4000 GX	0.00	6.00

459	0.4000 GX	0.00	6.00
460	0.4000 GX	0.00	6.00
461	0.4000 GX	0.00	6.00
498	0.4000 GX	0.00	6.00
500	0.4000 GX	0.00	6.00
501	0.4000 GX	0.00	6.00
502	0.4000 GX	0.00	6.00
503	0.4000 GX	0.00	6.00
504	0.4000 GX	0.00	6.00
505	0.4000 GX	0.00	6.00
506	0.4000 GX	0.00	6.00
555	0.4000 GX	0.00	3.00
1361	0.4000 GX	0.00	3.00
1381	0.4000 GX	0.00	2.00
1383	0.4000 GX	0.00	2.00
1384	0.4000 GX	0.00	2.00
1386	0.4000 GX	0.00	2.00
1387	0.4000 GX	0.00	2.00
1389	0.4000 GX	0.00	2.00
1391	0.4000 GX	0.00	2.00
1392	0.4000 GX	0.00	2.00
1393	0.4000 GX	0.00	2.00
1395	0.4000 GX	0.00	2.00
1397	0.4000 GX	0.00	2.00
1398	0.4000 GX	0.00	2.00
1399	0.4000 GX	0.00	2.00
1401	0.4000 GX	0.00	2.00
1403	0.4000 GX	0.00	2.00
1404	0.4000 GX	0.00	2.00
462	0.8000 GX	0.00	6.00
463	0.8000 GX	0.00	6.00
464	0.8000 GX	0.00	6.00
465	0.8000 GX	0.00	6.00
466	0.8000 GX	0.00	6.00
467	0.8000 GX	0.00	6.00
468	0.8000 GX	0.00	6.00
469	0.8000 GX	0.00	6.00
470	0.8000 GX	0.00	6.00
471	0.8000 GX	0.00	6.00
472	0.8000 GX	0.00	6.00
473	0.8000 GX	0.00	6.00
474	0.8000 GX	0.00	6.00
475	0.8000 GX	0.00	6.00
477	0.8000 GX	0.00	6.00
478	0.8000 GX	0.00	6.00
479	0.8000 GX	0.00	6.00
480	0.8000 GX	0.00	6.00
481	0.8000 GX	0.00	6.00
482	0.8000 GX	0.00	6.00
483	0.8000 GX	0.00	6.00
484	0.8000 GX	0.00	6.00
486	0.8000 GX	0.00	6.00
487	0.8000 GX	0.00	6.00
488	0.8000 GX	0.00	6.00
489	0.8000 GX	0.00	6.00
490	0.8000 GX	0.00	6.00

491	0.8000 GX	0.00	6.00
492	0.8000 GX	0.00	6.00
493	0.8000 GX	0.00	6.00
494	0.8000 GX	0.00	6.00
495	0.8000 GX	0.00	6.00
496	0.8000 GX	0.00	6.00
497	0.8000 GX	0.00	6.00
514	0.8000 GX	0.00	6.00
515	0.8000 GX	0.00	6.00
520	0.8000 GX	0.00	6.00
521	0.8000 GX	0.00	6.00
526	0.8000 GX	0.00	6.00
527	0.8000 GX	0.00	6.00
532	0.8000 GX	0.00	6.00
533	0.8000 GX	0.00	6.00
538	0.8000 GX	0.00	6.00
539	0.8000 GX	0.00	6.00
542	0.8000 GX	0.00	6.00
543	0.8000 GX	0.00	6.00
546	0.8000 GX	0.00	6.00
547	0.8000 GX	0.00	6.00
550	0.8000 GX	0.00	6.00
551	0.8000 GX	0.00	6.00
564	0.8000 GX	0.00	6.00
565	0.8000 GX	0.00	6.00
566	0.8000 GX	0.00	6.00
567	0.8000 GX	0.00	6.00
568	0.8000 GX	0.00	6.00
569	0.8000 GX	0.00	6.00
570	0.8000 GX	0.00	6.00
571	0.8000 GX	0.00	6.00
580	0.8000 GX	0.00	6.00
581	0.8000 GX	0.00	6.00
582	0.8000 GX	0.00	6.00
583	0.8000 GX	0.00	6.00
584	0.8000 GX	0.00	6.00
585	0.8000 GX	0.00	6.00
586	0.8000 GX	0.00	6.00
587	0.8000 GX	0.00	6.00
596	0.8000 GX	0.00	6.00
597	0.8000 GX	0.00	6.00
598	0.8000 GX	0.00	6.00
599	0.8000 GX	0.00	6.00
600	0.8000 GX	0.00	6.00
601	0.8000 GX	0.00	6.00
602	0.8000 GX	0.00	6.00
603	0.8000 GX	0.00	6.00
612	0.8000 GX	0.00	6.00
613	0.8000 GX	0.00	6.00
614	0.8000 GX	0.00	6.00
615	0.8000 GX	0.00	6.00
616	0.8000 GX	0.00	6.00
617	0.8000 GX	0.00	6.00
618	0.8000 GX	0.00	6.00
619	0.8000 GX	0.00	6.00
628	0.8000 GX	0.00	6.00

629	0.8000	GX	0.00	6.00
630	0.8000	GX	0.00	6.00
631	0.8000	GX	0.00	6.00
632	0.8000	GX	0.00	6.00
633	0.8000	GX	0.00	6.00
634	0.8000	GX	0.00	6.00
635	0.8000	GX	0.00	6.00
648	0.8000	GX	0.00	6.00
649	0.8000	GX	0.00	6.00
650	0.8000	GX	0.00	6.00
651	0.8000	GX	0.00	6.00
652	0.8000	GX	0.00	6.00
653	0.8000	GX	0.00	6.00
654	0.8000	GX	0.00	6.00
655	0.8000	GX	0.00	6.00
656	0.8000	GX	0.00	6.00
657	0.8000	GX	0.00	6.00
668	0.8000	GX	0.00	6.00
669	0.8000	GX	0.00	6.00
670	0.8000	GX	0.00	6.00
671	0.8000	GX	0.00	6.00
672	0.8000	GX	0.00	6.00
673	0.8000	GX	0.00	6.00
674	0.8000	GX	0.00	6.00
675	0.8000	GX	0.00	6.00
676	0.8000	GX	0.00	6.00
677	0.8000	GX	0.00	6.00
683	0.8000	GX	0.00	6.00
684	0.8000	GX	0.00	6.00
694	0.8000	GX	0.00	2.00
695	0.8000	GX	0.00	2.00
699	0.8000	GX	0.00	2.00
700	0.8000	GX	0.00	2.00
704	0.8000	GX	0.00	2.00
705	0.8000	GX	0.00	2.00
706	0.8000	GX	0.00	6.00
707	0.8000	GX	0.00	6.00
708	0.8000	GX	0.00	6.00
709	0.8000	GX	0.00	6.00
710	0.8000	GX	0.00	2.00
711	0.8000	GX	0.00	2.00
1362	0.8000	GX	0.00	3.00
1365	0.8000	GX	0.00	3.00
1382	0.8000	GX	0.00	2.00
1385	0.8000	GX	0.00	2.00
1388	0.8000	GX	0.00	2.00
1390	0.8000	GX	0.00	2.00
1394	0.8000	GX	0.00	2.00
1396	0.8000	GX	0.00	2.00
1400	0.8000	GX	0.00	2.00
1402	0.8000	GX	0.00	2.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
111	0.4700 GY	0.00	6.00				
113	0.4700 GY	0.00	6.00				
114	0.4700 GY	0.00	6.00				
115	0.4700 GY	0.00	6.00				
116	0.4700 GY	0.00	6.00				
117	0.4700 GY	0.00	6.00				
118	0.4700 GY	0.00	6.00				
119	0.4700 GY	0.00	6.00				
131	0.4700 GY	0.00	6.00				
132	0.4700 GY	0.00	6.00				
133	0.4700 GY	0.00	6.00				
134	0.4700 GY	0.00	3.00				
135	0.4700 GY	0.00	6.00				
140	0.4700 GY	0.00	6.00				
141	0.4700 GY	0.00	6.00				
142	0.4700 GY	0.00	6.00				
143	0.4700 GY	0.00	3.00				
144	0.4700 GY	0.00	6.00				
156	0.4700 GY	0.00	6.00				
158	0.4700 GY	0.00	6.00				
159	0.4700 GY	0.00	6.00				
160	0.4700 GY	0.00	6.00				
161	0.4700 GY	0.00	6.00				
162	0.4700 GY	0.00	6.00				
163	0.4700 GY	0.00	6.00				
164	0.4700 GY	0.00	6.00				
200	0.4700 GY	0.00	3.00				
213	0.4700 GY	0.00	3.00				
1205	0.4700 GY	0.00	3.00				
1209	0.4700 GY	0.00	3.00				
120	0.9400 GY	0.00	6.00				
121	0.9400 GY	0.00	6.00				
122	0.9400 GY	0.00	6.00				
123	0.9400 GY	0.00	6.00				
124	0.9400 GY	0.00	6.00				
125	0.9400 GY	0.00	6.00				
126	0.9400 GY	0.00	6.00				
127	0.9400 GY	0.00	6.00				
128	0.9400 GY	0.00	6.00				
129	0.9400 GY	0.00	6.00				
130	0.9400 GY	0.00	6.00				
136	0.9400 GY	0.00	6.00				
137	0.9400 GY	0.00	6.00				
138	0.9400 GY	0.00	6.00				
139	0.9400 GY	0.00	6.00				
145	0.9400 GY	0.00	6.00				
146	0.9400 GY	0.00	6.00				
147	0.9400 GY	0.00	6.00				
148	0.9400 GY	0.00	6.00				
149	0.9400 GY	0.00	6.00				

150	0.9400 GY	0.00	6.00
151	0.9400 GY	0.00	6.00
152	0.9400 GY	0.00	6.00
153	0.9400 GY	0.00	6.00
154	0.9400 GY	0.00	6.00
155	0.9400 GY	0.00	6.00
165	0.9400 GY	0.00	3.00
166	0.9400 GY	0.00	3.00
172	0.9400 GY	0.00	6.00
173	0.9400 GY	0.00	6.00
178	0.9400 GY	0.00	6.00
179	0.9400 GY	0.00	6.00
184	0.9400 GY	0.00	6.00
185	0.9400 GY	0.00	6.00
190	0.9400 GY	0.00	6.00
191	0.9400 GY	0.00	6.00
196	0.9400 GY	0.00	6.00
197	0.9400 GY	0.00	6.00
204	0.9400 GY	0.00	6.00
205	0.9400 GY	0.00	6.00
208	0.9400 GY	0.00	6.00
209	0.9400 GY	0.00	6.00
222	0.9400 GY	0.00	6.00
223	0.9400 GY	0.00	6.00
224	0.9400 GY	0.00	6.00
225	0.9400 GY	0.00	6.00
226	0.9400 GY	0.00	6.00
227	0.9400 GY	0.00	6.00
228	0.9400 GY	0.00	6.00
229	0.9400 GY	0.00	6.00
238	0.9400 GY	0.00	6.00
239	0.9400 GY	0.00	6.00
240	0.9400 GY	0.00	6.00
241	0.9400 GY	0.00	6.00
242	0.9400 GY	0.00	6.00
243	0.9400 GY	0.00	6.00
244	0.9400 GY	0.00	6.00
245	0.9400 GY	0.00	6.00
254	0.9400 GY	0.00	6.00
255	0.9400 GY	0.00	6.00
256	0.9400 GY	0.00	6.00
257	0.9400 GY	0.00	6.00
258	0.9400 GY	0.00	6.00
259	0.9400 GY	0.00	6.00
260	0.9400 GY	0.00	6.00
261	0.9400 GY	0.00	6.00
270	0.9400 GY	0.00	6.00
271	0.9400 GY	0.00	6.00
272	0.9400 GY	0.00	6.00
273	0.9400 GY	0.00	6.00
274	0.9400 GY	0.00	6.00
275	0.9400 GY	0.00	6.00
276	0.9400 GY	0.00	6.00
277	0.9400 GY	0.00	6.00
286	0.9400 GY	0.00	6.00
287	0.9400 GY	0.00	6.00

288	0.9400	GY	0.00	6.00
289	0.9400	GY	0.00	6.00
290	0.9400	GY	0.00	6.00
291	0.9400	GY	0.00	6.00
292	0.9400	GY	0.00	6.00
293	0.9400	GY	0.00	6.00
306	0.9400	GY	0.00	6.00
307	0.9400	GY	0.00	6.00
308	0.9400	GY	0.00	6.00
309	0.9400	GY	0.00	6.00
310	0.9400	GY	0.00	6.00
311	0.9400	GY	0.00	6.00
312	0.9400	GY	0.00	6.00
313	0.9400	GY	0.00	6.00
314	0.9400	GY	0.00	6.00
315	0.9400	GY	0.00	6.00
326	0.9400	GY	0.00	6.00
327	0.9400	GY	0.00	6.00
328	0.9400	GY	0.00	6.00
329	0.9400	GY	0.00	6.00
330	0.9400	GY	0.00	6.00
331	0.9400	GY	0.00	6.00
332	0.9400	GY	0.00	6.00
333	0.9400	GY	0.00	6.00
334	0.9400	GY	0.00	6.00
335	0.9400	GY	0.00	6.00
341	0.9400	GY	0.00	6.00
342	0.9400	GY	0.00	6.00
347	0.9400	GY	0.00	3.00
348	0.9400	GY	0.00	3.00
1204	0.9400	GY	0.00	3.00
1210	0.9400	GY	0.00	3.00
1213	0.9400	GY	0.00	3.00
1215	0.9400	GY	0.00	3.00
453	0.4000	GY	0.00	6.00
454	0.4000	GY	0.00	6.00
455	0.4000	GY	0.00	6.00
456	0.4000	GY	0.00	6.00
457	0.4000	GY	0.00	6.00
458	0.4000	GY	0.00	6.00
459	0.4000	GY	0.00	6.00
460	0.4000	GY	0.00	6.00
461	0.4000	GY	0.00	6.00
498	0.4000	GY	0.00	6.00
500	0.4000	GY	0.00	6.00
501	0.4000	GY	0.00	6.00
502	0.4000	GY	0.00	6.00
503	0.4000	GY	0.00	6.00
504	0.4000	GY	0.00	6.00
505	0.4000	GY	0.00	6.00
506	0.4000	GY	0.00	6.00
555	0.4000	GY	0.00	3.00
1361	0.4000	GY	0.00	3.00
1381	0.4000	GY	0.00	2.00
1383	0.4000	GY	0.00	2.00
1384	0.4000	GY	0.00	2.00

1386	0.4000 GY	0.00	2.00
1387	0.4000 GY	0.00	2.00
1389	0.4000 GY	0.00	2.00
1391	0.4000 GY	0.00	2.00
1392	0.4000 GY	0.00	2.00
1393	0.4000 GY	0.00	2.00
1395	0.4000 GY	0.00	2.00
1397	0.4000 GY	0.00	2.00
1398	0.4000 GY	0.00	2.00
1399	0.4000 GY	0.00	2.00
1401	0.4000 GY	0.00	2.00
1403	0.4000 GY	0.00	2.00
1404	0.4000 GY	0.00	2.00
462	0.8000 GY	0.00	6.00
463	0.8000 GY	0.00	6.00
464	0.8000 GY	0.00	6.00
465	0.8000 GY	0.00	6.00
466	0.8000 GY	0.00	6.00
467	0.8000 GY	0.00	6.00
468	0.8000 GY	0.00	6.00
469	0.8000 GY	0.00	6.00
470	0.8000 GY	0.00	6.00
471	0.8000 GY	0.00	6.00
472	0.8000 GY	0.00	6.00
473	0.8000 GY	0.00	6.00
474	0.8000 GY	0.00	6.00
475	0.8000 GY	0.00	6.00
477	0.8000 GY	0.00	6.00
478	0.8000 GY	0.00	6.00
479	0.8000 GY	0.00	6.00
480	0.8000 GY	0.00	6.00
481	0.8000 GY	0.00	6.00
482	0.8000 GY	0.00	6.00
483	0.8000 GY	0.00	6.00
484	0.8000 GY	0.00	6.00
486	0.8000 GY	0.00	6.00
487	0.8000 GY	0.00	6.00
488	0.8000 GY	0.00	6.00
489	0.8000 GY	0.00	6.00
490	0.8000 GY	0.00	6.00
491	0.8000 GY	0.00	6.00
492	0.8000 GY	0.00	6.00
493	0.8000 GY	0.00	6.00
494	0.8000 GY	0.00	6.00
495	0.8000 GY	0.00	6.00
496	0.8000 GY	0.00	6.00
497	0.8000 GY	0.00	6.00
514	0.8000 GY	0.00	6.00
515	0.8000 GY	0.00	6.00
520	0.8000 GY	0.00	6.00
521	0.8000 GY	0.00	6.00
526	0.8000 GY	0.00	6.00
527	0.8000 GY	0.00	6.00
532	0.8000 GY	0.00	6.00
533	0.8000 GY	0.00	6.00
538	0.8000 GY	0.00	6.00

539	0.8000 GY	0.00	6.00
542	0.8000 GY	0.00	6.00
543	0.8000 GY	0.00	6.00
546	0.8000 GY	0.00	6.00
547	0.8000 GY	0.00	6.00
550	0.8000 GY	0.00	6.00
551	0.8000 GY	0.00	6.00
564	0.8000 GY	0.00	6.00
565	0.8000 GY	0.00	6.00
566	0.8000 GY	0.00	6.00
567	0.8000 GY	0.00	6.00
568	0.8000 GY	0.00	6.00
569	0.8000 GY	0.00	6.00
570	0.8000 GY	0.00	6.00
571	0.8000 GY	0.00	6.00
580	0.8000 GY	0.00	6.00
581	0.8000 GY	0.00	6.00
582	0.8000 GY	0.00	6.00
583	0.8000 GY	0.00	6.00
584	0.8000 GY	0.00	6.00
585	0.8000 GY	0.00	6.00
586	0.8000 GY	0.00	6.00
587	0.8000 GY	0.00	6.00
596	0.8000 GY	0.00	6.00
597	0.8000 GY	0.00	6.00
598	0.8000 GY	0.00	6.00
599	0.8000 GY	0.00	6.00
600	0.8000 GY	0.00	6.00
601	0.8000 GY	0.00	6.00
602	0.8000 GY	0.00	6.00
603	0.8000 GY	0.00	6.00
612	0.8000 GY	0.00	6.00
613	0.8000 GY	0.00	6.00
614	0.8000 GY	0.00	6.00
615	0.8000 GY	0.00	6.00
616	0.8000 GY	0.00	6.00
617	0.8000 GY	0.00	6.00
618	0.8000 GY	0.00	6.00
619	0.8000 GY	0.00	6.00
628	0.8000 GY	0.00	6.00
629	0.8000 GY	0.00	6.00
630	0.8000 GY	0.00	6.00
631	0.8000 GY	0.00	6.00
632	0.8000 GY	0.00	6.00
633	0.8000 GY	0.00	6.00
634	0.8000 GY	0.00	6.00
635	0.8000 GY	0.00	6.00
648	0.8000 GY	0.00	6.00
649	0.8000 GY	0.00	6.00
650	0.8000 GY	0.00	6.00
651	0.8000 GY	0.00	6.00
652	0.8000 GY	0.00	6.00
653	0.8000 GY	0.00	6.00
654	0.8000 GY	0.00	6.00
655	0.8000 GY	0.00	6.00
656	0.8000 GY	0.00	6.00

657	0.8000	GY	0.00	6.00
668	0.8000	GY	0.00	6.00
669	0.8000	GY	0.00	6.00
670	0.8000	GY	0.00	6.00
671	0.8000	GY	0.00	6.00
672	0.8000	GY	0.00	6.00
673	0.8000	GY	0.00	6.00
674	0.8000	GY	0.00	6.00
675	0.8000	GY	0.00	6.00
676	0.8000	GY	0.00	6.00
677	0.8000	GY	0.00	6.00
683	0.8000	GY	0.00	6.00
684	0.8000	GY	0.00	6.00
694	0.8000	GY	0.00	2.00
695	0.8000	GY	0.00	2.00
699	0.8000	GY	0.00	2.00
700	0.8000	GY	0.00	2.00
704	0.8000	GY	0.00	2.00
705	0.8000	GY	0.00	2.00
706	0.8000	GY	0.00	6.00
707	0.8000	GY	0.00	6.00
708	0.8000	GY	0.00	6.00
709	0.8000	GY	0.00	6.00
710	0.8000	GY	0.00	2.00
711	0.8000	GY	0.00	2.00
1362	0.8000	GY	0.00	3.00
1365	0.8000	GY	0.00	3.00
1382	0.8000	GY	0.00	2.00
1385	0.8000	GY	0.00	2.00
1388	0.8000	GY	0.00	2.00
1390	0.8000	GY	0.00	2.00
1394	0.8000	GY	0.00	2.00
1396	0.8000	GY	0.00	2.00
1400	0.8000	GY	0.00	2.00
1402	0.8000	GY	0.00	2.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL		L1	L2	CON	L	LIN1	LIN2
111	0.4700	GZ	0.00	6.00				
113	0.4700	GZ	0.00	6.00				
114	0.4700	GZ	0.00	6.00				
115	0.4700	GZ	0.00	6.00				
116	0.4700	GZ	0.00	6.00				
117	0.4700	GZ	0.00	6.00				
118	0.4700	GZ	0.00	6.00				
119	0.4700	GZ	0.00	6.00				
131	0.4700	GZ	0.00	6.00				
132	0.4700	GZ	0.00	6.00				
133	0.4700	GZ	0.00	6.00				
134	0.4700	GZ	0.00	3.00				
135	0.4700	GZ	0.00	6.00				
140	0.4700	GZ	0.00	6.00				
141	0.4700	GZ	0.00	6.00				

142	0.4700 GZ	0.00	6.00
143	0.4700 GZ	0.00	3.00
144	0.4700 GZ	0.00	6.00
156	0.4700 GZ	0.00	6.00
158	0.4700 GZ	0.00	6.00
159	0.4700 GZ	0.00	6.00
160	0.4700 GZ	0.00	6.00
161	0.4700 GZ	0.00	6.00
162	0.4700 GZ	0.00	6.00
163	0.4700 GZ	0.00	6.00
164	0.4700 GZ	0.00	6.00
200	0.4700 GZ	0.00	3.00
213	0.4700 GZ	0.00	3.00
1205	0.4700 GZ	0.00	3.00
1209	0.4700 GZ	0.00	3.00
120	0.9400 GZ	0.00	6.00
121	0.9400 GZ	0.00	6.00
122	0.9400 GZ	0.00	6.00
123	0.9400 GZ	0.00	6.00
124	0.9400 GZ	0.00	6.00
125	0.9400 GZ	0.00	6.00
126	0.9400 GZ	0.00	6.00
127	0.9400 GZ	0.00	6.00
128	0.9400 GZ	0.00	6.00
129	0.9400 GZ	0.00	6.00
130	0.9400 GZ	0.00	6.00
136	0.9400 GZ	0.00	6.00
137	0.9400 GZ	0.00	6.00
138	0.9400 GZ	0.00	6.00
139	0.9400 GZ	0.00	6.00
145	0.9400 GZ	0.00	6.00
146	0.9400 GZ	0.00	6.00
147	0.9400 GZ	0.00	6.00
148	0.9400 GZ	0.00	6.00
149	0.9400 GZ	0.00	6.00
150	0.9400 GZ	0.00	6.00
151	0.9400 GZ	0.00	6.00
152	0.9400 GZ	0.00	6.00
153	0.9400 GZ	0.00	6.00
154	0.9400 GZ	0.00	6.00
155	0.9400 GZ	0.00	6.00
165	0.9400 GZ	0.00	3.00
166	0.9400 GZ	0.00	3.00
172	0.9400 GZ	0.00	6.00
173	0.9400 GZ	0.00	6.00
178	0.9400 GZ	0.00	6.00
179	0.9400 GZ	0.00	6.00
184	0.9400 GZ	0.00	6.00
185	0.9400 GZ	0.00	6.00
190	0.9400 GZ	0.00	6.00
191	0.9400 GZ	0.00	6.00
196	0.9400 GZ	0.00	6.00
197	0.9400 GZ	0.00	6.00
204	0.9400 GZ	0.00	6.00
205	0.9400 GZ	0.00	6.00
208	0.9400 GZ	0.00	6.00

209	0.9400 GZ	0.00	6.00
222	0.9400 GZ	0.00	6.00
223	0.9400 GZ	0.00	6.00
224	0.9400 GZ	0.00	6.00
225	0.9400 GZ	0.00	6.00
226	0.9400 GZ	0.00	6.00
227	0.9400 GZ	0.00	6.00
228	0.9400 GZ	0.00	6.00
229	0.9400 GZ	0.00	6.00
238	0.9400 GZ	0.00	6.00
239	0.9400 GZ	0.00	6.00
240	0.9400 GZ	0.00	6.00
241	0.9400 GZ	0.00	6.00
242	0.9400 GZ	0.00	6.00
243	0.9400 GZ	0.00	6.00
244	0.9400 GZ	0.00	6.00
245	0.9400 GZ	0.00	6.00
254	0.9400 GZ	0.00	6.00
255	0.9400 GZ	0.00	6.00
256	0.9400 GZ	0.00	6.00
257	0.9400 GZ	0.00	6.00
258	0.9400 GZ	0.00	6.00
259	0.9400 GZ	0.00	6.00
260	0.9400 GZ	0.00	6.00
261	0.9400 GZ	0.00	6.00
270	0.9400 GZ	0.00	6.00
271	0.9400 GZ	0.00	6.00
272	0.9400 GZ	0.00	6.00
273	0.9400 GZ	0.00	6.00
274	0.9400 GZ	0.00	6.00
275	0.9400 GZ	0.00	6.00
276	0.9400 GZ	0.00	6.00
277	0.9400 GZ	0.00	6.00
286	0.9400 GZ	0.00	6.00
287	0.9400 GZ	0.00	6.00
288	0.9400 GZ	0.00	6.00
289	0.9400 GZ	0.00	6.00
290	0.9400 GZ	0.00	6.00
291	0.9400 GZ	0.00	6.00
292	0.9400 GZ	0.00	6.00
293	0.9400 GZ	0.00	6.00
306	0.9400 GZ	0.00	6.00
307	0.9400 GZ	0.00	6.00
308	0.9400 GZ	0.00	6.00
309	0.9400 GZ	0.00	6.00
310	0.9400 GZ	0.00	6.00
311	0.9400 GZ	0.00	6.00
312	0.9400 GZ	0.00	6.00
313	0.9400 GZ	0.00	6.00
314	0.9400 GZ	0.00	6.00
315	0.9400 GZ	0.00	6.00
326	0.9400 GZ	0.00	6.00
327	0.9400 GZ	0.00	6.00
328	0.9400 GZ	0.00	6.00
329	0.9400 GZ	0.00	6.00
330	0.9400 GZ	0.00	6.00

331	0.9400 GZ	0.00	6.00
332	0.9400 GZ	0.00	6.00
333	0.9400 GZ	0.00	6.00
334	0.9400 GZ	0.00	6.00
335	0.9400 GZ	0.00	6.00
341	0.9400 GZ	0.00	6.00
342	0.9400 GZ	0.00	6.00
347	0.9400 GZ	0.00	3.00
348	0.9400 GZ	0.00	3.00
1204	0.9400 GZ	0.00	3.00
1210	0.9400 GZ	0.00	3.00
1213	0.9400 GZ	0.00	3.00
1215	0.9400 GZ	0.00	3.00
453	0.4000 GZ	0.00	6.00
454	0.4000 GZ	0.00	6.00
455	0.4000 GZ	0.00	6.00
456	0.4000 GZ	0.00	6.00
457	0.4000 GZ	0.00	6.00
458	0.4000 GZ	0.00	6.00
459	0.4000 GZ	0.00	6.00
460	0.4000 GZ	0.00	6.00
461	0.4000 GZ	0.00	6.00
498	0.4000 GZ	0.00	6.00
500	0.4000 GZ	0.00	6.00
501	0.4000 GZ	0.00	6.00
502	0.4000 GZ	0.00	6.00
503	0.4000 GZ	0.00	6.00
504	0.4000 GZ	0.00	6.00
505	0.4000 GZ	0.00	6.00
506	0.4000 GZ	0.00	6.00
555	0.4000 GZ	0.00	3.00
1361	0.4000 GZ	0.00	3.00
1381	0.4000 GZ	0.00	2.00
1383	0.4000 GZ	0.00	2.00
1384	0.4000 GZ	0.00	2.00
1386	0.4000 GZ	0.00	2.00
1387	0.4000 GZ	0.00	2.00
1389	0.4000 GZ	0.00	2.00
1391	0.4000 GZ	0.00	2.00
1392	0.4000 GZ	0.00	2.00
1393	0.4000 GZ	0.00	2.00
1395	0.4000 GZ	0.00	2.00
1397	0.4000 GZ	0.00	2.00
1398	0.4000 GZ	0.00	2.00
1399	0.4000 GZ	0.00	2.00
1401	0.4000 GZ	0.00	2.00
1403	0.4000 GZ	0.00	2.00
1404	0.4000 GZ	0.00	2.00
462	0.8000 GZ	0.00	6.00
463	0.8000 GZ	0.00	6.00
464	0.8000 GZ	0.00	6.00
465	0.8000 GZ	0.00	6.00
466	0.8000 GZ	0.00	6.00
467	0.8000 GZ	0.00	6.00
468	0.8000 GZ	0.00	6.00
469	0.8000 GZ	0.00	6.00

470	0.8000 GZ	0.00	6.00
471	0.8000 GZ	0.00	6.00
472	0.8000 GZ	0.00	6.00
473	0.8000 GZ	0.00	6.00
474	0.8000 GZ	0.00	6.00
475	0.8000 GZ	0.00	6.00
477	0.8000 GZ	0.00	6.00
478	0.8000 GZ	0.00	6.00
479	0.8000 GZ	0.00	6.00
480	0.8000 GZ	0.00	6.00
481	0.8000 GZ	0.00	6.00
482	0.8000 GZ	0.00	6.00
483	0.8000 GZ	0.00	6.00
484	0.8000 GZ	0.00	6.00
486	0.8000 GZ	0.00	6.00
487	0.8000 GZ	0.00	6.00
488	0.8000 GZ	0.00	6.00
489	0.8000 GZ	0.00	6.00
490	0.8000 GZ	0.00	6.00
491	0.8000 GZ	0.00	6.00
492	0.8000 GZ	0.00	6.00
493	0.8000 GZ	0.00	6.00
494	0.8000 GZ	0.00	6.00
495	0.8000 GZ	0.00	6.00
496	0.8000 GZ	0.00	6.00
497	0.8000 GZ	0.00	6.00
514	0.8000 GZ	0.00	6.00
515	0.8000 GZ	0.00	6.00
520	0.8000 GZ	0.00	6.00
521	0.8000 GZ	0.00	6.00
526	0.8000 GZ	0.00	6.00
527	0.8000 GZ	0.00	6.00
532	0.8000 GZ	0.00	6.00
533	0.8000 GZ	0.00	6.00
538	0.8000 GZ	0.00	6.00
539	0.8000 GZ	0.00	6.00
542	0.8000 GZ	0.00	6.00
543	0.8000 GZ	0.00	6.00
546	0.8000 GZ	0.00	6.00
547	0.8000 GZ	0.00	6.00
550	0.8000 GZ	0.00	6.00
551	0.8000 GZ	0.00	6.00
564	0.8000 GZ	0.00	6.00
565	0.8000 GZ	0.00	6.00
566	0.8000 GZ	0.00	6.00
567	0.8000 GZ	0.00	6.00
568	0.8000 GZ	0.00	6.00
569	0.8000 GZ	0.00	6.00
570	0.8000 GZ	0.00	6.00
571	0.8000 GZ	0.00	6.00
580	0.8000 GZ	0.00	6.00
581	0.8000 GZ	0.00	6.00
582	0.8000 GZ	0.00	6.00
583	0.8000 GZ	0.00	6.00
584	0.8000 GZ	0.00	6.00
585	0.8000 GZ	0.00	6.00

586	0.8000 GZ	0.00	6.00
587	0.8000 GZ	0.00	6.00
596	0.8000 GZ	0.00	6.00
597	0.8000 GZ	0.00	6.00
598	0.8000 GZ	0.00	6.00
599	0.8000 GZ	0.00	6.00
600	0.8000 GZ	0.00	6.00
601	0.8000 GZ	0.00	6.00
602	0.8000 GZ	0.00	6.00
603	0.8000 GZ	0.00	6.00
612	0.8000 GZ	0.00	6.00
613	0.8000 GZ	0.00	6.00
614	0.8000 GZ	0.00	6.00
615	0.8000 GZ	0.00	6.00
616	0.8000 GZ	0.00	6.00
617	0.8000 GZ	0.00	6.00
618	0.8000 GZ	0.00	6.00
619	0.8000 GZ	0.00	6.00
628	0.8000 GZ	0.00	6.00
629	0.8000 GZ	0.00	6.00
630	0.8000 GZ	0.00	6.00
631	0.8000 GZ	0.00	6.00
632	0.8000 GZ	0.00	6.00
633	0.8000 GZ	0.00	6.00
634	0.8000 GZ	0.00	6.00
635	0.8000 GZ	0.00	6.00
648	0.8000 GZ	0.00	6.00
649	0.8000 GZ	0.00	6.00
650	0.8000 GZ	0.00	6.00
651	0.8000 GZ	0.00	6.00
652	0.8000 GZ	0.00	6.00
653	0.8000 GZ	0.00	6.00
654	0.8000 GZ	0.00	6.00
655	0.8000 GZ	0.00	6.00
656	0.8000 GZ	0.00	6.00
657	0.8000 GZ	0.00	6.00
668	0.8000 GZ	0.00	6.00
669	0.8000 GZ	0.00	6.00
670	0.8000 GZ	0.00	6.00
671	0.8000 GZ	0.00	6.00
672	0.8000 GZ	0.00	6.00
673	0.8000 GZ	0.00	6.00
674	0.8000 GZ	0.00	6.00
675	0.8000 GZ	0.00	6.00
676	0.8000 GZ	0.00	6.00
677	0.8000 GZ	0.00	6.00
683	0.8000 GZ	0.00	6.00
684	0.8000 GZ	0.00	6.00
694	0.8000 GZ	0.00	2.00
695	0.8000 GZ	0.00	2.00
699	0.8000 GZ	0.00	2.00
700	0.8000 GZ	0.00	2.00
704	0.8000 GZ	0.00	2.00
705	0.8000 GZ	0.00	2.00
706	0.8000 GZ	0.00	6.00
707	0.8000 GZ	0.00	6.00

708	0.8000 GZ	0.00	6.00
709	0.8000 GZ	0.00	6.00
710	0.8000 GZ	0.00	2.00
711	0.8000 GZ	0.00	2.00
1362	0.8000 GZ	0.00	3.00
1365	0.8000 GZ	0.00	3.00
1382	0.8000 GZ	0.00	2.00
1385	0.8000 GZ	0.00	2.00
1388	0.8000 GZ	0.00	2.00
1390	0.8000 GZ	0.00	2.00
1394	0.8000 GZ	0.00	2.00
1396	0.8000 GZ	0.00	2.00
1400	0.8000 GZ	0.00	2.00
1402	0.8000 GZ	0.00	2.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
130				0.3500 GX	4.00		
204				0.3500 GX	4.00		
208				0.3500 GX	4.00		
209				0.3500 GX	4.00		
222				1.0000 GX	3.00		
225				1.0000 GX	3.00		
238				1.0000 GX	3.00		
241				1.0000 GX	3.00		

JOINT LOAD - UNIT MTON METE

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
152	1.00	0.00	0.00	0.00	0.00	0.00
153	1.00	0.00	0.00	0.00	0.00	0.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
215	1.0000 GX	1.00	2.00				
122				2.0000 GX	3.00		
123				2.0000 GX	3.00		
37	1.0000 GX	0.00	1.00				

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
130				0.3500 GY	4.00		
204				0.3500 GY	4.00		
208				0.3500 GY	4.00		
209				0.3500 GY	4.00		

222	1.0000	GY	3.00
225	1.0000	GY	3.00
238	1.0000	GY	3.00
241	1.0000	GY	3.00

JOINT LOAD - UNIT MTON METE

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
152	0.00	1.00	0.00	0.00	0.00	0.00
153	0.00	1.00	0.00	0.00	0.00	0.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
215	1.0000 GY	1.00	2.00				
122				2.0000 GY	3.00		
123				2.0000 GY	3.00		
37	1.0000 GY	0.00	1.00				

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
130				0.3500 GZ	4.00		
204				0.3500 GZ	4.00		
208				0.3500 GZ	4.00		
209				0.3500 GZ	4.00		
222				1.0000 GZ	3.00		
225				1.0000 GZ	3.00		
238				1.0000 GZ	3.00		
241				1.0000 GZ	3.00		

JOINT LOAD - UNIT MTON METE

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
152	0.00	0.00	1.00	0.00	0.00	0.00
153	0.00	0.00	1.00	0.00	0.00	0.00

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
215	1.0000 GZ	1.00	2.00				
122				2.0000 GZ	3.00		
123				2.0000 GZ	3.00		
37	1.0000 GZ	0.00	1.00				

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
111	0.0700 GX	0.00	6.00				
113	0.0700 GX	0.00	6.00				
114	0.0700 GX	0.00	6.00				
115	0.0700 GX	0.00	6.00				
116	0.0700 GX	0.00	6.00				
117	0.0700 GX	0.00	6.00				
118	0.0700 GX	0.00	6.00				
119	0.0700 GX	0.00	6.00				
131	0.0700 GX	0.00	6.00				
132	0.0700 GX	0.00	6.00				
133	0.0700 GX	0.00	6.00				
134	0.0700 GX	0.00	3.00				
135	0.0700 GX	0.00	6.00				
140	0.0700 GX	0.00	6.00				
141	0.0700 GX	0.00	6.00				
142	0.0700 GX	0.00	6.00				
143	0.0700 GX	0.00	3.00				
144	0.0700 GX	0.00	6.00				
156	0.0700 GX	0.00	6.00				
158	0.0700 GX	0.00	6.00				
159	0.0700 GX	0.00	6.00				
160	0.0700 GX	0.00	6.00				
161	0.0700 GX	0.00	6.00				
162	0.0700 GX	0.00	6.00				
163	0.0700 GX	0.00	6.00				
164	0.0700 GX	0.00	6.00				
200	0.0700 GX	0.00	3.00				
213	0.0700 GX	0.00	3.00				
1205	0.0700 GX	0.00	3.00				
1209	0.0700 GX	0.00	3.00				
120	0.1400 GX	0.00	6.00				
121	0.1400 GX	0.00	6.00				
122	0.1400 GX	0.00	6.00				
123	0.1400 GX	0.00	6.00				
124	0.1400 GX	0.00	6.00				
125	0.1400 GX	0.00	6.00				
126	0.1400 GX	0.00	6.00				
127	0.1400 GX	0.00	6.00				
128	0.1400 GX	0.00	6.00				
129	0.1400 GX	0.00	6.00				
130	0.1400 GX	0.00	6.00				
136	0.1400 GX	0.00	6.00				
137	0.1400 GX	0.00	6.00				
138	0.1400 GX	0.00	6.00				
139	0.1400 GX	0.00	6.00				
145	0.1400 GX	0.00	6.00				
146	0.1400 GX	0.00	6.00				
147	0.1400 GX	0.00	6.00				
148	0.1400 GX	0.00	6.00				
149	0.1400 GX	0.00	6.00				

150	0.1400 GX	0.00	6.00
151	0.1400 GX	0.00	6.00
152	0.1400 GX	0.00	6.00
153	0.1400 GX	0.00	6.00
154	0.1400 GX	0.00	6.00
155	0.1400 GX	0.00	6.00
165	0.1400 GX	0.00	3.00
166	0.1400 GX	0.00	3.00
172	0.1400 GX	0.00	6.00
173	0.1400 GX	0.00	6.00
178	0.1400 GX	0.00	6.00
179	0.1400 GX	0.00	6.00
184	0.1400 GX	0.00	6.00
185	0.1400 GX	0.00	6.00
190	0.1400 GX	0.00	6.00
191	0.1400 GX	0.00	6.00
196	0.1400 GX	0.00	6.00
197	0.1400 GX	0.00	6.00
204	0.1400 GX	0.00	6.00
205	0.1400 GX	0.00	6.00
208	0.1400 GX	0.00	6.00
209	0.1400 GX	0.00	6.00
222	0.1400 GX	0.00	6.00
223	0.1400 GX	0.00	6.00
224	0.1400 GX	0.00	6.00
225	0.1400 GX	0.00	6.00
226	0.1400 GX	0.00	6.00
227	0.1400 GX	0.00	6.00
228	0.1400 GX	0.00	6.00
229	0.1400 GX	0.00	6.00
238	0.1400 GX	0.00	6.00
239	0.1400 GX	0.00	6.00
240	0.1400 GX	0.00	6.00
241	0.1400 GX	0.00	6.00
242	0.1400 GX	0.00	6.00
243	0.1400 GX	0.00	6.00
244	0.1400 GX	0.00	6.00
245	0.1400 GX	0.00	6.00
254	0.1400 GX	0.00	6.00
255	0.1400 GX	0.00	6.00
256	0.1400 GX	0.00	6.00
257	0.1400 GX	0.00	6.00
258	0.1400 GX	0.00	6.00
259	0.1400 GX	0.00	6.00
260	0.1400 GX	0.00	6.00
261	0.1400 GX	0.00	6.00
270	0.1400 GX	0.00	6.00
271	0.1400 GX	0.00	6.00
272	0.1400 GX	0.00	6.00
273	0.1400 GX	0.00	6.00
274	0.1400 GX	0.00	6.00
275	0.1400 GX	0.00	6.00
276	0.1400 GX	0.00	6.00
277	0.1400 GX	0.00	6.00
286	0.1400 GX	0.00	6.00
287	0.1400 GX	0.00	6.00

LOAD COMBINATION NO. 23
1.1 (PP+CM+CVINST+EQU+ARR- SX+ 0.3 SZ)

LOADING-	1.	2.	4.	5.	6.	7.	8.
FACTOR -	1.10	1.10	1.10	1.10	-1.10	0.33	1.10

LOAD COMBINATION NO. 24
1.1 (PP+CM+CVINST+EQU+ARR- SX- 0.3 SZ)

LOADING-	1.	2.	4.	5.	6.	7.	8.
FACTOR -	1.10	1.10	1.10	1.10	-1.10	-0.33	1.10

LOAD COMBINATION NO. 25
1.1 (PP+CM+CVINST+EQU+ARR+ 0.3 SX+ SZ)

LOADING-	1.	2.	4.	5.	6.	7.	8.
FACTOR -	1.10	1.10	1.10	1.10	0.33	1.10	1.10

LOAD COMBINATION NO. 26
1.1 (PP+CM+CVINST+EQU+ARR+ 0.3 SX- SZ)

LOADING-	1.	2.	4.	5.	6.	7.	8.
FACTOR -	1.10	1.10	1.10	1.10	0.33	-1.10	1.10

LOAD COMBINATION NO. 27
1.1 (PP+CM+CVINST+EQU+ARR- 0.3 SX+ SZ)

LOADING-	1.	2.	4.	5.	6.	7.	8.
FACTOR -	1.10	1.10	1.10	1.10	-0.33	1.10	1.10

LOAD COMBINATION NO. 28
1.1 (PP+CM+CVINST+EQU+ARR- 0.3 SX- SZ)

LOADING-	1.	2.	4.	5.	6.	7.	8.
FACTOR -	1.10	1.10	1.10	1.10	-0.33	-1.10	1.10

********** END OF DATA FROM INTERNAL STORAGE **********

```
571. LOAD LIST 20 TO 28
572. PARAMETER 1
573. CODE LRFD
574. KX 1 MEMB 1 3 5 7 9 11 12 16 18 22 23 25 27 29 31 33 45 47 49 51 53 55 67 -
575. 69 71 73 75 77 89 91 93 95 97 99 100 102 104 106 108 110 336 337 351 353 -
576. 355 357 359 363 365 368 371 373 374 376 378 391 393 394 396 398 411 413 415 -
577. 417 419 433 435 437 439 441 444 446 448 450 452 679 1008 TO 1014 1048 1050 -
578. 1051 TO 1055 1057 TO 1066 1379 1380
579. FU 45700 ALL
580. FYLD 35150 ALL
581. CHECK CODE ALL
```

STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION) v1.0
****

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.280	28
		7.82 C	7.28	6.33	3.90
2	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.558	25
		0.29 C	1.96	6.33	0.00
3	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.292	25
		12.79 C	8.33	4.67	0.00
4	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.702	25
		0.29 C	2.74	6.35	0.00
5	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.275	25
		11.56 C	8.16	3.77	0.00
6	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.601	25
		0.29 C	2.26	5.95	0.00
7	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.274	25
		11.56 C	8.15	3.71	0.00
8	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.661	25
		0.29 C	2.58	5.96	0.00
9	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.268	25
		12.70 C	8.20	2.98	0.00
10	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.631	25
		0.29 C	2.19	7.32	0.00
11	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.276	25
		7.89 C	7.08	6.40	0.00
12	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.339	27
		6.22 C	-9.92	5.63	3.90
13	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.577	25
		0.30 C	1.99	6.74	0.00
15	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.864	25
		0.52 C	2.75	11.44	0.00
16	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.347	28
		25.88 C	10.38	3.58	3.90

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
17	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.848	25
		0.52 C	2.26	13.79	0.00
18	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.346	28
		25.83 C	10.34	3.57	3.90
19	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.883	25
		0.52 C	2.59	12.99	0.00
21	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.761	25
		0.38 C	2.52	9.90	0.00
22	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.334	26
		6.34 C	-9.76	5.52	0.00
23	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.513	28
		14.31 C	13.78	10.63	3.90
24	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.771	25
		0.37 C	2.38	10.63	0.00
25	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.589	25
		32.85 C	-19.07	-3.96	3.90
26	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.975	25
		0.50 C	2.75	14.99	0.00
27	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.518	25
		22.34 C	14.31	9.24	0.00
29	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.477	25
		21.09 C	-15.33	-3.96	3.90
30	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.868	25
		0.49 C	2.59	12.51	0.00
31	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.549	25
		30.67 C	-17.19	-4.92	3.90
32	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.830	25
		0.42 C	2.36	13.15	0.00
33	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.501	25
		14.15 C	13.47	10.39	0.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
35	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.827	21
		1.27 C	1.66	28.88	0.00
37	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.809	25
		0.52 C	4.16	13.94	0.00
41	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.794	25
		0.43 C	3.91	14.68	0.00
43	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.668	25
		0.43 C	3.42	11.62	0.00
45	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.458	27
		18.55 C	-10.51	12.77	3.90
46	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.723	25
		0.40 C	3.61	13.10	0.00
47	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.516	28
		42.16 C	-15.61	-4.64	0.00
48	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.909	25
		0.41 C	4.14	18.70	0.00
49	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.468	26
		19.65 C	-11.30	11.85	0.00
51	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.472	28
		18.35 C	-11.47	-11.93	0.00
52	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.734	25
		0.39 C	3.90	11.93	0.00
53	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.409	28
		39.80 C	11.51	4.91	3.90
54	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.800	25
		0.39 C	3.41	17.74	0.00
55	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.452	26
		18.38 C	-10.38	12.56	0.00
57	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.677	21
		1.21 C	1.66	21.92	0.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
59	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.715	25
		0.39 C	4.12	9.78	0.00
63	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.712	25
		0.39 C	3.89	10.98	0.00
65	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.617	25
		0.39 C	3.41	9.28	0.00
67	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.450	28
		18.37 C	10.03	13.22	3.90
68	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.726	25
		0.45 C	3.60	13.22	0.00
69	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.407	25
		38.95 C	-11.28	-5.31	3.90
70	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.891	25
		0.45 C	4.11	18.04	0.00
71	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.452	25
		24.83 C	10.90	10.90	0.00
72	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.417	25
		0.12 C	1.30	5.66	0.00
73	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.424	27
		24.56 C	10.25	-10.10	0.00
74	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.762	25
		0.45 C	3.89	13.29	0.00
75	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.402	25
		38.80 C	11.35	4.75	0.00
76	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.806	25
		0.45 C	3.41	18.05	0.00
77	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.444	25
		18.39 C	9.76	13.26	0.00
79	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.726	25
		0.52 C	3.60	13.24	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
81	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.807	25
		0.51 C	2.70	9.88	0.00
83	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.684	25
		0.26 C	2.26	8.59	0.00
85	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.808	25
		0.51 C	2.56	10.77	0.00
87	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.633	25
		0.52 C	3.41	10.03	0.00
89	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.501	27
		15.99 C	-12.61	11.99	3.90
90	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.726	25
		0.59 C	3.60	13.27	0.00
91	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.548	28
		33.97 C	17.00	4.96	3.90
92	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.860	25
		0.59 C	4.09	16.68	0.00
93	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.532	28
		32.62 C	16.43	4.97	3.90
94	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.888	25
		0.58 C	2.26	15.06	0.00
95	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.531	28
		32.60 C	16.37	5.02	3.90
96	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.824	25
		0.59 C	3.87	16.25	0.00
97	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.552	28
		33.95 C	16.81	5.69	3.90
98	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.791	25
		0.59 C	3.40	17.39	0.00
99	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.492	26
		16.03 C	-12.31	11.93	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
100	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.227	27
		3.00 C	-6.41	4.33	3.90
101	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.612	25
		0.33 C	2.37	5.64	0.00
102	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.259	28
		6.64 C	-7.41	-4.48	0.00
103	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.678	25
		0.33 C	2.69	5.87	0.00
104	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.260	28
		6.69 C	-7.34	-4.75	0.00
105	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.603	25
		0.33 C	2.26	6.01	0.00
106	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.256	28
		6.70 C	-7.31	-4.47	0.00
107	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.651	25
		0.33 C	2.55	5.85	0.00
108	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.264	28
		6.69 C	-7.32	-5.04	0.00
109	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.610	25
		0.33 C	2.24	6.35	0.00
110	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.222	26
		2.92 C	-6.26	4.31	0.00
111	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.523	25
		0.00 C	0.00	7.27	0.00
112	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.470	21
		0.16 C	2.09	2.41	0.00
113	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.914	25
		0.00 C	0.00	12.70	0.00
114	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.751	28
		0.00 C	0.00	15.54	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
115	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.921	25
		0.00 C	0.00	12.80	0.00
116	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.910	28
		0.00 C	0.00	12.64	6.00
117	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.942	25
		0.00 C	0.00	13.10	0.00
118	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.900	28
		0.00 C	0.00	12.51	6.00
119	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.625	25
		0.00 C	0.00	8.69	0.00
120	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.635	28
		0.00 C	0.00	8.82	6.00
121	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.833	28
		0.00 C	0.00	11.57	6.00
122	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.870	25
		0.00 C	0.00	21.62	0.00
123	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.717	20
		0.00 C	0.00	29.23	6.00
124	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.924	20
		0.00 C	0.00	22.98	0.00
125	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.797	20
		0.00 C	0.00	19.81	6.00
126	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.881	20
		0.00 C	0.00	21.89	0.00
127	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.876	28
		0.00 C	0.00	18.14	6.00
128	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.827	25
		0.00 C	0.00	11.50	0.00
129	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.647	28
		0.00 C	0.00	9.00	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
130	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.718	28
		0.00 C	0.00	9.97	6.00
131	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.777	25
		0.00 C	0.00	16.09	0.00
132	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.816	28
		0.00 C	0.00	16.89	6.00
133	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.730	25
		0.00 C	0.00	15.10	0.00
134	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.351	24
		0.14 T	-1.21	-6.85	0.00
135	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.863	25
		0.00 C	0.00	17.87	0.00
136	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.853	28
		0.00 C	0.00	17.66	6.00
137	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.811	25
		0.00 C	0.00	11.28	0.00
138	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.641	28
		0.00 C	0.00	8.91	6.00
139	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.691	28
		0.00 C	0.00	9.61	6.00
140	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.767	25
		0.00 C	0.00	15.89	0.00
141	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.802	28
		0.00 C	0.00	16.61	6.00
142	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.727	25
		0.00 C	0.00	15.05	0.00
143	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.353	24
		0.14 T	-1.21	-6.91	0.00
144	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.862	25
		0.00 C	0.00	17.83	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
145	ST W16X45	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.851	28
		0.00 C	0.00	17.62	6.00
146	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.809	25
		0.00 C	0.00	11.24	0.00
147	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.636	28
		0.00 C	0.00	8.84	6.00
148	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.776	28
		0.00 C	0.00	10.79	6.00
149	ST W16X50	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.787	25
		0.00 C	0.00	19.57	0.00
150	ST W16X50	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.935	20
		0.00 C	0.00	23.24	6.00
151	ST W16X50	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.831	20
		0.00 C	0.00	20.67	0.00
152	ST W16X50	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.810	20
		0.00 C	0.00	20.14	6.00
153	ST W16X50	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.883	20
		0.00 C	0.00	21.95	0.00
154	ST W16X45	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.871	28
		0.00 C	0.00	18.03	6.00
155	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.820	25
		0.00 C	0.00	11.40	0.00
156	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.509	25
		0.00 C	0.00	7.07	0.00
157	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.469	21
		0.15 C	2.09	2.37	0.00
158	ST W16X36	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.897	25
		0.00 C	0.00	12.47	0.00
159	ST W16X45	(AISC SECTIONS)			
		PASS	LRFD-H1-1B-C	0.751	28
		0.00 C	0.00	15.55	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
160	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.913	25
		0.00 C	0.00	12.68	0.00
161	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.898	28
		0.00 C	0.00	12.47	6.00
162	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.938	25
		0.00 C	0.00	13.04	0.00
163	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.886	28
		0.00 C	0.00	12.31	6.00
164	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.616	25
		0.00 C	0.00	8.55	0.00
165	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.565	24
		0.14 C	1.21	14.83	3.00
166	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.567	24
		0.14 C	1.21	14.88	3.00
167	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.216	25
		0.21 T	-0.38	-3.96	2.00
168	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.339	25
		0.00 C	-1.28	-3.32	2.00
169	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.657	28
		0.29 C	2.32	7.36	2.00
170	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.304	25
		0.04 T	-1.04	-3.63	2.00
171	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.300	28
		0.23 T	-1.04	-3.63	0.00
172	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.592	20
		0.00 C	0.00	-7.48	3.00
173	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.593	20
		0.00 C	0.00	-7.50	3.00
174	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.336	28
		0.00 C	-1.39	-2.61	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
175	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.682	28
		0.29 C	2.69	6.01	2.00
176	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.444	28
		0.00 T	-1.39	-6.03	0.00
177	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.901	28
		0.52 C	2.69	12.93	2.00
178	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.437	20
		0.00 C	0.00	5.52	6.00
179	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.410	20
		0.00 C	0.00	-5.18	2.50
180	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.290	28
		0.00 C	-1.13	-2.65	0.00
181	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.602	28
		0.29 C	2.26	5.99	2.00
182	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.422	28
		0.00 C	-1.13	-6.86	0.00
183	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.850	28
		0.52 C	2.26	13.84	2.00
184	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.497	20
		0.00 C	0.00	6.29	6.00
185	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.497	20
		0.00 C	0.00	6.29	6.00
186	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.322	28
		0.00 C	-1.29	-2.71	0.00
187	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.673	28
		0.29 C	2.58	6.34	2.00
188	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.430	25
		0.00 C	-1.29	-6.14	2.00
189	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.845	28
		0.52 C	2.59	11.76	2.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
190	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.420	20
		0.00 C	0.00	5.31	6.00
191	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.436	20
		0.00 C	0.00	5.52	6.00
192	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.324	28
		0.00 C	-1.20	-3.32	0.00
193	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.546	28
		0.29 C	1.88	6.40	2.00
194	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.297	28
		0.04 T	-0.99	-3.68	0.00
195	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.558	28
		0.30 C	1.90	6.63	2.00
196	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.593	20
		0.00 C	0.00	-7.50	3.00
197	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.592	20
		0.00 C	0.00	-7.48	3.00
198	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.445	28
		0.03 T	-1.18	-7.27	0.00
199	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.356	28
		0.26 T	-1.19	-4.56	0.00
200	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.371	21
		0.77 T	-1.01	-4.42	3.00
202	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.491	25
		0.01 T	-1.33	-7.90	2.00
203	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.894	28
		0.49 C	2.69	12.75	2.00
204	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.662	20
		0.00 C	0.00	8.36	6.00
205	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.726	20
		0.00 C	0.00	9.18	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
206	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.482	28
		0.00 C	-1.29	-7.83	0.00
207	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.940	28
		0.49 C	2.59	14.82	2.00
208	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.699	20
		0.00 C	0.00	8.83	6.00
209	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.653	20
		0.00 C	0.00	8.25	6.00
210	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.438	25
		0.02 T	-1.15	-7.22	2.00
211	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.742	28
		0.36 C	2.27	10.39	2.00
213	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.372	21
		0.65 T	-1.01	-4.44	3.00
214	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.425	25
		0.05 T	-1.87	-9.10	2.00
215	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.754	28
		0.52 C	3.69	14.05	2.00
216	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.420	28
		0.05 T	-2.11	-7.55	0.00
217	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.832	28
		0.48 C	4.07	15.52	2.00
218	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.395	28
		0.00 C	-1.95	-7.24	0.00
219	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.727	28
		0.43 C	3.91	11.53	2.00
220	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.368	28
		0.00 C	-1.70	-7.45	0.00
221	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.801	24
		1.14 C	1.61	27.97	2.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
222	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.712	20
		0.00 C	0.00	-9.00	3.00
223	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.643	20
		0.00 C	0.00	8.13	0.00
224	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.662	20
		0.00 C	0.00	8.36	0.00
225	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.726	20
		0.00 C	0.00	9.18	0.00
226	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.699	20
		0.00 C	0.00	8.83	0.00
227	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.653	20
		0.00 C	0.00	8.26	0.00
228	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.636	20
		0.00 C	0.00	8.04	0.00
229	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.597	20
		0.00 C	0.00	-7.54	3.00
230	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.425	28
		0.01 T	-1.78	-9.66	0.00
231	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.842	28
		0.41 C	3.68	18.21	2.00
232	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.471	25
		0.01 T	-2.00	-10.54	2.00
233	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.759	28
		0.40 C	4.06	12.19	2.00
234	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.463	28
		0.00 C	-1.95	-10.46	0.00
235	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.870	28
		0.39 C	3.90	18.27	2.00
236	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.415	25
		0.00 C	-1.72	-9.57	2.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
237	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.697	28
		0.39 C	3.42	12.90	2.00
238	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.942	20
		0.00 C	0.00	11.90	6.00
239	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.864	20
		0.00 C	0.00	10.92	6.00
240	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.864	20
		0.00 C	0.00	10.93	6.00
241	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.970	20
		0.00 C	0.00	12.26	6.00
242	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.933	20
		0.00 C	0.00	11.79	6.00
243	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.860	20
		0.00 C	0.00	10.88	6.00
244	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.862	20
		0.00 C	0.00	10.90	6.00
245	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.907	20
		0.00 C	0.00	11.47	6.00
246	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.350	28
		0.00 C	-1.78	-6.14	0.00
247	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.657	28
		0.39 C	3.66	9.67	2.00
248	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.376	25
		0.00 C	-2.00	-6.10	2.00
249	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.726	28
		0.39 C	4.05	10.70	2.00
250	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.367	28
		0.00 C	-1.94	-6.01	0.00
251	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.677	28
		0.39 C	3.89	9.32	2.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
252	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.339	25
		0.00 C	-1.71	-6.05	2.00
253	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.678	24
		1.21 C	1.61	22.25	2.00
254	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.942	20
		0.00 C	0.00	11.90	0.00
255	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.864	20
		0.00 C	0.00	10.92	0.00
256	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.864	20
		0.00 C	0.00	10.93	0.00
257	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.970	20
		0.00 C	0.00	12.26	0.00
258	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.933	20
		0.00 C	0.00	11.79	0.00
259	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.860	20
		0.00 C	0.00	10.88	0.00
260	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.862	20
		0.00 C	0.00	10.90	0.00
261	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.907	20
		0.00 C	0.00	11.47	0.00
262	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.425	28
		0.00 C	-1.79	-9.64	0.00
263	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.835	28
		0.45 C	3.65	18.02	2.00
264	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.454	25
		0.00 C	-2.00	-9.70	2.00
265	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.781	28
		0.45 C	4.05	13.26	2.00
266	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.447	28
		0.00 C	-1.94	-9.72	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
267	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.865	28
		0.45 C	3.89	18.09	2.00
268	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.417	25
		0.00 C	-1.71	-9.64	2.00
269	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.704	28
		0.45 C	3.42	13.26	2.00
270	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.909	20
		0.00 C	0.00	11.49	6.00
271	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.836	20
		0.00 C	0.00	10.56	6.00
272	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.892	20
		0.00 C	0.00	11.27	6.00
273	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.936	20
		0.00 C	0.00	11.82	6.00
274	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.942	20
		0.00 C	0.00	11.91	6.00
275	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.896	20
		0.00 C	0.00	11.33	6.00
276	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.839	20
		0.00 C	0.00	10.60	6.00
277	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.915	20
		0.00 C	0.00	11.57	6.00
278	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.356	28
		0.00 C	-1.79	-6.39	0.00
279	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.661	28
		0.52 C	3.64	9.98	2.00
280	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.398	28
		0.00 C	-1.36	-4.71	0.00
281	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.829	28
		0.51 C	2.67	10.80	2.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
282	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.384	28
		0.00 C	-1.28	-4.76	0.00
283	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.782	28
		0.51 C	2.56	9.92	2.00
284	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.346	25
		0.00 C	-1.71	-6.40	2.00
285	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.703	28
		0.52 C	3.41	13.24	2.00
286	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.909	20
		0.00 C	0.00	11.49	0.00
287	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.836	20
		0.00 C	0.00	10.56	0.00
288	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.892	20
		0.00 C	0.00	11.28	0.00
289	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.936	20
		0.00 C	0.00	11.83	0.00
290	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.942	20
		0.00 C	0.00	11.91	0.00
291	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.896	20
		0.00 C	0.00	11.33	0.00
292	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.839	20
		0.00 C	0.00	10.60	0.00
293	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.915	20
		0.00 C	0.00	11.57	0.00
294	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.424	28
		0.00 C	-1.78	-9.58	0.00
295	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.820	28
		0.59 C	3.63	17.40	2.00
296	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.415	28
		0.00 C	-2.06	-7.59	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
297	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.844	28
		0.59 C	4.04	16.24	2.00
298	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.300	28
		0.00 C	-1.13	-2.96	0.00
299	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.684	28
		0.26 C	2.26	8.60	2.00
300	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.428	25
		0.00 C	-1.13	-7.05	2.00
301	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.888	28
		0.58 C	2.26	15.05	2.00
302	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.406	28
		0.00 C	-1.94	-7.88	0.00
303	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.834	28
		0.59 C	3.88	16.68	2.00
304	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.414	25
		0.00 C	-1.71	-9.57	2.00
305	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.703	28
		0.59 C	3.41	13.27	2.00
306	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.749	20
		0.00 C	0.00	9.47	6.00
307	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.705	20
		0.00 C	0.00	8.91	6.00
308	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.773	20
		0.00 C	0.00	9.77	6.00
309	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.785	20
		0.00 C	0.00	9.93	6.00
310	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.688	20
		0.00 C	0.00	8.70	6.00
311	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.688	20
		0.00 C	0.00	8.70	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
312	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.784	20
		0.00 C	0.00	9.91	6.00
313	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.772	20
		0.00 C	0.00	9.76	6.00
314	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.704	20
		0.00 C	0.00	8.90	6.00
315	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.748	20
		0.00 C	0.00	9.46	6.00
316	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.316	28
		0.00 C	-1.17	-3.20	0.00
317	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.637	28
		0.33 C	2.39	6.31	2.00
318	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.325	28
		0.00 C	-1.36	-2.45	0.00
319	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.670	28
		0.33 C	2.66	5.82	2.00
320	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.290	25
		0.00 C	-1.13	-2.64	2.00
321	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.602	28
		0.33 C	2.26	5.98	2.00
322	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.312	28
		0.00 C	-1.27	-2.50	0.00
323	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.652	28
		0.33 C	2.55	5.85	2.00
324	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.307	25
		0.00 C	-1.12	-3.21	2.00
325	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.588	28
		0.33 C	2.24	5.61	2.00
326	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.749	20
		0.00 C	0.00	9.47	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
327	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.705	20
		0.00 C	0.00	8.91	0.00
328	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.773	20
		0.00 C	0.00	9.77	0.00
329	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.785	20
		0.00 C	0.00	9.93	0.00
330	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.688	20
		0.00 C	0.00	8.70	0.00
331	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.688	20
		0.00 C	0.00	8.70	0.00
332	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.784	20
		0.00 C	0.00	9.91	0.00
333	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.772	20
		0.00 C	0.00	9.76	0.00
334	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.704	20
		0.00 C	0.00	8.90	0.00
335	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.748	20
		0.00 C	0.00	9.46	0.00
336	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.355	25
		21.86 C	10.96	3.35	0.00
337	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.336	28
		22.28 C	10.70	2.33	3.90
338	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.634	25
		0.24 C	2.26	7.01	0.00
339	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.254	25
		0.00 C	-1.13	-1.49	2.00
340	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.633	28
		0.24 C	2.26	6.97	2.00
341	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.497	20
		0.00 C	0.00	6.29	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
342	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.497	20
		0.00 C	0.00	6.29	0.00
343	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.138	25
		0.00 C	0.65	0.60	0.00
344	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.417	28
		0.12 C	1.30	5.67	2.00
345	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.216	28
		0.00 C	-0.38	-3.98	1.00
346	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.216	28
		0.21 T	-0.38	-3.96	0.00
347	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.077	20
		0.00 C	0.00	-1.87	1.50
348	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.077	20
		0.00 C	0.00	-1.87	1.50
350	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.517	25
		0.11 C	1.68	8.07	0.00
351	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.583	25
		16.37 C	-18.68	-5.85	3.15
352	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.488	25
		0.11 C	1.54	8.05	0.00
353	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.577	25
		15.07 C	-18.48	-5.84	3.15
354	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.580	25
		0.11 C	1.99	8.05	0.00
355	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.575	25
		15.05 C	-18.42	-5.82	3.15
356	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.541	21
		0.22 C	1.32	12.45	0.00
357	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.578	25
		17.06 C	-18.49	-5.76	3.15

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
358	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.498	25
		0.11 C	1.44	9.34	0.00
359	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.564	25
		4.41 C	-18.36	-6.03	3.15
361	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.622	21
		0.42 C	1.07	18.38	0.00
362	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.621	25
		0.20 C	1.54	14.02	0.00
363	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.666	28
		48.10 C	20.81	5.27	3.15
364	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.687	25
		0.20 C	1.99	12.87	0.00
365	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.669	28
		48.33 C	20.75	5.65	3.15
366	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.673	21
		0.42 C	1.32	18.36	0.00
367	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.574	25
		0.15 C	1.66	11.76	0.00
368	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.614	28
		16.08 C	20.65	4.21	3.15
370	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.610	25
		0.18 C	2.48	16.79	0.00
371	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.838	25
		83.00 C	26.36	4.32	0.00
372	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.609	25
		0.18 C	2.27	18.52	0.00
373	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.739	27
		71.00 C	22.75	-5.07	0.00
374	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.781	25
		72.86 C	23.49	6.72	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
375	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.698	25
		0.18 C	2.61	21.19	0.00
376	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.776	25
		76.49 C	24.59	3.72	0.00
377	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.571	25
		0.16 C	2.29	17.02	0.00
378	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.694	25
		33.10 C	-21.89	-6.54	3.15
380	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.244	25
		4.46 T	-0.50	-6.05	2.00
382	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.208	25
		5.12 T	-0.46	-4.74	2.00
385	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.227	25
		3.56 T	-0.53	-5.12	2.00
387	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.274	25
		2.83 T	-0.45	-8.04	2.00
390	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.647	25
		0.15 C	5.63	19.65	0.00
391	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.803	28
		110.71 C	22.02	4.69	3.15
392	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.638	25
		0.15 C	5.16	22.05	0.00
393	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.733	28
		90.03 C	20.86	6.97	3.15
394	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.709	26
		86.47 C	20.41	-6.33	3.15
395	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.761	25
		0.15 C	5.92	27.85	0.00
396	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.772	28
		103.70 C	20.93	5.50	3.15

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
397	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.651	25
		0.15 C	5.01	24.25	0.00
398	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.648	26
		50.59 C	19.53	-6.32	3.15
400	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.223	25
		2.96 T	-0.50	-5.25	2.00
402	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.188	25
		3.34 T	-0.46	-4.04	2.00
405	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.201	25
		2.22 T	-0.53	-4.09	2.00
407	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.198	25
		1.97 T	-0.45	-4.68	2.00
410	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.650	25
		0.18 C	5.62	20.00	0.00
411	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.770	25
		101.09 C	-20.78	-6.16	3.15
412	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.649	25
		0.18 C	5.15	23.13	0.00
413	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.714	27
		90.99 C	-20.72	5.67	3.15
414	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.844	25
		1.44 C	6.78	29.33	0.00
415	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.734	25
		89.58 C	-20.91	-7.01	3.15
416	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.749	25
		0.18 C	5.91	26.86	0.00
417	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.758	25
		101.54 C	-20.51	-5.58	3.15
418	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.660	25
		0.18 C	5.01	24.98	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
419	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.671	25
		47.72 C	-19.94	-7.55	3.15
421	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.241	25
		3.49 T	-0.50	-6.02	2.00
423	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.198	25
		3.62 T	-0.46	-4.45	2.00
425	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.279	25
		3.06 T	-0.61	-6.84	2.00
427	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.212	25
		3.18 T	-0.53	-4.50	2.00
429	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.219	25
		2.52 T	-0.45	-5.55	2.00
432	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.671	21
		0.54 C	1.56	28.47	0.00
433	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.801	28
		84.98 C	23.68	6.87	3.15
434	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.656	25
		0.23 C	2.26	21.56	0.00
435	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.790	28
		82.55 C	23.31	6.99	3.15
436	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.758	25
		0.23 C	2.97	21.84	0.00
437	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.786	28
		82.55 C	23.25	6.83	3.15
438	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.735	21
		0.54 C	1.93	29.30	0.00
439	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.798	28
		84.89 C	23.51	7.03	3.15
440	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.685	21
		0.54 C	1.34	31.28	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
441	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.691	28
		45.98 C	22.34	4.24	3.15
443	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.565	21
		0.29 C	1.06	15.90	0.00
444	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.610	28
		24.41 C	18.68	7.31	3.15
445	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.476	25
		0.13 C	1.53	7.60	0.00
446	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.606	28
		23.90 C	18.55	7.27	3.15
447	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.572	25
		0.13 C	2.00	7.56	0.00
448	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.605	28
		23.89 C	18.50	7.31	3.15
449	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.577	21
		0.29 C	1.31	14.17	0.00
450	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.607	28
		24.30 C	18.53	7.36	3.15
451	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.521	21
		0.29 C	0.91	15.28	0.00
452	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.591	28
		18.16 C	18.68	6.27	3.15
453	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.801	25
		0.00 C	0.00	20.29	0.00
454	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.879	28
		0.00 C	0.00	22.25	6.00
455	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.833	21
		1.58 T	-3.95	-28.83	6.00
456	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.967	24
		1.58 C	3.95	35.83	6.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
457	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.837	21
		1.30 C	3.28	31.59	0.00
458	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.844	24
		1.24 C	3.28	31.97	6.00
459	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.860	21
		1.36 C	3.33	32.66	0.00
460	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.750	24
		1.36 T	-3.33	-26.91	0.00
461	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.505	25
		0.00 C	0.00	27.34	0.00
462	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.849	25
		0.00 C	0.00	21.49	0.00
463	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.611	28
		0.00 C	0.00	33.05	6.00
464	ST W24X94		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.849	21
		1.91 T	-6.09	-48.15	6.00
465	ST W24X94		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.936	24
		1.91 C	6.09	55.87	6.00
466	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.849	21
		1.46 C	4.32	47.24	0.00
467	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.797	24
		1.21 C	4.32	43.13	6.00
468	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.851	21
		1.61 C	4.37	47.07	0.00
469	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.710	24
		1.61 T	-4.37	-36.10	0.00
470	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.614	25
		0.00 C	0.00	33.21	0.00
471	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.834	25
		0.00 C	0.00	21.11	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
472	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.556	28
		0.00 C	0.00	30.10	6.00
473	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.768	21
		1.31 T	-5.21	-36.86	6.00
474	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.897	24
		1.31 C	5.21	46.95	6.00
475	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.800	21
		1.37 C	4.32	43.29	0.00
477	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.805	21
		1.52 C	4.37	43.40	0.00
478	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.667	24
		0.91 C	4.37	32.59	6.00
479	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.594	25
		0.00 C	0.00	32.13	0.00
480	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.831	25
		0.00 C	0.00	21.04	0.00
481	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.548	28
		0.00 C	0.00	29.65	6.00
482	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.761	21
		1.33 T	-5.21	-36.35	6.00
483	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.892	24
		1.33 C	5.21	46.50	6.00
484	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.798	21
		1.38 C	4.32	43.13	0.00
486	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.804	21
		1.53 C	4.37	43.36	0.00
487	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.666	24
		0.93 C	4.37	32.53	6.00
488	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.593	25
		0.00 C	0.00	32.08	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
489	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.835	25
		0.00 C	0.00	21.16	0.00
490	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.591	28
		0.00 C	0.00	31.99	6.00
491	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.781	21
		1.55 T	-5.18	-38.06	6.00
492	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.921	24
		1.55 C	5.18	48.94	6.00
493	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.819	21
		1.36 C	4.30	44.93	0.00
494	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.807	24
		1.31 C	4.30	43.97	6.00
495	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.852	21
		1.60 C	4.35	47.28	0.00
496	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.707	24
		1.60 T	-4.35	-36.00	0.00
497	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.609	25
		0.00 C	0.00	32.94	0.00
498	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.790	25
		0.00 C	0.00	20.02	0.00
499	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.282	28
		0.27 T	-0.28	-13.27	0.00
500	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.826	21
		1.57 T	-3.92	-28.57	6.00
501	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.965	24
		1.57 C	3.92	35.88	6.00
502	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.834	21
		1.29 C	3.26	31.55	0.00
503	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.839	24
		1.24 C	3.26	31.83	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
504	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.858	21
		1.35 C	3.30	32.68	0.00
505	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.745	24
		1.35 T	-3.30	-26.76	0.00
506	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.501	25
		0.00 C	0.00	27.14	0.00
510	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.261	28
		0.00 C	-0.84	-4.13	0.00
511	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.530	28
		0.11 C	1.68	8.67	2.00
512	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.340	28
		0.00 C	-0.84	-7.71	0.00
513	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.660	28
		0.20 C	1.68	14.54	2.00
514	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.440	20
		0.00 C	0.00	-6.12	2.50
515	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.435	20
		0.00 C	0.00	-6.05	2.50
516	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.232	28
		0.00 C	-0.77	-3.49	0.00
517	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.491	28
		0.11 C	1.53	8.17	2.00
518	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.297	25
		0.00 C	-0.77	-6.42	2.00
519	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.605	28
		0.20 C	1.54	13.32	2.00
520	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.442	20
		0.00 C	0.00	-6.14	2.50
521	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.443	20
		0.00 C	0.00	-6.15	2.50

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
522	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.277	28
		0.00 C	-1.00	-3.44	0.00
523	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.581	28
		0.11 C	1.99	8.10	2.00
524	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.328	28
		0.00 C	-1.00	-5.74	0.00
525	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.690	28
		0.20 C	1.99	13.00	2.00
526	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.425	20
		0.00 C	0.00	-5.91	2.50
527	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.426	20
		0.00 C	0.00	-5.91	2.50
528	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.255	28
		0.00 C	-0.88	-3.49	0.00
529	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.546	24
		0.22 C	1.32	12.66	2.00
530	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.321	28
		0.00 C	-0.88	-6.48	0.00
531	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.668	24
		0.42 C	1.32	18.17	2.00
532	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.444	20
		0.00 C	0.00	-6.17	2.50
533	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.442	20
		0.00 C	0.00	-6.14	2.50
534	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.247	28
		0.00 C	-0.79	-3.97	0.00
535	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.459	24
		0.22 C	0.73	14.06	2.00
536	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.233	28
		0.01 T	-0.65	-4.57	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
537	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.478	24
		0.24 C	0.74	14.85	2.00
538	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.613	20
		0.00 C	0.00	-8.52	3.00
539	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.612	20
		0.00 C	0.00	-8.51	3.00
540	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.344	28
		0.00 C	-1.24	-10.86	0.00
541	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.659	28
		0.18 C	2.48	19.87	2.00
542	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.901	20
		0.00 C	0.00	12.53	6.00
543	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.844	20
		0.00 C	0.00	11.72	6.00
544	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.295	28
		0.00 C	-1.14	-8.71	0.00
545	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.649	28
		0.18 C	2.27	21.07	2.00
546	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.900	20
		0.00 C	0.00	12.51	6.00
547	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.929	20
		0.00 T	0.00	12.91	6.00
548	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.324	25
		0.00 C	-1.30	-9.04	2.00
549	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.648	24
		0.43 C	1.94	23.78	2.00
550	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.924	20
		0.00 C	0.00	12.84	6.00
551	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.894	20
		0.00 C	0.00	12.42	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
552	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.306	25
		0.01 T	-1.09	-9.77	2.00
553	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.539	24
		0.31 C	1.33	22.26	2.00
555	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.211	20
		0.00 C	0.00	-5.96	3.00
556	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.241	28
		3.15 T	-0.50	-6.05	0.00
557	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.231	28
		3.06 T	-0.50	-5.58	0.00
558	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.211	25
		4.13 T	-0.46	-5.00	2.00
559	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.211	28
		3.82 T	-0.46	-5.00	0.00
560	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.227	28
		3.80 T	-0.53	-5.12	0.00
561	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.223	28
		4.73 T	-0.53	-4.84	0.00
562	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.275	28
		2.94 T	-0.45	-8.04	0.00
563	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.250	28
		4.23 T	-0.44	-6.96	0.00
564	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.605	20
		0.00 T	0.00	12.53	0.00
565	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.567	20
		0.00 C	0.00	11.73	0.00
566	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.604	20
		0.00 C	0.00	12.51	0.00
567	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.624	20
		0.00 T	0.00	12.91	0.00

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568	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.621	20
		0.00 T	0.00	12.85	0.00
569	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.600	20
		0.00 C	0.00	12.43	0.00
570	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.587	20
		0.00 T	0.00	12.16	0.00
571	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.567	20
		0.00 C	0.00	-11.73	3.50
572	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.370	28
		0.00 C	-2.82	-13.98	0.00
573	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.699	28
		0.15 C	5.63	24.31	2.00
574	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.314	28
		0.00 C	-2.58	-10.63	0.00
575	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.704	28
		0.15 C	5.16	27.97	2.00
576	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.343	25
		0.00 C	-2.96	-10.61	2.00
577	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.697	28
		0.15 C	5.92	22.16	2.00
578	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.344	25
		0.00 C	-2.46	-14.09	2.00
579	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.595	28
		0.15 C	4.95	19.60	2.00
580	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.933	20
		0.00 C	0.00	19.32	6.00
581	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.865	20
		0.00 T	0.00	17.90	6.00
582	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.928	20
		0.00 T	0.00	19.20	6.00

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583	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.964	20
		0.00 C	0.00	19.95	6.00
584	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.969	20
		0.00 C	0.00	20.06	6.00
585	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.927	20
		0.00 C	0.00	19.19	6.00
586	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.889	20
		0.00 C	0.00	18.39	6.00
587	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.926	20
		0.00 C	0.00	19.18	6.00
588	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.221	28
		2.08 T	-0.50	-5.25	0.00
589	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.212	28
		1.89 T	-0.50	-4.83	0.00
590	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.190	25
		2.53 T	-0.46	-4.21	2.00
591	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.190	28
		2.14 T	-0.46	-4.21	0.00
592	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.202	28
		2.62 T	-0.53	-4.09	0.00
593	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.199	28
		3.42 T	-0.53	-3.87	0.00
594	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.204	25
		2.17 T	-0.44	-5.06	2.00
595	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.206	28
		3.04 T	-0.44	-5.06	0.00
596	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.933	20
		0.00 C	0.00	19.32	0.00
597	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.865	20
		0.00 T	0.00	17.90	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
598	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.928	20
		0.00 C	0.00	19.20	0.00
599	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.964	20
		0.00 C	0.00	19.95	0.00
600	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.969	20
		0.00 C	0.00	20.05	0.00
601	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.927	20
		0.00 C	0.00	19.19	0.00
602	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.888	20
		0.00 C	0.00	18.39	0.00
603	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.927	20
		0.00 C	0.00	19.18	0.00
604	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.371	28
		0.00 C	-2.81	-14.06	0.00
605	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.706	28
		0.18 C	5.62	24.95	2.00
606	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.316	28
		0.00 C	-2.57	-10.84	0.00
607	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.691	28
		0.18 C	5.15	26.82	2.00
608	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.346	25
		0.00 C	-2.96	-10.88	2.00
609	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.708	28
		0.18 C	5.91	23.22	2.00
610	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.345	25
		0.00 C	-2.47	-14.06	2.00
611	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.602	28
		0.18 C	4.97	20.07	2.00
612	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.914	20
		0.00 C	0.00	18.92	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
613	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.850	20
		0.00 C	0.00	17.59	6.00
614	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.930	20
		0.00 T	0.00	19.25	6.00
615	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.950	20
		0.00 C	0.00	19.66	6.00
616	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.956	20
		0.00 C	0.00	19.79	6.00
617	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.933	20
		0.00 C	0.00	19.31	6.00
618	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.853	20
		0.00 C	0.00	17.65	6.00
619	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.919	20
		0.00 C	0.00	19.03	6.00
620	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.239	28
		2.29 T	-0.50	-6.02	0.00
621	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.230	28
		2.54 T	-0.50	-5.58	0.00
622	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.198	28
		2.78 T	-0.46	-4.51	1.33
623	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.198	28
		3.19 T	-0.46	-4.50	0.00
624	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.212	28
		2.81 T	-0.53	-4.51	0.50
625	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.212	28
		3.65 T	-0.53	-4.45	0.00
626	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.226	25
		2.31 T	-0.44	-5.98	2.00
627	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.228	28
		3.49 T	-0.44	-5.98	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
628	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.914	20
		0.00 C	0.00	18.92	0.00
629	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.850	20
		0.00 C	0.00	17.59	0.00
630	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.930	20
		0.00 C	0.00	19.25	0.00
631	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.950	20
		0.00 C	0.00	19.66	0.00
632	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.956	20
		0.00 C	0.00	19.79	0.00
633	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.933	20
		0.00 C	0.00	19.31	0.00
634	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.853	20
		0.00 C	0.00	17.65	0.00
635	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.919	20
		0.00 C	0.00	19.03	0.00
636	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.361	28
		0.00 C	-1.23	-11.96	0.00
637	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.716	24
		0.54 C	1.56	31.27	2.00
638	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.313	28
		0.00 C	-1.13	-9.89	0.00
639	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.657	28
		0.23 C	2.26	21.64	2.00
640	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.276	25
		1.45 T	-0.61	-6.85	2.00
641	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.280	28
		3.12 T	-0.61	-6.85	0.00
642	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.367	28
		0.00 C	-1.48	-10.21	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
643	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.758	28
		0.23 C	2.97	21.84	2.00
644	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.336	25
		0.00 C	-1.30	-9.87	2.00
645	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.733	24
		0.54 C	1.93	29.18	2.00
646	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.341	21
		0.00 C	-0.67	-15.62	2.00
647	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.639	24
		0.54 C	1.34	28.44	2.00
648	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.667	20
		0.00 C	0.00	13.81	6.00
649	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.628	20
		0.00 C	0.00	13.00	6.00
650	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.685	20
		0.00 T	0.00	14.17	6.00
651	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.692	20
		0.00 C	0.00	14.31	6.00
652	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.707	20
		0.00 C	0.00	14.64	6.00
653	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.707	20
		0.00 C	0.00	14.64	6.00
654	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.691	20
		0.00 C	0.00	14.29	6.00
655	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.684	20
		0.00 T	0.00	14.16	6.00
656	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.627	20
		0.00 C	0.00	12.98	6.00
657	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.666	20
		0.00 T	0.00	13.79	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
658	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.254	24
		0.00 C	-0.53	-6.66	0.00
659	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.551	24
		0.29 C	1.06	15.24	2.00
660	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.222	25
		0.00 C	-0.76	-3.10	2.00
661	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.474	28
		0.13 C	1.53	7.52	2.00
662	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.269	25
		0.00 C	-1.00	-3.03	2.00
663	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.571	28
		0.13 C	2.00	7.52	2.00
664	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.250	24
		0.00 C	-0.65	-5.33	0.00
665	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.576	24
		0.29 C	1.31	14.12	2.00
666	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.239	21
		0.00 C	-0.45	-6.68	2.00
667	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.534	24
		0.29 C	0.90	15.86	2.00
668	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.667	20
		0.00 C	0.00	13.81	0.00
669	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.628	20
		0.00 C	0.00	12.99	0.00
670	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.685	20
		0.00 C	0.00	14.17	0.00
671	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.691	20
		0.00 C	0.00	14.31	0.00
672	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.707	20
		0.00 C	0.00	14.64	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
673	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.707	20
		0.00 C	0.00	14.64	0.00
674	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.690	20
		0.00 C	0.00	14.29	0.00
675	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.684	20
		0.00 C	0.00	14.16	0.00
676	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.627	20
		0.00 C	0.00	12.98	0.00
677	ST W16X45		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.666	20
		0.00 C	0.00	13.79	0.00
679	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.664	28
		43.51 C	20.94	5.22	3.15
680	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.793	25
		1.39 C	6.75	25.02	0.00
681	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.414	28
		0.00 C	-3.37	-14.13	0.00
682	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.795	28
		1.39 C	6.75	25.18	2.00
683	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.494	20
		0.00 C	0.00	20.14	6.00
684	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.495	20
		0.00 C	0.00	20.20	6.00
685	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.439	28
		0.00 T	-3.39	-16.22	0.00
686	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.845	28
		1.44 C	6.78	29.37	2.00
691	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.323	25
		3.12 T	-0.60	-8.84	2.00
692	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.319	25
		0.40 T	-0.60	-8.88	2.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
693	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.324	28
		3.02 T	-0.60	-8.88	0.00
694	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.650	21
		1.37 T	-6.69	-3.55	2.00
695	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.650	21
		1.38 T	-6.69	-3.54	2.00
696	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.878	25
		2.21 C	6.77	32.32	0.00
697	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.471	28
		0.00 C	-3.39	-19.15	0.00
698	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.879	28
		2.21 C	6.77	32.35	2.00
699	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.767	21
		0.30 T	-7.06	-9.42	2.00
700	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.768	21
		0.30 T	-7.06	-9.46	2.00
701	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.203	25
		1.63 T	-0.61	-3.52	2.00
702	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.200	25
		0.10 T	-0.61	-3.52	2.00
703	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.203	28
		1.62 T	-0.61	-3.52	0.00
704	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.653	24
		0.99 C	6.89	2.61	2.00
705	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.654	24
		0.99 C	6.89	2.64	2.00
706	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.777	24
		1.08 C	4.32	41.55	6.00
707	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.779	24
		1.10 C	4.32	41.73	6.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
708	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.677	20
		0.00 C	0.00	27.60	6.00
709	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.676	20
		0.00 C	0.00	27.59	6.00
710	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.680	24
		1.04 C	7.45	1.04	2.00
711	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.680	24
		1.04 C	7.45	1.03	2.00
1008	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.567	28
		3.86 C	-18.60	-5.78	0.00
1009	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.625	28
		14.35 C	-20.02	-6.56	0.00
1010	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.707	28
		35.63 C	-22.11	-6.89	0.00
1011	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.653	27
		50.68 C	19.74	-6.28	0.00
1012	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.678	28
		47.63 C	-20.22	-7.52	0.00
1013	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.700	25
		46.22 C	22.66	4.22	0.00
1014	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.596	25
		17.93 C	18.92	6.25	0.00
1048	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.677	25
		44.51 C	21.13	5.76	0.00
1050	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.477	28
		7.84 C	9.77	16.79	3.90
1051	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.489	25
		1.59 C	-11.11	-15.52	3.90
1052	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.462	28
		5.20 C	10.34	14.68	3.90

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1053	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.546	21
		9.14 C	-4.67	-32.93	3.90
1054	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.505	25
		3.35 C	-11.47	-15.90	3.90
1055	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.417	28
		6.44 C	10.33	10.94	3.90
1057	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.427	26
		4.23 C	11.37	-9.77	3.90
1058	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.449	28
		6.71 C	11.53	10.98	3.90
1059	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.446	24
		9.62 C	4.01	26.33	3.90
1060	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.404	25
		3.93 C	-9.80	-11.28	3.90
1061	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.451	28
		6.82 C	10.52	13.24	3.90
1062	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.467	28
		9.30 C	12.12	10.90	3.90
1063	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.418	28
		6.65 C	12.05	7.41	3.90
1064	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.464	28
		6.63 C	11.99	11.17	3.90
1065	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.443	28
		9.29 C	11.96	9.38	3.90
1066	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.422	25
		3.54 C	-9.56	-13.24	3.90
1202	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.797	28
		0.38 C	2.71	9.91	1.40
1203	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.868	28
		0.45 C	2.50	13.56	1.40

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1204	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.370	24
		0.26 T	-1.01	-4.42	0.00
1205	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.569	24
		0.16 C	2.09	5.22	3.00
1206	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.183	28
		0.88 C	0.95	0.10	2.00
1207	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.293	25
		0.23 T	-0.99	-3.68	0.60
1208	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.325	25
		0.23 T	-1.05	-4.36	0.60
1209	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.569	24
		0.15 C	2.09	5.20	3.00
1210	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.371	24
		0.19 T	-1.01	-4.44	0.00
1211	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.172	25
		0.47 T	-0.90	-0.09	2.60
1212	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.182	25
		0.47 C	0.95	0.10	0.00
1213	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.334	20
		0.00 C	0.00	8.13	3.00
1214	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.173	28
		0.88 T	-0.90	-0.09	0.00
1215	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.330	20
		0.00 C	0.00	8.05	3.00
1359	ST W21X44		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.225	25
		0.09 T	-0.65	-4.57	0.60
1360	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.235	25
		0.09 T	-1.05	-6.03	0.60
1361	ST W21X57		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.430	28
		0.27 C	0.28	21.33	3.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1362	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.217	20
		0.00 C	0.00	-6.13	0.50
1363	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.189	28
		0.18 C	0.72	1.66	2.60
1364	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.185	25
		0.28 C	0.72	1.66	0.00
1365	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.430	20
		0.00 C	0.00	12.17	3.00
1379	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.610	21
		15.59 C	-6.63	-33.38	3.90
1380	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.459	24
		9.58 C	4.42	26.49	3.90
1381	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.803	21
		0.91 T	-7.00	-12.11	2.00
1382	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.802	24
		0.45 T	-7.00	-12.11	0.00
1383	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.802	21
		0.91 T	-7.00	-12.07	2.00
1384	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 C	0.00	0.00	0.00
1385	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.801	24
		0.45 T	-7.00	-12.07	0.00
1386	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 T	0.00	0.00	0.00
1387	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.768	24
		0.17 T	-7.06	-9.46	0.00
1388	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.629	21
		0.63 C	6.75	1.86	0.00
1389	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.767	24
		0.16 T	-7.06	-9.42	0.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1390	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.630	21
		0.63 C	6.75	1.87	0.00
1391	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 T	0.00	0.00	0.00
1392	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 C	0.00	0.00	0.00
1393	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.746	21
		0.53 T	-7.06	-7.95	2.00
1394	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.746	24
		0.06 T	-7.06	-7.95	0.00
1395	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.747	21
		0.52 T	-7.06	-7.97	2.00
1396	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.746	24
		0.06 T	-7.06	-7.97	0.00
1397	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 C	0.00	0.00	0.00
1398	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 T	0.00	0.00	0.00
1399	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.804	21
		0.58 T	-7.59	-8.66	2.00
1400	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.803	24
		0.11 T	-7.59	-8.66	0.00
1401	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.804	21
		0.58 T	-7.59	-8.65	2.00
1402	ST W18X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.803	24
		0.11 T	-7.59	-8.65	0.00
1403	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 C	0.00	0.00	0.00
1404	ST W8X40		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.111	20
		0.00 T	0.00	0.00	0.00

********** END OF TABULATED RESULT OF DESIGN **********

582. STEEL TAKE OFF ALL

STEEL TAKE-OFF

	PROFILE	LENGTH(METE)	WEIGHT(MTON)
ST	W14X90	366.30	49.057
ST	W16X36	427.60	22.907
ST	W16X50	186.00	13.818
ST	W16X45	456.00	30.650
ST	W18X65	78.00	7.529
ST	W14X34	495.20	25.026
ST	W21X44	180.00	11.826
ST	W21X57	102.00	8.609
ST	W21X73	198.00	21.514
ST	W24X94	12.00	1.680
ST	W21X93	132.00	18.212
ST	W8X40	16.00	0.946
	TOTAL =		211.774

********** END OF DATA FROM INTERNAL STORAGE **********

583. *PRINT DIA CR
584. FINISH

********** END OF THE STAAD.Pro RUN **********

**** DATE= FEB 14,2018 TIME= 13:15:11 ****

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*************************************************************
*   For technical assistance on STAAD.Pro, please visit     *
*   http://selectservices.bentley.com/en-US/                *
*                                                           *
*   Details about additional assistance from                *
*   Bentley and Partners can be found at program menu       *
*   Help->Technical Support                                 *
*                                                           *
*      Copyright (c) 1997-2015 Bentley Systems, Inc.
*               http://www.bentley.com                      *
*************************************************************
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ANEXO 2

EDIFICIO DE CESI

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**************************************************
*                                                *
*           STAAD.Pro V8i SELECTseries6           *
*           Version  20.07.11.45                 *
*           Proprietary Program of               *
*           Bentley Systems, Inc.                *
*           Date=    FEB 14, 2018                *
*           Time=    15:27:29                    *
*                                                *
*      USER ID: Personal                         *
**************************************************
```

```
     1. STAAD SPACE
INPUT FILE: C:\Users\GLR\Documents\TRABAJO\CESI INFONAVIT\AGUASCALIENTES\ANALISIS\MODELO REV CESIS\EDI.. .STD
     2. START JOB INFORMATION
     3. ENGINEER DATE 29-SEP-17
     4. END JOB INFORMATION
     5. INPUT WIDTH 79
     6. UNIT METER MTON
     7. JOINT COORDINATES
     8. 1 0 0 0; 2 6 0 0; 3 0 3.9 0; 4 6 3.9 0; 6 12 3.9 0; 7 18 0 0; 8 18 3.9 0
     9. 9 24 0 0; 10 24 3.9 0; 11 30 0 0; 12 30 3.9 0; 13 0 0 6; 14 6 0 6; 15 0 3.9 6
    10. 16 6 3.9 6; 17 12 3.9 6; 18 18 0 6; 19 18 3.9 6; 20 24 0 6; 21 24 3.9 6
    11. 22 30 0 6; 23 30 3.9 6; 24 0 0 12; 25 6 0 12; 26 0 3.9 12; 27 6 3.9 12
    12. 28 12 3.9 12; 29 18 0 12; 30 18 3.9 12; 31 24 0 12; 32 24 3.9 12; 33 30 0 12
    13. 34 30 3.9 12; 35 0 0 18; 36 6 0 18; 37 0 3.9 18; 38 6 3.9 18; 39 12 3.9 21
    14. 40 18 0 18; 41 18 3.9 18; 42 24 0 18; 43 24 3.9 18; 44 30 0 18; 45 30 3.9 18
    15. 46 0 0 24; 47 6 0 24; 48 0 3.9 24; 49 6 3.9 24; 50 12 3.9 24; 51 18 0 24
    16. 52 18 3.9 24; 53 24 0 24; 54 24 3.9 24; 55 1.5 3.9 0; 56 3 3.9 0; 57 2 3.9 6
    17. 58 4 3.9 6; 59 2 3.9 12; 60 4 3.9 12; 61 2 3.9 18; 62 4 3.9 18; 63 2 3.9 24
    18. 64 4 3.9 24; 65 8 3.9 0; 66 10 3.9 0; 67 8 3.9 6; 68 10 3.9 6; 69 8 3.9 12
    19. 70 10 3.9 12; 71 8 3.9 21; 72 10 3.9 21; 73 8 3.9 24; 74 10 3.9 24
    20. 75 14 3.9 0; 76 16 3.9 0; 77 14 3.9 6; 78 16 3.9 6; 79 14 3.9 12; 80 16 3.9 12
    21. 81 14 3.9 21; 82 16 3.9 21; 83 14 3.9 24; 84 16 3.9 24; 85 20 3.9 0
    22. 86 22 3.9 0; 87 20 3.9 6; 88 22 3.9 6; 91 20 3.9 18; 92 22 3.9 18
    23. 93 20 3.9 24; 94 22 3.9 24; 95 26 3.9 0; 96 28 3.9 0; 97 26 3.9 6; 98 28 3.9 6
    24. 99 26 3.9 12; 100 28 3.9 12; 101 26 3.9 18; 102 28 3.9 18; 103 3 3.9 6
    25. 105 1.5 3.9 6; 106 3 3.9 4.5; 107 6 3.9 4.5; 108 4.5 3.9 4.5; 109 4.5 3.9 6
    26. 110 6 3.9 16.3; 111 12 3.9 16.3; 112 18 3.9 16.3; 113 8 3.9 16.3
    27. 114 10 3.9 16.3; 115 14 3.9 16.3; 116 16 3.9 16.3; 117 6 3.9 21; 118 18 3.9 21
    28. 119 15.2 3.9 16.3; 120 15.2 3.9 21; 121 16.6 3.9 16.3; 122 16.6 3.9 21
    29. 123 11.32 3.9 16.3; 124 11.32 3.9 21; 125 13.865 3.9 11.562; 126 6.5 3.9 6
    30. 127 6.5 3.9 12; 128 17.5 3.9 6; 129 17.5 3.9 12
    31. MEMBER INCIDENCES
    32. 1 1 3; 2 2 4; 3 3 55; 5 4 65; 6 7 8; 7 6 75; 8 9 10; 9 8 85; 10 11 12
    33. 11 10 95; 12 13 15; 13 14 16; 14 15 105; 15 16 126; 16 18 19; 17 17 77
    34. 18 20 21; 19 19 87; 20 22 23; 21 21 97; 22 24 26; 23 25 27; 24 26 59
    35. 25 27 127; 26 29 30; 27 28 79; 28 31 32; 30 33 34; 31 32 99; 32 35 37
    36. 33 36 38; 34 37 61; 36 40 41; 38 42 43; 39 41 91; 40 44 45; 41 43 101
    37. 42 46 48; 43 47 49; 44 48 63; 45 49 73; 46 51 52; 47 50 83; 48 53 54; 49 52 93
    38. 50 3 15; 51 15 26; 52 26 37; 53 37 48; 54 4 107; 55 16 27; 56 27 110
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39. 57 38 117; 58 6 17; 59 17 28; 60 28 111; 61 39 50; 62 8 19; 63 19 30
40. 64 30 112; 65 41 118; 66 10 21; 67 21 32; 68 32 43; 69 43 54; 70 12 23
41. 71 23 34; 72 34 45; 73 55 56; 74 56 4; 75 57 103; 76 58 109; 77 55 105
42. 78 56 106; 79 59 60; 80 60 27; 81 57 59; 82 58 60; 83 61 62; 84 62 38
43. 85 59 61; 86 60 62; 87 63 64; 88 64 49; 89 61 63; 90 62 64; 91 65 66; 92 66 6
44. 93 67 68; 94 68 17; 95 69 70; 96 70 28; 99 73 74; 100 74 50; 101 65 67
45. 102 66 68; 103 67 69; 104 68 70; 105 69 113; 106 70 114; 107 71 73; 108 72 74
46. 109 75 76; 110 76 8; 111 77 78; 112 78 128; 113 79 80; 114 80 129; 117 83 84
47. 118 84 52; 119 75 77; 120 76 78; 121 77 79; 122 78 80; 123 79 115; 124 80 116
48. 125 81 83; 126 82 84; 127 85 86; 128 86 10; 129 87 88; 130 88 21; 133 91 92
49. 134 92 43; 135 93 94; 136 94 54; 137 85 87; 138 86 88; 143 91 93; 144 92 94
50. 145 95 96; 146 96 12; 147 97 98; 148 98 23; 149 99 100; 150 100 34
51. 151 101 102; 152 102 45; 153 95 97; 154 96 98; 155 97 99; 156 98 100
52. 157 99 101; 158 100 102; 159 103 58; 161 105 57; 162 106 103; 163 107 16
53. 164 106 108; 227 108 107; 228 109 16; 229 108 109; 237 110 38; 239 112 41
54. 244 110 113; 245 111 115; 246 113 114; 247 114 123; 248 115 119; 249 116 121
55. 250 117 49; 251 118 52; 252 117 71; 253 39 81; 254 71 72; 255 72 124
56. 256 81 120; 257 82 122; 258 113 71; 259 114 72; 260 119 116; 261 120 82
57. 262 119 120; 263 121 112; 264 122 118; 265 121 122; 266 123 111; 267 124 39
58. 268 123 124; 269 126 67; 270 127 69; 271 128 19; 272 129 30
59. START GROUP DEFINITION
60. FLOOR
61. _LOSA#1 3 5 7 9 11 19 24 25 27 41 50 51 54 63 67 68 70 TO 73 78 TO 80 91 92 -
62. 95 96 109 110 113 114 127 TO 130 145 146 151 152 164 227 270 272
63. _LOSA#2 24 25 27 44 45 52 53 61 64 79 80 87 88 95 96 99 100 113 114 245 248 -
64. 249 260 263 266 TO 268 270 272
65. _LOSA#3 39 47 49 61 69 117 118 133 TO 136 239 249 253 256 260 262 263
66. END GROUP DEFINITION
67. MEMBER RELEASE
68. 58 TO 61 77 78 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
69. 154 TO 158 229 258 259 262 265 268 START MX MY
70. 58 TO 61 77 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 -
71. 153 TO 158 162 229 258 259 262 265 268 END MX MY
72. 164 244 252 START MZ
73. 227 263 264 END MZ
74. DEFINE MATERIAL START
75. ISOTROPIC STEEL
76. E 2.09042E+007
77. POISSON 0.3
78. DENSITY 7.83341
79. ALPHA 1.2E-005
80. DAMP 0.03
81. TYPE STEEL
82. STRENGTH FY 25819.2 FU 41584 RY 1.5 RT 1.2
83. ISOTROPIC CONCRETE
84. E 2.21467E+006
85. POISSON 0.17
86. DENSITY 2.40262
87. ALPHA 1E-005
88. DAMP 0.05
89. TYPE CONCRETE
90. STRENGTH FCU 2812.28
91. ISOTROPIC LOSACERO
92. E 2.21467E+006
93. POISSON 0.17
94. ALPHA 1E-005
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 95. DAMP 0.05
 96. TYPE CONCRETE
 97. STRENGTH FCU 2812.28
 98. END DEFINE MATERIAL
 99. MEMBER PROPERTY AMERICAN
100. 1 2 6 8 10 12 13 16 18 20 22 23 26 28 30 32 33 36 38 40 42 43 46 -
101. 48 TABLE ST W14X90
102. 58 TO 61 77 78 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
103. 154 TO 158 162 164 227 229 258 259 262 265 268 TABLE ST W14X34
104. 56 57 64 65 237 239 244 TO 257 260 261 263 264 266 267 TABLE ST W21X73
105. 50 TO 55 62 63 66 TO 72 163 TABLE ST W16X36
106. 3 9 11 19 21 31 39 73 74 127 TO 130 133 134 145 TO 150 TABLE ST W16X36
107. 5 7 14 24 34 41 44 45 47 49 75 76 79 80 83 84 87 88 91 92 99 100 109 110 117 -
108. 118 135 136 151 152 159 161 228 TABLE ST W16X50
109. 15 25 271 272 TABLE TC W21X93 WP 0.18 TH 0.013
110. 17 27 93 TO 96 111 TO 114 269 270 TABLE ST W21X93
111. CONSTANTS
112. MATERIAL STEEL ALL
113. SUPPORTS
114. 1 2 7 9 11 13 14 18 20 22 24 25 29 31 33 35 36 40 42 44 46 47 51 53 FIXED
115. *DEFINE REFERENCE LOADS
116. *LOAD R1 LOADTYPE MASS  TITLE REF LOAD CASE 1
117. ***
118. *SELFWEIGHT Y -1
119. ***
120. *MEMBER LOAD
121. *51 TO 54 63 64 67 TO 72 259 UNI GY -0.469
122. *55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
123. *154 TO 158 237 250 251 258 UNI GY -0.938
124. *50 65 78 239 262 268 UNI GY -0.352
125. *77 162 229 265 UNI GY -0.704
126. ***
127. *51 TO 54 63 64 67 TO 72 259 UNI GY -0.07
128. *55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
129. *154 TO 158 237 250 251 258 UNI GY -0.14
130. *50 65 78 239 262 268 UNI GY -0.053
131. *77 162 229 265 UNI GY -0.105
132. *END DEFINE REFERENCE LOADS
133. *FLOOR DIAPHRAGM
134. *DIA 1 TYPE RIG HEI 3.9
135. SLAVE ZX MASTER 125 JOINT 3 4 8 10 12 15 16 19 21 23 26 27 30 32 34 37 38 -
136. 41 43 45 48 49 52 54
137. LOAD 1 LOADTYPE DEAD  TITLE PP
138. SELFWEIGHT Y -1
139. LOAD 2 LOADTYPE DEAD  TITLE CM
140. MEMBER LOAD
141. 51 TO 54 63 64 67 TO 72 259 UNI GY -0.469
142. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
143. 154 TO 158 237 250 251 258 UNI GY -0.938
144. 50 65 78 239 262 268 UNI GY -0.352
145. 77 162 229 265 UNI GY -0.704
146. *FLOOR LOAD
147. *_LOSA#1 FLOAD -0.144 GY
148. *_LOSA#2 FLOAD -0.144 GY
149. *_LOSA#3 FLOAD -0.144 GY
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150. LOAD 3 LOADTYPE LIVE  TITLE CV MAX
151. MEMBER LOAD
152. 51 TO 54 63 64 67 TO 72 259 UNI GY -0.1
153. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
154. 154 TO 158 237 250 251 258 UNI GY -0.2
155. 50 65 78 239 262 268 UNI GY -0.075
156. 77 162 229 UNI GY -0.15
157. LOAD 4 LOADTYPE LIVE  TITLE CV INST
158. MEMBER LOAD
159. 51 TO 54 63 64 67 TO 72 259 UNI GY -0.07
160. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
161. 154 TO 158 237 250 251 258 UNI GY -0.14
162. 50 65 78 239 262 268 UNI GY -0.053
163. 77 162 229 265 UNI GY -0.105
164. LOAD 6 LOADTYPE SEISMIC  TITLE SISMO X
165. *JOINT LOAD
166. *125 FX 41.88 MY 50.256
167. ************
168. SELFWEIGHT X 1
169. SELFWEIGHT Y 1
170. SELFWEIGHT Z 1
171. ************
172. MEMBER LOAD
173. 51 TO 54 63 64 67 TO 72 259 UNI GX 0.469
174. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
175. 154 TO 158 237 250 251 258 UNI GX 0.938
176. 50 65 78 239 262 268 UNI GX 0.352
177. 77 162 229 265 UNI GX 0.704
178. MEMBER LOAD
179. 51 TO 54 63 64 67 TO 72 259 UNI GY 0.469
180. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
181. 154 TO 158 237 250 251 258 UNI GY 0.938
182. 50 65 78 239 262 268 UNI GY 0.352
183. 77 162 229 265 UNI GY 0.704
184. MEMBER LOAD
185. 51 TO 54 63 64 67 TO 72 259 UNI GZ 0.469
186. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
187. 154 TO 158 237 250 251 258 UNI GZ 0.938
188. 50 65 78 239 262 268 UNI GZ 0.352
189. 77 162 229 265 UNI GZ 0.704
190. *************
191. MEMBER LOAD
192. 51 TO 54 63 64 67 TO 72 259 UNI GX 0.07
193. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
194. 154 TO 158 237 250 251 258 UNI GX 0.14
195. 50 65 78 239 262 268 UNI GX 0.053
196. 77 162 229 265 UNI GX 0.105
197. MEMBER LOAD
198. 51 TO 54 63 64 67 TO 72 259 UNI GY 0.07
199. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
200. 154 TO 158 237 250 251 258 UNI GY 0.14
201. 50 65 78 239 262 268 UNI GY 0.053
202. 77 162 229 265 UNI GY 0.105
203. MEMBER LOAD
204. 51 TO 54 63 64 67 TO 72 259 UNI GZ 0.07
205. 55 TO 62 65 66 81 82 85 86 89 90 101 TO 108 119 TO 126 137 138 143 144 153 -
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206. 154 TO 158 237 250 251 258 UNI GZ 0.14
207. 50 65 78 239 262 268 UNI GZ 0.053
208. 77 162 229 265 UNI GZ 0.105
209. SPECTRUM SRSS X 1 ACC SCALE 9.81 DAMP 0.05 LIN
210. 0 0.12; 0.1 0.163; 0.2 0.207; 0.3 0.25; 0.4 0.25; 0.5 0.25; 0.6 0.25
211. 0.7 0.25; 0.8 0.25; 0.9 0.25; 1 0.25; 1.1 0.25; 1.2 0.25; 1.3 0.25; 1.4 0.25
212. 1.5 0.25; 1.6 0.24; 1.7 0.23; 1.8 0.222; 1.9 0.214; 2 0.207; 2.1 0.2
213. 2.2 0.194; 2.3 0.189; 2.4 0.183; 2.5 0.178; 2.6 0.174; 2.7 0.17; 2.8 0.166
214. 2.9 0.162; 3 0.158; 3.1 0.155; 3.2 0.152; 3.3 0.149; 3.4 0.146; 3.5 0.143
215. 3.6 0.14; 3.7 0.138; 3.8 0.135; 3.9 0.133; 4 0.131; 4.1 0.129; 4.2 0.127
216. 4.3 0.125; 4.4 0.123; 4.5 0.121; 4.6 0.119; 4.7 0.118; 4.8 0.116; 4.9 0.114
217. 5 0.113
218. LOAD 7 LOADTYPE SEISMIC  TITLE SISMO EN Z
219. *JOINT LOAD
220. *125 FZ 41.88 MY 36
221. SPECTRUM SRSS Z 1 ACC SCALE 9.81 DAMP 0.05 LIN
222. ************************
223. 0 0.12; 0.1 0.163; 0.2 0.207; 0.3 0.25; 0.4 0.25; 0.5 0.25; 0.6 0.25
224. 0.7 0.25; 0.8 0.25; 0.9 0.25; 1 0.25; 1.1 0.25; 1.2 0.25; 1.3 0.25; 1.4 0.25
225. 1.5 0.25; 1.6 0.24; 1.7 0.23; 1.8 0.222; 1.9 0.214; 2 0.207; 2.1 0.2
226. 2.2 0.194; 2.3 0.189; 2.4 0.183; 2.5 0.178; 2.6 0.174; 2.7 0.17; 2.8 0.166
227. 2.9 0.162; 3 0.158; 3.1 0.155; 3.2 0.152; 3.3 0.149; 3.4 0.146; 3.5 0.143
228. 3.6 0.14; 3.7 0.138; 3.8 0.135; 3.9 0.133; 4 0.131; 4.1 0.129; 4.2 0.127
229. 4.3 0.125; 4.4 0.123; 4.5 0.121; 4.6 0.119; 4.7 0.118; 4.8 0.116; 4.9 0.114
230. 5 0.113
231. LOAD COMB 10 1.0 (PP+CM+CVMAX)
232. 1 1.0 2 1.0 3 1.0
233. LOAD COMB 11 1.0 (PP+CM+CVINST+ SX+ 0.3 SZ)
234. 1 1.0 2 1.0 4 1.0 6 1.0 7 0.3
235. LOAD COMB 12 1.0 (PP+CM+CVINST+ SX- 0.3 SZ)
236. 1 1.0 2 1.0 4 1.0 6 1.0 7 -0.3
237. LOAD COMB 13 1.0 (PP+CM+CVINST- SX+ 0.3 SZ)
238. 1 1.0 2 1.0 4 1.0 6 -1.0 7 0.3
239. LOAD COMB 14 1.0 (PP+CM+CVINST- SX- 0.3 SZ)
240. 1 1.0 2 1.0 4 1.0 6 -1.0 7 -0.3
241. LOAD COMB 15 1.0 (PP+CM+CVINST+ 0.3 SX+ SZ)
242. 1 1.0 2 1.0 4 1.0 6 0.3 7 1.0
243. LOAD COMB 16 1.0 (PP+CM+CVINST+ 0.3 SX- SZ)
244. 1 1.0 2 1.0 4 1.0 6 0.3 7 -1.0
245. LOAD COMB 17 1.0 (PP+CM+CVINST- 0.3 SX+ SZ)
246. 1 1.0 2 1.0 4 1.0 6 -0.3 7 1.0
247. LOAD COMB 18 1.0 (PP+CM+CVINST- 0.3 SX- SZ)
248. 1 1.0 2 1.0 4 1.0 6 -0.3 7 -1.0
249. LOAD COMB 19 1.0 (PP+CM+CVINST)
250. 1 1.0 2 1.0 4 1.0
251. ********* DISE?O ********
252. LOAD COMB 20 1.4 (PP+CM+CVMAX)
253. 1 1.4 2 1.4 3 1.4
254. LOAD COMB 21 1.1 (PP+CM+CVINST+ SX+ 0.33 SZ)
255. 1 1.1 2 1.1 4 1.1 6 1.1 7 0.33
256. LOAD COMB 22 1.1 (PP+CM+CVINST+ SX- 0.33 SZ)
257. 1 1.1 2 1.1 4 1.1 6 1.1 7 -0.33
258. LOAD COMB 23 1.1 (PP+CM+CVINST- SX+ 0.33 SZ)
259. 1 1.1 2 1.1 4 1.1 6 -1.1 7 0.33
260. LOAD COMB 24 1.1 (PP+CM+CVINST- SX- 0.33 SZ)
261. 1 1.1 2 1.1 4 1.1 6 -1.1 7 -0.33
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262. LOAD COMB 25 1.1 (PP+CM+CVINST+ 0.33 SX+ SZ)
263. 1 1.1 2 1.1 4 1.1 6 0.33 7 1.1
264. LOAD COMB 26 1.1 (PP+CM+CVINST+ 0.33 SX- SZ)
265. 1 1.1 2 1.1 4 1.1 6 0.33 7 -1.1
266. LOAD COMB 27 1.1 (PP+CM+CVINST- 0.33 SX+ SZ)
267. 1 1.1 2 1.1 4 1.1 6 -0.33 7 1.1
268. LOAD COMB 28 1.1 (PP+CM+CVINST- 0.33 SX- SZ)
269. 1 1.1 2 1.1 4 1.1 6 -0.33 7 -1.1
270. PERFORM ANALYSIS PRINT ALL


         P R O B L E M   S T A T I S T I C S
         -----------------------------------

  NUMBER OF JOINTS        125  NUMBER OF MEMBERS     183
  NUMBER OF PLATES          0  NUMBER OF SOLIDS        0
  NUMBER OF SURFACES        0  NUMBER OF SUPPORTS     24


       SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

  ORIGINAL/FINAL BAND-WIDTH=   107/    10/    534 DOF
TOTAL      PRIMARY LOAD CASES =     6, TOTAL DEGREES OF FREEDOM =     534
TOTAL LOAD COMBINATION  CASES =    19  SO FAR.
  SIZE OF STIFFNESS MATRIX =      286 DOUBLE  KILO-WORDS
  REQRD/AVAIL. DISK SPACE  =     16.8/ 423049.4 MB
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LOADING 1 LOADTYPE DEAD TITLE PP

SELFWEIGHT Y -1.000

ACTUAL WEIGHT OF THE STRUCTURE = 44.378 MTON

LOADING 2 LOADTYPE DEAD TITLE CM

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
51	-0.4690 GY	0.00	6.00				
52	-0.4690 GY	0.00	6.00				
53	-0.4690 GY	0.00	6.00				
54	-0.4690 GY	0.00	4.50				
63	-0.4690 GY	0.00	6.00				
64	-0.4690 GY	0.00	4.30				
67	-0.4690 GY	0.00	6.00				
68	-0.4690 GY	0.00	6.00				
69	-0.4690 GY	0.00	6.00				
70	-0.4690 GY	0.00	6.00				
71	-0.4690 GY	0.00	6.00				
72	-0.4690 GY	0.00	6.00				
259	-0.4690 GY	0.00	4.70				
55	-0.9380 GY	0.00	6.00				
56	-0.9380 GY	0.00	4.30				
57	-0.9380 GY	0.00	3.00				
58	-0.9380 GY	0.00	6.00				
59	-0.9380 GY	0.00	6.00				
60	-0.9380 GY	0.00	4.30				
61	-0.9380 GY	0.00	3.00				
62	-0.9380 GY	0.00	6.00				
65	-0.9380 GY	0.00	3.00				
66	-0.9380 GY	0.00	6.00				
81	-0.9380 GY	0.00	6.00				
82	-0.9380 GY	0.00	6.00				
85	-0.9380 GY	0.00	6.00				
86	-0.9380 GY	0.00	6.00				
89	-0.9380 GY	0.00	6.00				
90	-0.9380 GY	0.00	6.00				
101	-0.9380 GY	0.00	6.00				
102	-0.9380 GY	0.00	6.00				
103	-0.9380 GY	0.00	6.00				
104	-0.9380 GY	0.00	6.00				
105	-0.9380 GY	0.00	4.30				
106	-0.9380 GY	0.00	4.30				
107	-0.9380 GY	0.00	3.00				
108	-0.9380 GY	0.00	3.00				
119	-0.9380 GY	0.00	6.00				

120	-0.9380	GY	0.00	6.00
121	-0.9380	GY	0.00	6.00
122	-0.9380	GY	0.00	6.00
123	-0.9380	GY	0.00	4.30
124	-0.9380	GY	0.00	4.30
125	-0.9380	GY	0.00	3.00
126	-0.9380	GY	0.00	3.00
137	-0.9380	GY	0.00	6.00
138	-0.9380	GY	0.00	6.00
143	-0.9380	GY	0.00	6.00
144	-0.9380	GY	0.00	6.00
153	-0.9380	GY	0.00	6.00
154	-0.9380	GY	0.00	6.00
155	-0.9380	GY	0.00	6.00
156	-0.9380	GY	0.00	6.00
157	-0.9380	GY	0.00	6.00
158	-0.9380	GY	0.00	6.00
237	-0.9380	GY	0.00	1.70
250	-0.9380	GY	0.00	3.00
251	-0.9380	GY	0.00	3.00
258	-0.9380	GY	0.00	4.70
50	-0.3520	GY	0.00	6.00
65	-0.3520	GY	0.00	3.00
78	-0.3520	GY	0.00	4.50
239	-0.3520	GY	0.00	1.70
262	-0.3520	GY	0.00	4.70
268	-0.3520	GY	0.00	4.70
77	-0.7040	GY	0.00	6.00
162	-0.7040	GY	0.00	1.50
229	-0.7040	GY	0.00	1.50
265	-0.7040	GY	0.00	4.70

LOADING 3 LOADTYPE LIVE TITLE CV MAX

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL		L1	L2	CON	L	LIN1	LIN2
51	-0.1000	GY	0.00	6.00				
52	-0.1000	GY	0.00	6.00				
53	-0.1000	GY	0.00	6.00				
54	-0.1000	GY	0.00	4.50				
63	-0.1000	GY	0.00	6.00				
64	-0.1000	GY	0.00	4.30				
67	-0.1000	GY	0.00	6.00				
68	-0.1000	GY	0.00	6.00				
69	-0.1000	GY	0.00	6.00				
70	-0.1000	GY	0.00	6.00				
71	-0.1000	GY	0.00	6.00				
72	-0.1000	GY	0.00	6.00				
259	-0.1000	GY	0.00	4.70				
55	-0.2000	GY	0.00	6.00				
56	-0.2000	GY	0.00	4.30				

57	-0.2000	GY	0.00	3.00
58	-0.2000	GY	0.00	6.00
59	-0.2000	GY	0.00	6.00
60	-0.2000	GY	0.00	4.30
61	-0.2000	GY	0.00	3.00
62	-0.2000	GY	0.00	6.00
65	-0.2000	GY	0.00	3.00
66	-0.2000	GY	0.00	6.00
81	-0.2000	GY	0.00	6.00
82	-0.2000	GY	0.00	6.00
85	-0.2000	GY	0.00	6.00
86	-0.2000	GY	0.00	6.00
89	-0.2000	GY	0.00	6.00
90	-0.2000	GY	0.00	6.00
101	-0.2000	GY	0.00	6.00
102	-0.2000	GY	0.00	6.00
103	-0.2000	GY	0.00	6.00
104	-0.2000	GY	0.00	6.00
105	-0.2000	GY	0.00	4.30
106	-0.2000	GY	0.00	4.30
107	-0.2000	GY	0.00	3.00
108	-0.2000	GY	0.00	3.00
119	-0.2000	GY	0.00	6.00
120	-0.2000	GY	0.00	6.00
121	-0.2000	GY	0.00	6.00
122	-0.2000	GY	0.00	6.00
123	-0.2000	GY	0.00	4.30
124	-0.2000	GY	0.00	4.30
125	-0.2000	GY	0.00	3.00
126	-0.2000	GY	0.00	3.00
137	-0.2000	GY	0.00	6.00
138	-0.2000	GY	0.00	6.00
143	-0.2000	GY	0.00	6.00
144	-0.2000	GY	0.00	6.00
153	-0.2000	GY	0.00	6.00
154	-0.2000	GY	0.00	6.00
155	-0.2000	GY	0.00	6.00
156	-0.2000	GY	0.00	6.00
157	-0.2000	GY	0.00	6.00
158	-0.2000	GY	0.00	6.00
237	-0.2000	GY	0.00	1.70
250	-0.2000	GY	0.00	3.00
251	-0.2000	GY	0.00	3.00
258	-0.2000	GY	0.00	4.70
50	-0.0750	GY	0.00	6.00
65	-0.0750	GY	0.00	3.00
78	-0.0750	GY	0.00	4.50
239	-0.0750	GY	0.00	1.70
262	-0.0750	GY	0.00	4.70
268	-0.0750	GY	0.00	4.70
77	-0.1500	GY	0.00	6.00
162	-0.1500	GY	0.00	1.50
229	-0.1500	GY	0.00	1.50

LOADING 4 LOADTYPE LIVE TITLE CV INST

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
51	-0.0700 GY	0.00	6.00				
52	-0.0700 GY	0.00	6.00				
53	-0.0700 GY	0.00	6.00				
54	-0.0700 GY	0.00	4.50				
63	-0.0700 GY	0.00	6.00				
64	-0.0700 GY	0.00	4.30				
67	-0.0700 GY	0.00	6.00				
68	-0.0700 GY	0.00	6.00				
69	-0.0700 GY	0.00	6.00				
70	-0.0700 GY	0.00	6.00				
71	-0.0700 GY	0.00	6.00				
72	-0.0700 GY	0.00	6.00				
259	-0.0700 GY	0.00	4.70				
55	-0.1400 GY	0.00	6.00				
56	-0.1400 GY	0.00	4.30				
57	-0.1400 GY	0.00	3.00				
58	-0.1400 GY	0.00	6.00				
59	-0.1400 GY	0.00	6.00				
60	-0.1400 GY	0.00	4.30				
61	-0.1400 GY	0.00	3.00				
62	-0.1400 GY	0.00	6.00				
65	-0.1400 GY	0.00	3.00				
66	-0.1400 GY	0.00	6.00				
81	-0.1400 GY	0.00	6.00				
82	-0.1400 GY	0.00	6.00				
85	-0.1400 GY	0.00	6.00				
86	-0.1400 GY	0.00	6.00				
89	-0.1400 GY	0.00	6.00				
90	-0.1400 GY	0.00	6.00				
101	-0.1400 GY	0.00	6.00				
102	-0.1400 GY	0.00	6.00				
103	-0.1400 GY	0.00	6.00				
104	-0.1400 GY	0.00	6.00				
105	-0.1400 GY	0.00	4.30				
106	-0.1400 GY	0.00	4.30				
107	-0.1400 GY	0.00	3.00				
108	-0.1400 GY	0.00	3.00				
119	-0.1400 GY	0.00	6.00				
120	-0.1400 GY	0.00	6.00				
121	-0.1400 GY	0.00	6.00				
122	-0.1400 GY	0.00	6.00				
123	-0.1400 GY	0.00	4.30				
124	-0.1400 GY	0.00	4.30				
125	-0.1400 GY	0.00	3.00				
126	-0.1400 GY	0.00	3.00				
137	-0.1400 GY	0.00	6.00				

138	-0.1400	GY	0.00	6.00
143	-0.1400	GY	0.00	6.00
144	-0.1400	GY	0.00	6.00
153	-0.1400	GY	0.00	6.00
154	-0.1400	GY	0.00	6.00
155	-0.1400	GY	0.00	6.00
156	-0.1400	GY	0.00	6.00
157	-0.1400	GY	0.00	6.00
158	-0.1400	GY	0.00	6.00
237	-0.1400	GY	0.00	1.70
250	-0.1400	GY	0.00	3.00
251	-0.1400	GY	0.00	3.00
258	-0.1400	GY	0.00	4.70
50	-0.0530	GY	0.00	6.00
65	-0.0530	GY	0.00	3.00
78	-0.0530	GY	0.00	4.50
239	-0.0530	GY	0.00	1.70
262	-0.0530	GY	0.00	4.70
268	-0.0530	GY	0.00	4.70
77	-0.1050	GY	0.00	6.00
162	-0.1050	GY	0.00	1.50
229	-0.1050	GY	0.00	1.50
265	-0.1050	GY	0.00	4.70

LOADING 6 LOADTYPE SEISMIC TITLE SISMO X

SELFWEIGHT X 1.000

ACTUAL WEIGHT OF THE STRUCTURE = 44.378 MTON

SELFWEIGHT Y 1.000

ACTUAL WEIGHT OF THE STRUCTURE = 44.378 MTON

SELFWEIGHT Z 1.000

ACTUAL WEIGHT OF THE STRUCTURE = 44.378 MTON

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL		L1	L2	CON	L	LIN1	LIN2
51	0.4690	GX	0.00	6.00				
52	0.4690	GX	0.00	6.00				
53	0.4690	GX	0.00	6.00				
54	0.4690	GX	0.00	4.50				
63	0.4690	GX	0.00	6.00				
64	0.4690	GX	0.00	4.30				
67	0.4690	GX	0.00	6.00				
68	0.4690	GX	0.00	6.00				
69	0.4690	GX	0.00	6.00				
70	0.4690	GX	0.00	6.00				
71	0.4690	GX	0.00	6.00				

72	0.4690	GX	0.00	6.00
259	0.4690	GX	0.00	4.70
55	0.9380	GX	0.00	6.00
56	0.9380	GX	0.00	4.30
57	0.9380	GX	0.00	3.00
58	0.9380	GX	0.00	6.00
59	0.9380	GX	0.00	6.00
60	0.9380	GX	0.00	4.30
61	0.9380	GX	0.00	3.00
62	0.9380	GX	0.00	6.00
65	0.9380	GX	0.00	3.00
66	0.9380	GX	0.00	6.00
81	0.9380	GX	0.00	6.00
82	0.9380	GX	0.00	6.00
85	0.9380	GX	0.00	6.00
86	0.9380	GX	0.00	6.00
89	0.9380	GX	0.00	6.00
90	0.9380	GX	0.00	6.00
101	0.9380	GX	0.00	6.00
102	0.9380	GX	0.00	6.00
103	0.9380	GX	0.00	6.00
104	0.9380	GX	0.00	6.00
105	0.9380	GX	0.00	4.30
106	0.9380	GX	0.00	4.30
107	0.9380	GX	0.00	3.00
108	0.9380	GX	0.00	3.00
119	0.9380	GX	0.00	6.00
120	0.9380	GX	0.00	6.00
121	0.9380	GX	0.00	6.00
122	0.9380	GX	0.00	6.00
123	0.9380	GX	0.00	4.30
124	0.9380	GX	0.00	4.30
125	0.9380	GX	0.00	3.00
126	0.9380	GX	0.00	3.00
137	0.9380	GX	0.00	6.00
138	0.9380	GX	0.00	6.00
143	0.9380	GX	0.00	6.00
144	0.9380	GX	0.00	6.00
153	0.9380	GX	0.00	6.00
154	0.9380	GX	0.00	6.00
155	0.9380	GX	0.00	6.00
156	0.9380	GX	0.00	6.00
157	0.9380	GX	0.00	6.00
158	0.9380	GX	0.00	6.00
237	0.9380	GX	0.00	1.70
250	0.9380	GX	0.00	3.00
251	0.9380	GX	0.00	3.00
258	0.9380	GX	0.00	4.70
50	0.3520	GX	0.00	6.00
65	0.3520	GX	0.00	3.00
78	0.3520	GX	0.00	4.50
239	0.3520	GX	0.00	1.70
262	0.3520	GX	0.00	4.70
268	0.3520	GX	0.00	4.70
77	0.7040	GX	0.00	6.00
162	0.7040	GX	0.00	1.50

229	0.7040 GX	0.00	1.50
265	0.7040 GX	0.00	4.70

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
51	0.4690 GY	0.00	6.00				
52	0.4690 GY	0.00	6.00				
53	0.4690 GY	0.00	6.00				
54	0.4690 GY	0.00	4.50				
63	0.4690 GY	0.00	6.00				
64	0.4690 GY	0.00	4.30				
67	0.4690 GY	0.00	6.00				
68	0.4690 GY	0.00	6.00				
69	0.4690 GY	0.00	6.00				
70	0.4690 GY	0.00	6.00				
71	0.4690 GY	0.00	6.00				
72	0.4690 GY	0.00	6.00				
259	0.4690 GY	0.00	4.70				
55	0.9380 GY	0.00	6.00				
56	0.9380 GY	0.00	4.30				
57	0.9380 GY	0.00	3.00				
58	0.9380 GY	0.00	6.00				
59	0.9380 GY	0.00	6.00				
60	0.9380 GY	0.00	4.30				
61	0.9380 GY	0.00	3.00				
62	0.9380 GY	0.00	6.00				
65	0.9380 GY	0.00	3.00				
66	0.9380 GY	0.00	6.00				
81	0.9380 GY	0.00	6.00				
82	0.9380 GY	0.00	6.00				
85	0.9380 GY	0.00	6.00				
86	0.9380 GY	0.00	6.00				
89	0.9380 GY	0.00	6.00				
90	0.9380 GY	0.00	6.00				
101	0.9380 GY	0.00	6.00				
102	0.9380 GY	0.00	6.00				
103	0.9380 GY	0.00	6.00				
104	0.9380 GY	0.00	6.00				
105	0.9380 GY	0.00	4.30				
106	0.9380 GY	0.00	4.30				
107	0.9380 GY	0.00	3.00				
108	0.9380 GY	0.00	3.00				
119	0.9380 GY	0.00	6.00				
120	0.9380 GY	0.00	6.00				
121	0.9380 GY	0.00	6.00				
122	0.9380 GY	0.00	6.00				
123	0.9380 GY	0.00	4.30				
124	0.9380 GY	0.00	4.30				
125	0.9380 GY	0.00	3.00				
126	0.9380 GY	0.00	3.00				
137	0.9380 GY	0.00	6.00				
138	0.9380 GY	0.00	6.00				
143	0.9380 GY	0.00	6.00				

144	0.9380	GY	0.00	6.00
153	0.9380	GY	0.00	6.00
154	0.9380	GY	0.00	6.00
155	0.9380	GY	0.00	6.00
156	0.9380	GY	0.00	6.00
157	0.9380	GY	0.00	6.00
158	0.9380	GY	0.00	6.00
237	0.9380	GY	0.00	1.70
250	0.9380	GY	0.00	3.00
251	0.9380	GY	0.00	3.00
258	0.9380	GY	0.00	4.70
50	0.3520	GY	0.00	6.00
65	0.3520	GY	0.00	3.00
78	0.3520	GY	0.00	4.50
239	0.3520	GY	0.00	1.70
262	0.3520	GY	0.00	4.70
268	0.3520	GY	0.00	4.70
77	0.7040	GY	0.00	6.00
162	0.7040	GY	0.00	1.50
229	0.7040	GY	0.00	1.50
265	0.7040	GY	0.00	4.70

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL		L1	L2	CON	L	LIN1	LIN2
51	0.4690	GZ	0.00	6.00				
52	0.4690	GZ	0.00	6.00				
53	0.4690	GZ	0.00	6.00				
54	0.4690	GZ	0.00	4.50				
63	0.4690	GZ	0.00	6.00				
64	0.4690	GZ	0.00	4.30				
67	0.4690	GZ	0.00	6.00				
68	0.4690	GZ	0.00	6.00				
69	0.4690	GZ	0.00	6.00				
70	0.4690	GZ	0.00	6.00				
71	0.4690	GZ	0.00	6.00				
72	0.4690	GZ	0.00	6.00				
259	0.4690	GZ	0.00	4.70				
55	0.9380	GZ	0.00	6.00				
56	0.9380	GZ	0.00	4.30				
57	0.9380	GZ	0.00	3.00				
58	0.9380	GZ	0.00	6.00				
59	0.9380	GZ	0.00	6.00				
60	0.9380	GZ	0.00	4.30				
61	0.9380	GZ	0.00	3.00				
62	0.9380	GZ	0.00	6.00				
65	0.9380	GZ	0.00	3.00				
66	0.9380	GZ	0.00	6.00				
81	0.9380	GZ	0.00	6.00				
82	0.9380	GZ	0.00	6.00				
85	0.9380	GZ	0.00	6.00				
86	0.9380	GZ	0.00	6.00				
89	0.9380	GZ	0.00	6.00				
90	0.9380	GZ	0.00	6.00				

101	0.9380	GZ	0.00	6.00
102	0.9380	GZ	0.00	6.00
103	0.9380	GZ	0.00	6.00
104	0.9380	GZ	0.00	6.00
105	0.9380	GZ	0.00	4.30
106	0.9380	GZ	0.00	4.30
107	0.9380	GZ	0.00	3.00
108	0.9380	GZ	0.00	3.00
119	0.9380	GZ	0.00	6.00
120	0.9380	GZ	0.00	6.00
121	0.9380	GZ	0.00	6.00
122	0.9380	GZ	0.00	6.00
123	0.9380	GZ	0.00	4.30
124	0.9380	GZ	0.00	4.30
125	0.9380	GZ	0.00	3.00
126	0.9380	GZ	0.00	3.00
137	0.9380	GZ	0.00	6.00
138	0.9380	GZ	0.00	6.00
143	0.9380	GZ	0.00	6.00
144	0.9380	GZ	0.00	6.00
153	0.9380	GZ	0.00	6.00
154	0.9380	GZ	0.00	6.00
155	0.9380	GZ	0.00	6.00
156	0.9380	GZ	0.00	6.00
157	0.9380	GZ	0.00	6.00
158	0.9380	GZ	0.00	6.00
237	0.9380	GZ	0.00	1.70
250	0.9380	GZ	0.00	3.00
251	0.9380	GZ	0.00	3.00
258	0.9380	GZ	0.00	4.70
50	0.3520	GZ	0.00	6.00
65	0.3520	GZ	0.00	3.00
78	0.3520	GZ	0.00	4.50
239	0.3520	GZ	0.00	1.70
262	0.3520	GZ	0.00	4.70
268	0.3520	GZ	0.00	4.70
77	0.7040	GZ	0.00	6.00
162	0.7040	GZ	0.00	1.50
229	0.7040	GZ	0.00	1.50
265	0.7040	GZ	0.00	4.70

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL	L1	L2	CON	L	LIN1	LIN2
51	0.0700	GX	0.00	6.00			
52	0.0700	GX	0.00	6.00			
53	0.0700	GX	0.00	6.00			
54	0.0700	GX	0.00	4.50			
63	0.0700	GX	0.00	6.00			
64	0.0700	GX	0.00	4.30			
67	0.0700	GX	0.00	6.00			
68	0.0700	GX	0.00	6.00			
69	0.0700	GX	0.00	6.00			
70	0.0700	GX	0.00	6.00			

71	0.0700	GX	0.00	6.00
72	0.0700	GX	0.00	6.00
259	0.0700	GX	0.00	4.70
55	0.1400	GX	0.00	6.00
56	0.1400	GX	0.00	4.30
57	0.1400	GX	0.00	3.00
58	0.1400	GX	0.00	6.00
59	0.1400	GX	0.00	6.00
60	0.1400	GX	0.00	4.30
61	0.1400	GX	0.00	3.00
62	0.1400	GX	0.00	6.00
65	0.1400	GX	0.00	3.00
66	0.1400	GX	0.00	6.00
81	0.1400	GX	0.00	6.00
82	0.1400	GX	0.00	6.00
85	0.1400	GX	0.00	6.00
86	0.1400	GX	0.00	6.00
89	0.1400	GX	0.00	6.00
90	0.1400	GX	0.00	6.00
101	0.1400	GX	0.00	6.00
102	0.1400	GX	0.00	6.00
103	0.1400	GX	0.00	6.00
104	0.1400	GX	0.00	6.00
105	0.1400	GX	0.00	4.30
106	0.1400	GX	0.00	4.30
107	0.1400	GX	0.00	3.00
108	0.1400	GX	0.00	3.00
119	0.1400	GX	0.00	6.00
120	0.1400	GX	0.00	6.00
121	0.1400	GX	0.00	6.00
122	0.1400	GX	0.00	6.00
123	0.1400	GX	0.00	4.30
124	0.1400	GX	0.00	4.30
125	0.1400	GX	0.00	3.00
126	0.1400	GX	0.00	3.00
137	0.1400	GX	0.00	6.00
138	0.1400	GX	0.00	6.00
143	0.1400	GX	0.00	6.00
144	0.1400	GX	0.00	6.00
153	0.1400	GX	0.00	6.00
154	0.1400	GX	0.00	6.00
155	0.1400	GX	0.00	6.00
156	0.1400	GX	0.00	6.00
157	0.1400	GX	0.00	6.00
158	0.1400	GX	0.00	6.00
237	0.1400	GX	0.00	1.70
250	0.1400	GX	0.00	3.00
251	0.1400	GX	0.00	3.00
258	0.1400	GX	0.00	4.70
50	0.0530	GX	0.00	6.00
65	0.0530	GX	0.00	3.00
78	0.0530	GX	0.00	4.50
239	0.0530	GX	0.00	1.70
262	0.0530	GX	0.00	4.70
268	0.0530	GX	0.00	4.70
77	0.1050	GX	0.00	6.00

162	0.1050	GX	0.00	1.50				
229	0.1050	GX	0.00	1.50				
265	0.1050	GX	0.00	4.70				

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL		L1	L2	CON	L	LIN1	LIN2
51	0.0700	GY	0.00	6.00				
52	0.0700	GY	0.00	6.00				
53	0.0700	GY	0.00	6.00				
54	0.0700	GY	0.00	4.50				
63	0.0700	GY	0.00	6.00				
64	0.0700	GY	0.00	4.30				
67	0.0700	GY	0.00	6.00				
68	0.0700	GY	0.00	6.00				
69	0.0700	GY	0.00	6.00				
70	0.0700	GY	0.00	6.00				
71	0.0700	GY	0.00	6.00				
72	0.0700	GY	0.00	6.00				
259	0.0700	GY	0.00	4.70				
55	0.1400	GY	0.00	6.00				
56	0.1400	GY	0.00	4.30				
57	0.1400	GY	0.00	3.00				
58	0.1400	GY	0.00	6.00				
59	0.1400	GY	0.00	6.00				
60	0.1400	GY	0.00	4.30				
61	0.1400	GY	0.00	3.00				
62	0.1400	GY	0.00	6.00				
65	0.1400	GY	0.00	3.00				
66	0.1400	GY	0.00	6.00				
81	0.1400	GY	0.00	6.00				
82	0.1400	GY	0.00	6.00				
85	0.1400	GY	0.00	6.00				
86	0.1400	GY	0.00	6.00				
89	0.1400	GY	0.00	6.00				
90	0.1400	GY	0.00	6.00				
101	0.1400	GY	0.00	6.00				
102	0.1400	GY	0.00	6.00				
103	0.1400	GY	0.00	6.00				
104	0.1400	GY	0.00	6.00				
105	0.1400	GY	0.00	4.30				
106	0.1400	GY	0.00	4.30				
107	0.1400	GY	0.00	3.00				
108	0.1400	GY	0.00	3.00				
119	0.1400	GY	0.00	6.00				
120	0.1400	GY	0.00	6.00				
121	0.1400	GY	0.00	6.00				
122	0.1400	GY	0.00	6.00				
123	0.1400	GY	0.00	4.30				
124	0.1400	GY	0.00	4.30				
125	0.1400	GY	0.00	3.00				
126	0.1400	GY	0.00	3.00				
137	0.1400	GY	0.00	6.00				
138	0.1400	GY	0.00	6.00				

143	0.1400	GY	0.00	6.00				
144	0.1400	GY	0.00	6.00				
153	0.1400	GY	0.00	6.00				
154	0.1400	GY	0.00	6.00				
155	0.1400	GY	0.00	6.00				
156	0.1400	GY	0.00	6.00				
157	0.1400	GY	0.00	6.00				
158	0.1400	GY	0.00	6.00				
237	0.1400	GY	0.00	1.70				
250	0.1400	GY	0.00	3.00				
251	0.1400	GY	0.00	3.00				
258	0.1400	GY	0.00	4.70				
50	0.0530	GY	0.00	6.00				
65	0.0530	GY	0.00	3.00				
78	0.0530	GY	0.00	4.50				
239	0.0530	GY	0.00	1.70				
262	0.0530	GY	0.00	4.70				
268	0.0530	GY	0.00	4.70				
77	0.1050	GY	0.00	6.00				
162	0.1050	GY	0.00	1.50				
229	0.1050	GY	0.00	1.50				
265	0.1050	GY	0.00	4.70				

MEMBER LOAD - UNIT MTON METE

MEMBER	UDL		L1	L2	CON	L	LIN1	LIN2
51	0.0700	GZ	0.00	6.00				
52	0.0700	GZ	0.00	6.00				
53	0.0700	GZ	0.00	6.00				
54	0.0700	GZ	0.00	4.50				
63	0.0700	GZ	0.00	6.00				
64	0.0700	GZ	0.00	4.30				
67	0.0700	GZ	0.00	6.00				
68	0.0700	GZ	0.00	6.00				
69	0.0700	GZ	0.00	6.00				
70	0.0700	GZ	0.00	6.00				
71	0.0700	GZ	0.00	6.00				
72	0.0700	GZ	0.00	6.00				
259	0.0700	GZ	0.00	4.70				
55	0.1400	GZ	0.00	6.00				
56	0.1400	GZ	0.00	4.30				
57	0.1400	GZ	0.00	3.00				
58	0.1400	GZ	0.00	6.00				
59	0.1400	GZ	0.00	6.00				
60	0.1400	GZ	0.00	4.30				
61	0.1400	GZ	0.00	3.00				
62	0.1400	GZ	0.00	6.00				
65	0.1400	GZ	0.00	3.00				
66	0.1400	GZ	0.00	6.00				
81	0.1400	GZ	0.00	6.00				
82	0.1400	GZ	0.00	6.00				
85	0.1400	GZ	0.00	6.00				
86	0.1400	GZ	0.00	6.00				
89	0.1400	GZ	0.00	6.00				

90	0.1400	GZ	0.00	6.00
101	0.1400	GZ	0.00	6.00
102	0.1400	GZ	0.00	6.00
103	0.1400	GZ	0.00	6.00
104	0.1400	GZ	0.00	6.00
105	0.1400	GZ	0.00	4.30
106	0.1400	GZ	0.00	4.30
107	0.1400	GZ	0.00	3.00
108	0.1400	GZ	0.00	3.00
119	0.1400	GZ	0.00	6.00
120	0.1400	GZ	0.00	6.00
121	0.1400	GZ	0.00	6.00
122	0.1400	GZ	0.00	6.00
123	0.1400	GZ	0.00	4.30
124	0.1400	GZ	0.00	4.30
125	0.1400	GZ	0.00	3.00
126	0.1400	GZ	0.00	3.00
137	0.1400	GZ	0.00	6.00
138	0.1400	GZ	0.00	6.00
143	0.1400	GZ	0.00	6.00
144	0.1400	GZ	0.00	6.00
153	0.1400	GZ	0.00	6.00
154	0.1400	GZ	0.00	6.00
155	0.1400	GZ	0.00	6.00
156	0.1400	GZ	0.00	6.00
157	0.1400	GZ	0.00	6.00
158	0.1400	GZ	0.00	6.00
237	0.1400	GZ	0.00	1.70
250	0.1400	GZ	0.00	3.00
251	0.1400	GZ	0.00	3.00
258	0.1400	GZ	0.00	4.70
50	0.0530	GZ	0.00	6.00
65	0.0530	GZ	0.00	3.00
78	0.0530	GZ	0.00	4.50
239	0.0530	GZ	0.00	1.70
262	0.0530	GZ	0.00	4.70
268	0.0530	GZ	0.00	4.70
77	0.1050	GZ	0.00	6.00
162	0.1050	GZ	0.00	1.50
229	0.1050	GZ	0.00	1.50
265	0.1050	GZ	0.00	4.70

RESPONSE SPECTRUM VALUES - UNITS (METE SECOND)

DIRECTIONAL VALUES: SCALE FACTOR = 9.81

X = 1.00 Y = 0.00 Z = 0.00 DAMPING FACTOR = 0.050

PERIOD VS. ACCELERATION

0.0010	0.1200
0.1000	0.1630
0.2000	0.2070

0.3000	0.2500
0.4000	0.2500
0.5000	0.2500
0.6000	0.2500
0.7000	0.2500
0.8000	0.2500
0.9000	0.2500
1.0000	0.2500
1.1000	0.2500
1.2000	0.2500
1.3000	0.2500
1.4000	0.2500
1.5000	0.2500
1.6000	0.2400
1.7000	0.2300
1.8000	0.2220
1.9000	0.2140
2.0000	0.2070
2.1000	0.2000
2.2000	0.1940
2.3000	0.1890
2.4000	0.1830
2.5000	0.1780
2.6000	0.1740
2.7000	0.1700
2.8000	0.1660
2.9000	0.1620
3.0000	0.1580
3.1000	0.1550
3.2000	0.1520
3.3000	0.1490
3.4000	0.1460
3.5000	0.1430
3.6000	0.1400
3.7000	0.1380
3.8000	0.1350
3.9000	0.1330
4.0000	0.1310
4.1000	0.1290
4.2000	0.1270
4.3000	0.1250
4.4000	0.1230
4.5000	0.1210
4.6000	0.1190
4.7000	0.1180
4.8000	0.1160
4.9000	0.1140
5.0000	0.1130

LOADING 7 LOADTYPE SEISMIC TITLE SISMO EN Z

RESPONSE SPECTRUM VALUES - UNITS (METE SECOND)

DIRECTIONAL VALUES: SCALE FACTOR = 9.81

X = 0.00 Y = 0.00 Z = 1.00 DAMPING FACTOR = 0.050

PERIOD VS. ACCELERATION

0.0010	0.1200
0.1000	0.1630
0.2000	0.2070
0.3000	0.2500
0.4000	0.2500
0.5000	0.2500
0.6000	0.2500
0.7000	0.2500
0.8000	0.2500
0.9000	0.2500
1.0000	0.2500
1.1000	0.2500
1.2000	0.2500
1.3000	0.2500
1.4000	0.2500
1.5000	0.2500
1.6000	0.2400
1.7000	0.2300
1.8000	0.2220
1.9000	0.2140
2.0000	0.2070
2.1000	0.2000
2.2000	0.1940
2.3000	0.1890
2.4000	0.1830
2.5000	0.1780
2.6000	0.1740
2.7000	0.1700
2.8000	0.1660
2.9000	0.1620
3.0000	0.1580
3.1000	0.1550
3.2000	0.1520
3.3000	0.1490
3.4000	0.1460
3.5000	0.1430
3.6000	0.1400
3.7000	0.1380
3.8000	0.1350
3.9000	0.1330
4.0000	0.1310
4.1000	0.1290
4.2000	0.1270
4.3000	0.1250

4.4000	0.1230
4.5000	0.1210
4.6000	0.1190
4.7000	0.1180
4.8000	0.1160
4.9000	0.1140
5.0000	0.1130

NUMBER OF MODES REQUESTED = 6
NUMBER OF EXISTING MASSES IN THE MODEL = 255
NUMBER OF MODES THAT WILL BE USED = 6

CALCULATED FREQUENCIES FOR LOAD CASE 6

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC)	ACCURACY
1	1.221	0.81915	2.415E-16
2	2.506	0.39908	3.440E-15
3	2.723	0.36722	5.689E-14
4	3.032	0.32980	4.037E-11
5	3.284	0.30455	4.002E-08
6	3.290	0.30398	3.997E-09

The following Frequencies are estimates that were calculated. These are for information only and will not be used. Remaining values are either above the cut off mode/freq values or are of low accuracy. To use these frequencies, rerun with a higher cutoff mode (or mode + freq) value.

CALCULATED FREQUENCIES FOR LOAD CASE 6

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC)	ACCURACY
7	3.365	0.29720	1.009E-07
8	3.657	0.27348	1.374E-06
9	3.756	0.26622	1.471E-09
10	3.897	0.25661	2.795E-09
11	4.090	0.24450	2.365E-10
12	4.416	0.22647	3.072E-09
13	4.963	0.20149	1.300E-05

RESPONSE LOAD CASE 6

MODE	MODAL WEIGHT (MODAL MASS TIMES g) IN MTON X	Y	Z	GENERALIZED WEIGHT
1	8.333569E-05	6.211885E-05	1.445214E+02	6.314509E+01
2	5.281168E-01	3.528035E-03	1.282503E+02	5.799718E+01
3	1.099090E+01	1.580329E-03	3.538059E+01	6.266981E+01
4	1.189874E+02	2.520506E-02	2.726501E+00	3.855658E+01
5	3.069000E+00	4.067905E+00	1.795905E+00	1.982417E+01
6	2.509034E-01	4.204829E+01	2.195746E-01	2.090923E+01

SRSS MODAL COMBINATION METHOD USED.

DYNAMIC WEIGHT X Y Z	3.501624E+02	3.501624E+02	3.501624E+02	MTON
MISSING WEIGHT X Y Z	-2.163360E+02	-3.040158E+02	-3.726818E+01	MTON
MODAL WEIGHT X Y Z	1.338264E+02	4.614658E+01	3.128942E+02	MTON

MODE	ACCELERATION-G	DAMPING
1	0.25009	0.05000
2	0.25009	0.05000
3	0.25009	0.05000

MODE	ACCELERATION-G	DAMPING
4	0.25009	0.05000
5	0.25009	0.05000
6	0.25009	0.05000

MODAL BASE ACTIONS FORCES IN MTON LENGTH IN METE

MODE	PERIOD	FX	FY	FZ	MOMENTS ARE ABOUT THE ORIGIN MX	MY	MZ
1	0.819	0.00	0.00	0.03	0.11	-0.33	0.00
2	0.399	0.13	-0.01	-2.06	-7.83	43.89	-0.67
3	0.367	2.75	0.03	4.93	18.70	70.37	-10.39
4	0.330	29.76	0.43	-4.50	-21.89	383.14	-105.46
5	0.305	0.77	0.88	0.59	-13.52	-10.39	7.83
6	0.304	0.06	-0.81	0.06	14.97	-1.00	-9.96

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN MTON		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.00	0.00	41.27	0.000	0.000	41.273	0.00	0.00	0.00
2	0.15	0.00	36.63	0.151	0.001	77.899	0.13	0.00	0.00
3	3.14	0.00	10.10	3.290	0.001	88.003	2.75	0.00	0.00
4	33.98	0.01	0.78	37.270	0.009	88.781	29.76	0.00	0.00
5	0.88	1.16	0.51	38.147	1.170	89.294	0.77	0.00	0.00
6	0.07	12.01	0.06	38.218	13.179	89.357	0.06	0.00	0.00
					TOTAL SRSS SHEAR		29.89	0.00	0.00
					TOTAL 10PCT SHEAR		30.72	0.00	0.00
					TOTAL ABS SHEAR		33.47	0.00	0.00

RESPONSE LOAD CASE 7

MODE	MODAL WEIGHT (MODAL MASS TIMES g) IN MTON X	Y	Z	GENERALIZED WEIGHT
1	8.333569E-05	6.211885E-05	1.445214E+02	6.314509E+01
2	5.281168E-01	3.528035E-03	1.282503E+02	5.799718E+01
3	1.099090E+01	1.580329E-03	3.538059E+01	6.266981E+01
4	1.189874E+02	2.520506E-02	2.726501E+00	3.855658E+01
5	3.069000E+00	4.067905E+00	1.795905E+00	1.982417E+01
6	2.509034E-01	4.204829E+01	2.195746E-01	2.090923E+01

SRSS MODAL COMBINATION METHOD USED.

DYNAMIC WEIGHT X Y Z	3.501624E+02	3.501624E+02	3.501624E+02	MTON
MISSING WEIGHT X Y Z	-2.163360E+02	-3.040158E+02	-3.726818E+01	MTON
MODAL WEIGHT X Y Z	1.338264E+02	4.614658E+01	3.128942E+02	MTON

MODE	ACCELERATION-G	DAMPING
1	0.25009	0.05000
2	0.25009	0.05000
3	0.25009	0.05000
4	0.25009	0.05000
5	0.25009	0.05000
6	0.25009	0.05000

MODAL BASE ACTIONS FORCES IN MTON LENGTH IN METE

MODE	PERIOD	FX	FY	FZ	MOMENTS ARE ABOUT THE ORIGIN MX	MY	MZ
1	0.819	0.03	0.02	36.14	140.53	-435.38	0.11
2	0.399	-2.06	0.17	32.07	122.05	-683.92	10.40
3	0.367	4.93	0.06	8.85	33.55	126.25	-18.64
4	0.330	-4.50	-0.07	0.68	3.31	-58.00	15.96
5	0.305	0.59	0.68	0.45	-10.35	-7.95	5.99
6	0.304	0.06	-0.76	0.05	14.01	-0.94	-9.32

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN MTON		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.00	0.00	41.27	0.000	0.000	41.273	0.00	0.00	36.14
2	0.15	0.00	36.63	0.151	0.001	77.899	0.00	0.00	32.07
3	3.14	0.00	10.10	3.290	0.001	88.003	0.00	0.00	8.85
4	33.98	0.01	0.78	37.270	0.009	88.781	0.00	0.00	0.68
5	0.88	1.16	0.51	38.147	1.170	89.294	0.00	0.00	0.45
6	0.07	12.01	0.06	38.218	13.179	89.357	0.00	0.00	0.05
					TOTAL SRSS SHEAR		0.00	0.00	49.13
					TOTAL 10PCT SHEAR		0.00	0.00	54.61
					TOTAL ABS SHEAR		0.00	0.00	78.25

FOR LOADING - 1
APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
1	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
2	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
3	0.00000E+00	-4.62044E-01	0.00000E+00	1.60711E-01	0.00000E+00	-1.00444E-02
4	0.00000E+00	-5.36335E-01	0.00000E+00	9.03999E-02	0.00000E+00	1.54141E-02
6	0.00000E+00	-3.00196E-01	0.00000E+00	1.51614E-01	0.00000E+00	0.00000E+00
7	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
8	0.00000E+00	-5.49727E-01	0.00000E+00	1.60711E-01	0.00000E+00	6.90687E-03
9	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
10	0.00000E+00	-5.29007E-01	0.00000E+00	1.60711E-01	0.00000E+00	0.00000E+00
11	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
12	0.00000E+00	-4.75437E-01	0.00000E+00	1.60711E-01	0.00000E+00	1.78568E-02
13	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
14	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
15	0.00000E+00	-6.38295E-01	0.00000E+00	0.00000E+00	0.00000E+00	-1.39295E-02
16	0.00000E+00	-5.56837E-01	0.00000E+00	1.50667E-01	0.00000E+00	1.06733E-02
17	0.00000E+00	-5.79166E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
18	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
19	0.00000E+00	-6.75222E-01	0.00000E+00	0.00000E+00	0.00000E+00	-1.46005E-02
20	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
21	0.00000E+00	-6.89718E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
22	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
23	0.00000E+00	-6.36147E-01	0.00000E+00	0.00000E+00	0.00000E+00	1.78568E-02
24	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
25	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
26	0.00000E+00	-6.56868E-01	0.00000E+00	3.29626E-08	0.00000E+00	-2.47636E-02
27	0.00000E+00	-7.68844E-01	0.00000E+00	6.71105E-03	0.00000E+00	2.15074E-02
28	0.00000E+00	-5.36208E-01	0.00000E+00	-7.37434E-02	0.00000E+00	0.00000E+00
29	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
30	0.00000E+00	-6.94553E-01	0.00000E+00	6.71105E-03	0.00000E+00	3.25624E-03

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
31	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
32	0.00000E+00	-6.36147E-01	0.00000E+00	3.29626E-08	0.00000E+00	-1.78568E-02
33	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
34	0.00000E+00	-6.36147E-01	0.00000E+00	3.29626E-08	0.00000E+00	1.78568E-02
35	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
36	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
37	0.00000E+00	-6.56868E-01	0.00000E+00	-5.49376E-08	0.00000E+00	-2.47636E-02
38	0.00000E+00	-5.90790E-01	0.00000E+00	5.53244E-02	0.00000E+00	2.47636E-02
39	0.00000E+00	-2.21407E-01	0.00000E+00	3.79035E-02	0.00000E+00	-3.20320E-02
40	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
41	0.00000E+00	-5.70069E-01	0.00000E+00	5.53244E-02	0.00000E+00	-1.78568E-02
42	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
43	0.00000E+00	-7.10438E-01	0.00000E+00	-5.49376E-08	0.00000E+00	-6.90687E-03
44	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
45	0.00000E+00	-4.96157E-01	0.00000E+00	-1.60711E-01	0.00000E+00	2.47637E-02
46	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
47	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
48	0.00000E+00	-4.96157E-01	0.00000E+00	-1.60711E-01	0.00000E+00	-2.47636E-02
49	0.00000E+00	-5.72722E-01	0.00000E+00	-8.14926E-02	0.00000E+00	0.00000E+00
50	0.00000E+00	-2.24389E-01	0.00000E+00	-3.79035E-02	0.00000E+00	0.00000E+00
51	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
52	0.00000E+00	-5.72722E-01	0.00000E+00	-8.14926E-02	0.00000E+00	0.00000E+00
53	0.00000E+00	-2.61155E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
54	0.00000E+00	-4.96157E-01	0.00000E+00	-1.60711E-01	0.00000E+00	2.47636E-02
55	0.00000E+00	-2.31970E-01	0.00000E+00	1.51614E-01	0.00000E+00	0.00000E+00
56	0.00000E+00	-2.34244E-01	0.00000E+00	8.52829E-02	0.00000E+00	-3.01333E-02
57	0.00000E+00	-2.07332E-01	0.00000E+00	1.51614E-01	0.00000E+00	-4.64318E-03
58	0.00000E+00	-2.07332E-01	0.00000E+00	1.51614E-01	0.00000E+00	4.64318E-03
59	0.00000E+00	-4.51810E-01	0.00000E+00	3.29626E-08	0.00000E+00	0.00000E+00
60	0.00000E+00	-4.51810E-01	0.00000E+00	3.29626E-08	0.00000E+00	0.00000E+00
61	0.00000E+00	-4.51810E-01	0.00000E+00	-4.39501E-08	0.00000E+00	0.00000E+00
62	0.00000E+00	-4.51810E-01	0.00000E+00	-4.39501E-08	0.00000E+00	0.00000E+00
63	0.00000E+00	-3.00196E-01	0.00000E+00	-1.51614E-01	0.00000E+00	0.00000E+00
64	0.00000E+00	-3.00196E-01	0.00000E+00	-1.51614E-01	0.00000E+00	0.00000E+00
65	0.00000E+00	-3.00196E-01	0.00000E+00	1.51614E-01	0.00000E+00	-8.24064E-09
66	0.00000E+00	-3.00196E-01	0.00000E+00	1.51614E-01	0.00000E+00	1.64813E-08
67	0.00000E+00	-5.44674E-01	0.00000E+00	0.00000E+00	0.00000E+00	-2.01205E-02
68	0.00000E+00	-5.79166E-01	0.00000E+00	0.00000E+00	0.00000E+00	3.02157E-08
69	0.00000E+00	-5.01716E-01	0.00000E+00	-7.37434E-02	0.00000E+00	-2.01205E-02
70	0.00000E+00	-5.36208E-01	0.00000E+00	-7.37434E-02	0.00000E+00	3.02157E-08
71	0.00000E+00	-4.34359E-01	0.00000E+00	-5.51286E-02	0.00000E+00	8.72970E-03
72	0.00000E+00	-3.74942E-01	0.00000E+00	-5.51286E-02	0.00000E+00	2.04420E-02
73	0.00000E+00	-2.24389E-01	0.00000E+00	-3.79035E-02	0.00000E+00	-8.24064E-09
74	0.00000E+00	-2.24389E-01	0.00000E+00	-3.79035E-02	0.00000E+00	1.64813E-08
75	0.00000E+00	-3.00196E-01	0.00000E+00	1.51614E-01	0.00000E+00	-1.64813E-08
76	0.00000E+00	-3.00196E-01	0.00000E+00	1.51614E-01	0.00000E+00	0.00000E+00
77	0.00000E+00	-5.79166E-01	0.00000E+00	0.00000E+00	0.00000E+00	-3.02157E-08
78	0.00000E+00	-5.44674E-01	0.00000E+00	0.00000E+00	0.00000E+00	2.01205E-02
79	0.00000E+00	-5.36208E-01	0.00000E+00	-7.37434E-02	0.00000E+00	-3.02157E-08
80	0.00000E+00	-5.01716E-01	0.00000E+00	-7.37434E-02	0.00000E+00	2.01205E-02
81	0.00000E+00	-2.49658E-01	0.00000E+00	3.79035E-02	0.00000E+00	2.31801E-02
82	0.00000E+00	-1.51867E-01	0.00000E+00	3.79035E-02	0.00000E+00	2.53533E-03
83	0.00000E+00	-2.24389E-01	0.00000E+00	-3.79035E-02	0.00000E+00	-1.64813E-08

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
84	0.00000E+00	-2.24389E-01	0.00000E+00	-3.79035E-02	0.00000E+00	0.00000E+00
85	0.00000E+00	-2.58755E-01	0.00000E+00	1.51614E-01	0.00000E+00	2.74688E-08
86	0.00000E+00	-2.58755E-01	0.00000E+00	1.51614E-01	0.00000E+00	-2.74688E-08
87	0.00000E+00	-2.58755E-01	0.00000E+00	-1.51614E-01	0.00000E+00	2.74688E-08
88	0.00000E+00	-2.58755E-01	0.00000E+00	-1.51614E-01	0.00000E+00	-2.74688E-08
91	0.00000E+00	-2.58755E-01	0.00000E+00	1.51614E-01	0.00000E+00	2.74688E-08
92	0.00000E+00	-2.58755E-01	0.00000E+00	1.51614E-01	0.00000E+00	-2.74688E-08
93	0.00000E+00	-3.00196E-01	0.00000E+00	-1.51614E-01	0.00000E+00	3.84563E-08
94	0.00000E+00	-3.00196E-01	0.00000E+00	-1.51614E-01	0.00000E+00	-3.84563E-08
95	0.00000E+00	-2.58755E-01	0.00000E+00	1.51614E-01	0.00000E+00	2.74688E-08
96	0.00000E+00	-2.58755E-01	0.00000E+00	1.51614E-01	0.00000E+00	-5.49376E-08
97	0.00000E+00	-4.10369E-01	0.00000E+00	0.00000E+00	0.00000E+00	2.74688E-08
98	0.00000E+00	-4.10369E-01	0.00000E+00	0.00000E+00	0.00000E+00	-5.49376E-08
99	0.00000E+00	-4.10369E-01	0.00000E+00	3.29626E-08	0.00000E+00	2.74688E-08
100	0.00000E+00	-4.10369E-01	0.00000E+00	3.29626E-08	0.00000E+00	-5.49376E-08
101	0.00000E+00	-3.00196E-01	0.00000E+00	-1.51614E-01	0.00000E+00	3.84563E-08
102	0.00000E+00	-3.00196E-01	0.00000E+00	-1.51614E-01	0.00000E+00	-7.69126E-08
103	0.00000E+00	-1.12194E-01	0.00000E+00	-9.47588E-03	0.00000E+00	0.00000E+00
105	0.00000E+00	-2.25905E-01	0.00000E+00	-1.51614E-01	0.00000E+00	1.23818E-02
106	0.00000E+00	-1.81559E-01	0.00000E+00	-7.58070E-02	0.00000E+00	0.00000E+00
107	0.00000E+00	-1.90655E-01	0.00000E+00	-8.03555E-02	0.00000E+00	0.00000E+00
108	0.00000E+00	-1.29629E-01	0.00000E+00	9.47588E-03	0.00000E+00	4.12032E-09
109	0.00000E+00	-1.12194E-01	0.00000E+00	-9.47588E-03	0.00000E+00	-1.23818E-02
110	0.00000E+00	-4.12153E-01	0.00000E+00	-1.41254E-01	0.00000E+00	0.00000E+00
111	0.00000E+00	-2.54257E-01	0.00000E+00	-7.78707E-02	0.00000E+00	-3.20320E-02
112	0.00000E+00	-3.88694E-01	0.00000E+00	-1.41254E-01	0.00000E+00	0.00000E+00
113	0.00000E+00	-4.67209E-01	0.00000E+00	1.51614E-02	0.00000E+00	8.72970E-03
114	0.00000E+00	-4.07791E-01	0.00000E+00	1.51614E-02	0.00000E+00	2.04420E-02
115	0.00000E+00	-2.82508E-01	0.00000E+00	-7.78707E-02	0.00000E+00	2.31801E-02
116	0.00000E+00	-1.84717E-01	0.00000E+00	-7.78707E-02	0.00000E+00	2.53533E-03
117	0.00000E+00	-4.12153E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
118	0.00000E+00	-3.88694E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
119	0.00000E+00	-2.27421E-01	0.00000E+00	9.30321E-02	0.00000E+00	7.24377E-03
120	0.00000E+00	-2.27421E-01	0.00000E+00	-9.30321E-02	0.00000E+00	7.24377E-03
121	0.00000E+00	-2.40757E-01	0.00000E+00	9.30321E-02	0.00000E+00	-1.54102E-02
122	0.00000E+00	-2.40757E-01	0.00000E+00	-9.30321E-02	0.00000E+00	-1.54102E-02
123	0.00000E+00	-2.27421E-01	0.00000E+00	9.30321E-02	0.00000E+00	1.15900E-02
124	0.00000E+00	-2.27421E-01	0.00000E+00	-9.30321E-02	0.00000E+00	1.15900E-02
126	0.00000E+00	-1.42551E-01	0.00000E+00	0.00000E+00	0.00000E+00	-2.26129E-02
127	0.00000E+00	-1.42551E-01	0.00000E+00	0.00000E+00	0.00000E+00	-2.26129E-02
128	0.00000E+00	-1.42551E-01	0.00000E+00	0.00000E+00	0.00000E+00	2.26129E-02
129	0.00000E+00	-1.42551E-01	0.00000E+00	0.00000E+00	0.00000E+00	2.26129E-02

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 1
LOADTYPE DEAD TITLE PP

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.139005852E+02
Y = 0.334917996E+01
Z = 0.119737603E+02

***TOTAL APPLIED LOAD (MTON METE) SUMMARY (LOADING 1)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -44.38
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 531.37 MY= 0.00 MZ= -616.88

***TOTAL REACTION LOAD(MTON METE) SUMMARY (LOADING 1)
SUMMATION FORCE-X = -0.00
SUMMATION FORCE-Y = 44.38
SUMMATION FORCE-Z = -0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -531.37 MY= 0.00 MZ= 616.88

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 1)

	MAXIMUMS	AT NODE
X =	-1.04012E-03	3
Y =	-3.55539E-01	111
Z =	-9.01767E-04	12
RX=	-6.41096E-04	50
RY=	1.72259E-07	124
RZ=	8.28796E-04	121

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (MTON METE)-

JT	EXT FX/ INT FX	EXT FY/ INT FY	EXT FZ/ INT FZ	EXT MX/ INT MX	EXT MY/ INT MY	EXT MZ/ INT MZ	
							SUPPORT=1
1	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.09	-0.70	-0.04	-0.05	0.00	0.11	111111
2	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.32	-1.54	-0.05	-0.06	0.00	0.39	111111
4	0.00	-0.54	0.00	0.09	0.00	0.02	
	0.32	0.54	0.05	-0.09	-0.00	-0.02	000000
7	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.31	-1.54	-0.04	-0.05	0.00	-0.34	111111
8	0.00	-0.55	0.00	0.16	0.00	0.01	
	-0.31	0.55	0.04	-0.16	-0.00	-0.01	000000
9	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.04	-0.96	-0.04	-0.05	0.00	0.06	111111
11	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.09	-0.68	-0.04	-0.05	0.00	-0.09	111111
13	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.09	-0.99	0.00	0.00	0.00	0.12	111111
14	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.57	-2.97	0.02	0.02	0.00	0.68	111111
16	0.00	-0.56	0.00	0.15	0.00	0.01	
	0.57	0.56	-0.02	-0.15	-0.00	-0.01	000000
18	0.00	-0.26	0.00	0.00	0.00	0.00	

19	0.00	-0.68	0.00	0.00	0.00	-0.01	
	-0.65	0.68	-0.01	-0.00	-0.00	0.01	000000
20	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.14	-1.31	0.00	-0.00	0.00	0.17	111111
21	0.00	-0.69	0.00	0.00	0.00	0.00	
	0.14	0.69	-0.00	-0.00	-0.00	-0.00	000000
22	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.18	-1.08	0.00	-0.00	0.00	-0.19	111111
23	0.00	-0.64	0.00	0.00	0.00	0.02	
	-0.18	0.64	-0.00	0.00	-0.00	-0.02	000000
24	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.08	-0.92	-0.00	-0.00	0.00	0.10	111111
25	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.71	-3.62	-0.05	-0.06	0.00	0.84	111111
27	0.00	-0.77	0.00	0.01	0.00	0.02	
	0.71	0.77	0.05	-0.01	-0.00	-0.02	000000
29	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.95	-2.58	-0.05	-0.06	0.00	-1.09	111111
30	0.00	-0.69	0.00	0.01	0.00	0.00	
	-0.95	0.69	0.05	-0.01	-0.00	-0.00	000000
31	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.19	-1.07	-0.00	-0.01	0.00	0.23	111111
32	0.00	-0.64	0.00	0.00	0.00	-0.02	
	0.19	0.64	0.00	-0.00	-0.00	0.02	000000
33	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.18	-1.08	-0.01	-0.02	0.00	-0.20	111111
34	0.00	-0.64	0.00	0.00	0.00	0.02	
	-0.18	0.64	0.01	-0.00	-0.00	-0.02	000000
35	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.19	-1.14	-0.01	-0.01	0.00	0.23	111111
36	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.17	-2.93	-0.00	-0.00	0.00	-0.19	111111
37	0.00	-0.66	0.00	-0.00	0.00	-0.02	
	0.19	0.66	0.01	0.00	-0.00	0.02	000000
38	0.00	-0.59	0.00	0.06	0.00	0.02	
	-0.17	0.59	0.00	-0.06	-0.00	-0.02	000000
40	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.10	-2.83	-0.01	-0.02	0.00	0.13	111111
41	0.00	-0.57	0.00	0.06	0.00	-0.02	
	0.10	0.57	0.01	-0.06	-0.00	0.02	000000
42	0.00	-0.26	0.00	0.00	0.00	0.00	
	-0.01	-1.31	-0.01	-0.01	0.00	0.02	111111
44	0.00	-0.26	0.00	0.00	0.00	0.00	
	0.09	-0.72	0.03	0.04	0.00	-0.10	111111
46	0.00	-0.26	0.00	0.00	0.00	0.00	

FOR LOADING - 2
APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
3	0.00000E+00	-1.05600E+00	0.00000E+00	1.05600E+00	0.00000E+00	0.00000E+00
4	0.00000E+00	-1.05525E+00	0.00000E+00	7.91437E-01	0.00000E+00	0.00000E+00
6	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
8	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
10	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
12	0.00000E+00	-1.40700E+00	0.00000E+00	1.40700E+00	0.00000E+00	0.00000E+00
15	0.00000E+00	-2.46300E+00	0.00000E+00	3.51000E-01	0.00000E+00	0.00000E+00
16	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
17	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
19	0.00000E+00	-4.22100E+00	0.00000E+00	-1.40700E+00	0.00000E+00	0.00000E+00
21	0.00000E+00	-4.22100E+00	0.00000E+00	-1.40700E+00	0.00000E+00	0.00000E+00
23	0.00000E+00	-2.81400E+00	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
26	0.00000E+00	-2.81400E+00	0.00000E+00	2.63700E-07	0.00000E+00	0.00000E+00
27	0.00000E+00	-4.83070E+00	0.00000E+00	-1.36870E+00	0.00000E+00	0.00000E+00
28	0.00000E+00	-4.83070E+00	0.00000E+00	-1.36870E+00	0.00000E+00	0.00000E+00
30	0.00000E+00	-2.41535E+00	0.00000E+00	-6.84349E-01	0.00000E+00	0.00000E+00
32	0.00000E+00	-2.81400E+00	0.00000E+00	2.63700E-07	0.00000E+00	0.00000E+00
34	0.00000E+00	-2.81400E+00	0.00000E+00	2.63700E-07	0.00000E+00	0.00000E+00
37	0.00000E+00	-2.81400E+00	0.00000E+00	-1.75800E-07	0.00000E+00	0.00000E+00
38	0.00000E+00	-2.20430E+00	0.00000E+00	4.77598E-01	0.00000E+00	0.00000E+00
39	0.00000E+00	-1.40700E+00	0.00000E+00	7.03500E-01	0.00000E+00	0.00000E+00
41	0.00000E+00	-2.23420E+00	0.00000E+00	8.82727E-01	0.00000E+00	0.00000E+00
43	0.00000E+00	-2.81400E+00	0.00000E+00	-1.75800E-07	0.00000E+00	0.00000E+00
45	0.00000E+00	-1.40700E+00	0.00000E+00	-1.40700E+00	0.00000E+00	0.00000E+00
48	0.00000E+00	-1.40700E+00	0.00000E+00	-1.40700E+00	0.00000E+00	0.00000E+00
49	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
50	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
52	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
54	0.00000E+00	-1.40700E+00	0.00000E+00	-1.40700E+00	0.00000E+00	0.00000E+00
55	0.00000E+00	-2.11200E+00	0.00000E+00	2.11200E+00	0.00000E+00	0.00000E+00
56	0.00000E+00	-7.92000E-01	0.00000E+00	5.94000E-01	0.00000E+00	0.00000E+00
57	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
58	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
59	0.00000E+00	-5.62800E+00	0.00000E+00	5.27401E-07	0.00000E+00	0.00000E+00
60	0.00000E+00	-5.62800E+00	0.00000E+00	5.27401E-07	0.00000E+00	0.00000E+00
61	0.00000E+00	-5.62800E+00	0.00000E+00	-3.51601E-07	0.00000E+00	0.00000E+00
62	0.00000E+00	-5.62800E+00	0.00000E+00	-3.51601E-07	0.00000E+00	0.00000E+00
63	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
64	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
65	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
66	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
67	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
68	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
69	0.00000E+00	-4.83070E+00	0.00000E+00	-1.36870E+00	0.00000E+00	0.00000E+00
70	0.00000E+00	-4.83070E+00	0.00000E+00	-1.36870E+00	0.00000E+00	0.00000E+00
71	0.00000E+00	-3.61130E+00	0.00000E+00	-1.02320E+00	0.00000E+00	0.00000E+00
72	0.00000E+00	-2.50915E+00	0.00000E+00	-1.59851E-01	0.00000E+00	0.00000E+00
73	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
74	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
75	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
76	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
77	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
78	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
79	0.00000E+00	-4.83070E+00	0.00000E+00	-1.36870E+00	0.00000E+00	0.00000E+00
80	0.00000E+00	-4.83070E+00	0.00000E+00	-1.36870E+00	0.00000E+00	0.00000E+00
81	0.00000E+00	-1.40700E+00	0.00000E+00	7.03500E-01	0.00000E+00	0.00000E+00
82	0.00000E+00	-1.40700E+00	0.00000E+00	7.03500E-01	0.00000E+00	0.00000E+00
83	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
84	0.00000E+00	-1.40700E+00	0.00000E+00	-7.03500E-01	0.00000E+00	0.00000E+00
85	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
86	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
87	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
88	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
91	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
92	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
93	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
94	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
95	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
96	0.00000E+00	-2.81400E+00	0.00000E+00	2.81400E+00	0.00000E+00	0.00000E+00
97	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
98	0.00000E+00	-5.62800E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
99	0.00000E+00	-5.62800E+00	0.00000E+00	5.27401E-07	0.00000E+00	0.00000E+00
100	0.00000E+00	-5.62800E+00	0.00000E+00	5.27401E-07	0.00000E+00	0.00000E+00
101	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
102	0.00000E+00	-2.81400E+00	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00
103	0.00000E+00	-5.28000E-01	0.00000E+00	-1.32000E-01	0.00000E+00	0.00000E+00
105	0.00000E+00	-2.11200E+00	0.00000E+00	-2.11200E+00	0.00000E+00	0.00000E+00
106	0.00000E+00	-1.32000E+00	0.00000E+00	-4.62000E-01	0.00000E+00	0.00000E+00
107	0.00000E+00	-1.05525E+00	0.00000E+00	-7.91437E-01	0.00000E+00	0.00000E+00
108	0.00000E+00	-5.28000E-01	0.00000E+00	1.32000E-01	0.00000E+00	0.00000E+00
109	0.00000E+00	-5.28000E-01	0.00000E+00	-1.32000E-01	0.00000E+00	0.00000E+00
110	0.00000E+00	-2.81400E+00	0.00000E+00	-1.21940E+00	0.00000E+00	0.00000E+00
111	0.00000E+00	-2.01670E+00	0.00000E+00	-1.44530E+00	0.00000E+00	0.00000E+00
112	0.00000E+00	-1.30755E+00	0.00000E+00	-6.37878E-01	0.00000E+00	0.00000E+00
113	0.00000E+00	-4.22100E+00	0.00000E+00	2.81400E-01	0.00000E+00	0.00000E+00
114	0.00000E+00	-3.11885E+00	0.00000E+00	-5.81951E-01	0.00000E+00	0.00000E+00
115	0.00000E+00	-2.01670E+00	0.00000E+00	-1.44530E+00	0.00000E+00	0.00000E+00
116	0.00000E+00	-2.01670E+00	0.00000E+00	-1.44530E+00	0.00000E+00	0.00000E+00
117	0.00000E+00	-2.81400E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
118	0.00000E+00	-3.34200E+00	0.00000E+00	-2.64000E-01	0.00000E+00	0.00000E+00
119	0.00000E+00	-8.27200E-01	0.00000E+00	6.47973E-01	0.00000E+00	0.00000E+00
120	0.00000E+00	-8.27200E-01	0.00000E+00	-6.47973E-01	0.00000E+00	0.00000E+00
121	0.00000E+00	-1.65440E+00	0.00000E+00	1.29595E+00	0.00000E+00	0.00000E+00
122	0.00000E+00	-1.65440E+00	0.00000E+00	-1.29595E+00	0.00000E+00	0.00000E+00
123	0.00000E+00	-8.27200E-01	0.00000E+00	6.47973E-01	0.00000E+00	0.00000E+00
124	0.00000E+00	-8.27200E-01	0.00000E+00	-6.47973E-01	0.00000E+00	0.00000E+00

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 2
LOADTYPE DEAD TITLE CM

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.138899663E+02
Y = 0.389999989E+01
Z = 0.115076448E+02

***TOTAL APPLIED LOAD (MTON METE) SUMMARY (LOADING 2)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -271.52
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 3124.52 MY= 0.00 MZ= -3771.36

***TOTAL REACTION LOAD(MTON METE) SUMMARY (LOADING 2)
SUMMATION FORCE-X = -0.00
SUMMATION FORCE-Y = 271.52
SUMMATION FORCE-Z = -0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -3124.52 MY= 0.00 MZ= 3771.36

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 2)

	MAXIMUMS	AT NODE
X =	-9.47208E-03	3
Y =	-2.34351E+00	111
Z =	-3.23896E-03	45
RX=	-4.44057E-03	50
RY=	1.24055E-06	129
RZ=	5.46517E-03	121

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (MTON METE)-

JT	EXT FX/ INT FX	EXT FY/ INT FY	EXT FZ/ INT FZ	EXT MX/ INT MX	EXT MY/ INT MY	EXT MZ/ INT MZ	
							SUPPORT=1
1	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.46	-2.60	-0.22	-0.28	0.00	0.64	111111
2	0.00	0.00	0.00	0.00	0.00	0.00	
	-3.03	-8.56	-0.29	-0.37	0.00	3.63	111111
3	0.00	-1.06	0.00	1.06	0.00	0.00	
	0.46	1.06	0.22	-1.06	-0.00	-0.00	000000
4	0.00	-1.06	0.00	0.79	0.00	0.00	
	3.03	1.06	0.29	-0.79	-0.00	0.00	000000
7	0.00	0.00	0.00	0.00	0.00	0.00	
	2.41	-11.77	-0.69	-0.89	0.00	-2.69	111111
8	0.00	-2.81	0.00	2.81	0.00	0.00	
	-2.41	2.81	0.69	-2.81	-0.00	-0.00	000000
9	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.24	-7.39	-0.68	-0.88	0.00	0.39	111111

10	0.00	-2.81	0.00	2.81	0.00	0.00	
	0.24	2.81	0.68	-2.81	-0.00	0.00	000000
11	0.00	0.00	0.00	0.00	0.00	0.00	
	0.80	-3.40	-0.33	-0.44	0.00	-0.82	111111
12	0.00	-1.41	0.00	1.41	0.00	0.00	
	-0.80	1.41	0.33	-1.41	-0.00	-0.00	000000
13	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.72	-5.49	-0.02	-0.02	0.00	0.93	111111
14	0.00	0.00	0.00	0.00	0.00	0.00	
	-6.13	-25.00	-0.18	-0.23	0.00	7.21	111111
15	0.00	-2.46	0.00	0.35	0.00	0.00	
	0.72	2.46	0.02	-0.35	-0.00	0.00	000000
16	0.00	-2.81	0.00	2.81	0.00	0.00	
	6.13	2.81	0.18	-2.81	-0.00	-0.00	000000
18	0.00	0.00	0.00	0.00	0.00	0.00	
	6.72	-23.32	0.32	0.40	0.00	-7.70	111111
19	0.00	-4.22	0.00	-1.41	0.00	0.00	
	-6.72	4.22	-0.32	1.41	-0.00	0.00	000000
20	0.00	0.00	0.00	0.00	0.00	0.00	
	-1.93	-12.59	0.30	0.37	0.00	2.34	111111
21	0.00	-4.22	0.00	-1.41	0.00	0.00	
	1.93	4.22	-0.30	1.41	-0.00	-0.00	000000
22	0.00	0.00	0.00	0.00	0.00	0.00	
	2.43	-8.95	0.03	0.03	0.00	-2.72	111111
23	0.00	-2.81	0.00	0.00	0.00	0.00	
	-2.43	2.81	-0.03	-0.00	-0.00	-0.00	000000
24	0.00	0.00	0.00	0.00	0.00	0.00	
	-1.37	-7.07	0.01	0.01	0.00	1.68	111111
25	0.00	0.00	0.00	0.00	0.00	0.00	
	-5.60	-30.54	-0.18	-0.23	0.00	6.59	111111
26	0.00	-2.81	0.00	0.00	0.00	0.00	
	1.37	2.81	-0.01	-0.00	-0.00	0.00	000000
27	0.00	-4.83	0.00	-1.37	0.00	0.00	
	5.60	4.83	0.18	1.37	-0.00	-0.00	000000
29	0.00	0.00	0.00	0.00	0.00	0.00	
	8.11	-16.94	-0.16	-0.22	0.00	-9.32	111111
30	0.00	-2.42	0.00	-0.68	0.00	0.00	
	-8.11	2.42	0.16	0.68	-0.00	0.00	000000
31	0.00	0.00	0.00	0.00	0.00	0.00	
	-2.61	-8.78	-0.05	-0.07	0.00	3.12	111111
32	0.00	-2.81	0.00	0.00	0.00	0.00	
	2.61	2.81	0.05	-0.00	-0.00	0.00	000000
33	0.00	0.00	0.00	0.00	0.00	0.00	
	2.49	-9.03	-0.06	-0.10	0.00	-2.79	111111
34	0.00	-2.81	0.00	0.00	0.00	0.00	

41	0.00	-2.23	0.00	0.88	0.00	0.00	
	1.09	2.23	0.23	-0.88	-0.00	0.00	000000
42	0.00	0.00	0.00	0.00	0.00	0.00	
	0.08	-8.60	-0.05	-0.07	0.00	-0.01	111111
44	0.00	0.00	0.00	0.00	0.00	0.00	
	0.69	-3.29	0.31	0.38	0.00	-0.72	111111
45	0.00	-1.41	0.00	-1.41	0.00	0.00	
	-0.69	1.41	-0.31	1.41	-0.00	-0.00	000000
46	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.62	-3.01	0.32	0.41	0.00	0.79	111111
47	0.00	0.00	0.00	0.00	0.00	0.00	
	-1.58	-11.77	0.73	0.93	0.00	1.91	111111
48	0.00	-1.41	0.00	-1.41	0.00	0.00	
	0.62	1.41	-0.32	1.41	-0.00	0.00	000000
49	0.00	-1.41	0.00	-0.70	0.00	0.00	
	1.58	1.41	-0.73	0.70	-0.00	-0.00	000000
51	0.00	0.00	0.00	0.00	0.00	0.00	
	1.10	-12.21	0.87	1.10	0.00	-1.20	111111
52	0.00	-1.41	0.00	-0.70	0.00	0.00	
	-1.10	1.41	-0.87	0.70	-0.00	0.00	000000
53	0.00	0.00	0.00	0.00	0.00	0.00	
	0.72	-3.47	0.31	0.38	0.00	-0.76	111111
54	0.00	-1.41	0.00	-1.41	0.00	0.00	
	-0.72	1.41	-0.31	1.41	-0.00	-0.00	000000

FOR LOADING - 3
APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
3	0.00000E+00	-2.25000E-01	0.00000E+00	2.25000E-01	0.00000E+00	0.00000E+00
4	0.00000E+00	-2.25000E-01	0.00000E+00	1.68750E-01	0.00000E+00	0.00000E+00
6	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
8	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
10	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
12	0.00000E+00	-3.00000E-01	0.00000E+00	3.00000E-01	0.00000E+00	0.00000E+00
15	0.00000E+00	-5.25000E-01	0.00000E+00	7.50000E-02	0.00000E+00	0.00000E+00
16	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
17	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
19	0.00000E+00	-9.00000E-01	0.00000E+00	-3.00000E-01	0.00000E+00	0.00000E+00
21	0.00000E+00	-9.00000E-01	0.00000E+00	-3.00000E-01	0.00000E+00	0.00000E+00
23	0.00000E+00	-6.00000E-01	0.00000E+00	2.19750E-08	0.00000E+00	0.00000E+00
26	0.00000E+00	-6.00000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
27	0.00000E+00	-1.03000E+00	0.00000E+00	-2.91833E-01	0.00000E+00	0.00000E+00
28	0.00000E+00	-1.03000E+00	0.00000E+00	-2.91833E-01	0.00000E+00	0.00000E+00
30	0.00000E+00	-5.15000E-01	0.00000E+00	-1.45917E-01	0.00000E+00	0.00000E+00
32	0.00000E+00	-6.00000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
34	0.00000E+00	-6.00000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
37	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
38	0.00000E+00	-4.70000E-01	0.00000E+00	1.01833E-01	0.00000E+00	0.00000E+00
39	0.00000E+00	-3.00000E-01	0.00000E+00	1.50000E-01	0.00000E+00	0.00000E+00
41	0.00000E+00	-4.76250E-01	0.00000E+00	1.88187E-01	0.00000E+00	0.00000E+00
43	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
45	0.00000E+00	-3.00000E-01	0.00000E+00	-3.00000E-01	0.00000E+00	0.00000E+00
48	0.00000E+00	-3.00000E-01	0.00000E+00	-3.00000E-01	0.00000E+00	0.00000E+00
49	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00
50	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00
52	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
54	0.00000E+00	-3.00000E-01	0.00000E+00	-3.00000E-01	0.00000E+00	0.00000E+00
55	0.00000E+00	-4.50000E-01	0.00000E+00	4.50000E-01	0.00000E+00	0.00000E+00
56	0.00000E+00	-1.68750E-01	0.00000E+00	1.26563E-01	0.00000E+00	0.00000E+00
57	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
58	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
59	0.00000E+00	-1.20000E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
60	0.00000E+00	-1.20000E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
61	0.00000E+00	-1.20000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
62	0.00000E+00	-1.20000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
63	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
64	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
65	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
66	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
67	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
68	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
69	0.00000E+00	-1.03000E+00	0.00000E+00	-2.91833E-01	0.00000E+00	0.00000E+00
70	0.00000E+00	-1.03000E+00	0.00000E+00	-2.91833E-01	0.00000E+00	0.00000E+00
71	0.00000E+00	-7.70000E-01	0.00000E+00	-2.18167E-01	0.00000E+00	0.00000E+00
72	0.00000E+00	-5.35000E-01	0.00000E+00	-3.40833E-02	0.00000E+00	0.00000E+00
73	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00
74	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00
75	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
76	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
77	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
78	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
79	0.00000E+00	-1.03000E+00	0.00000E+00	-2.91833E-01	0.00000E+00	0.00000E+00
80	0.00000E+00	-1.03000E+00	0.00000E+00	-2.91833E-01	0.00000E+00	0.00000E+00
81	0.00000E+00	-3.00000E-01	0.00000E+00	1.50000E-01	0.00000E+00	0.00000E+00
82	0.00000E+00	-3.00000E-01	0.00000E+00	1.50000E-01	0.00000E+00	0.00000E+00
83	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00
84	0.00000E+00	-3.00000E-01	0.00000E+00	-1.50000E-01	0.00000E+00	0.00000E+00
85	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
86	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
87	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
88	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
91	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
92	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
93	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
94	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
95	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
96	0.00000E+00	-6.00000E-01	0.00000E+00	6.00000E-01	0.00000E+00	0.00000E+00
97	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
98	0.00000E+00	-1.20000E+00	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
99	0.00000E+00	-1.20000E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
100	0.00000E+00	-1.20000E+00	0.00000E+00	1.75800E-07	0.00000E+00	0.00000E+00
101	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
102	0.00000E+00	-6.00000E-01	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00
103	0.00000E+00	-1.12500E-01	0.00000E+00	-2.81250E-02	0.00000E+00	0.00000E+00
105	0.00000E+00	-4.50000E-01	0.00000E+00	-4.50000E-01	0.00000E+00	0.00000E+00
106	0.00000E+00	-2.81250E-01	0.00000E+00	-9.84375E-02	0.00000E+00	0.00000E+00
107	0.00000E+00	-2.25000E-01	0.00000E+00	-1.68750E-01	0.00000E+00	0.00000E+00
108	0.00000E+00	-1.12500E-01	0.00000E+00	2.81250E-02	0.00000E+00	0.00000E+00
109	0.00000E+00	-1.12500E-01	0.00000E+00	-2.81250E-02	0.00000E+00	0.00000E+00

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
110	0.00000E+00	-6.00000E-01	0.00000E+00	-2.60000E-01	0.00000E+00	0.00000E+00
111	0.00000E+00	-4.30000E-01	0.00000E+00	-3.08167E-01	0.00000E+00	0.00000E+00
112	0.00000E+00	-2.78750E-01	0.00000E+00	-1.36021E-01	0.00000E+00	0.00000E+00
113	0.00000E+00	-9.00000E-01	0.00000E+00	5.99999E-02	0.00000E+00	0.00000E+00
114	0.00000E+00	-6.65000E-01	0.00000E+00	-1.24083E-01	0.00000E+00	0.00000E+00
115	0.00000E+00	-4.30000E-01	0.00000E+00	-3.08167E-01	0.00000E+00	0.00000E+00
116	0.00000E+00	-4.30000E-01	0.00000E+00	-3.08167E-01	0.00000E+00	0.00000E+00
117	0.00000E+00	-6.00000E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
118	0.00000E+00	-7.12500E-01	0.00000E+00	-5.62500E-02	0.00000E+00	0.00000E+00
119	0.00000E+00	-1.76250E-01	0.00000E+00	1.38062E-01	0.00000E+00	0.00000E+00
120	0.00000E+00	-1.76250E-01	0.00000E+00	-1.38062E-01	0.00000E+00	0.00000E+00
123	0.00000E+00	-1.76250E-01	0.00000E+00	1.38062E-01	0.00000E+00	0.00000E+00
124	0.00000E+00	-1.76250E-01	0.00000E+00	-1.38062E-01	0.00000E+00	0.00000E+00

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 3
LOADTYPE LIVE TITLE CV MAX

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.138568383E+02
Y = 0.389999989E+01
Z = 0.114196510E+02

***TOTAL APPLIED LOAD (MTON METE) SUMMARY (LOADING 3)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -57.18
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 653.03 MY= 0.00 MZ= -792.40

***TOTAL REACTION LOAD(MTON METE) SUMMARY (LOADING 3)
SUMMATION FORCE-X = -0.00
SUMMATION FORCE-Y = 57.18
SUMMATION FORCE-Z = -0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -653.03 MY= 0.00 MZ= 792.40

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 3)

	MAXIMUMS	AT NODE
X =	-1.98085E-03	96
Y =	-4.73746E-01	111
Z =	-5.14674E-04	45
RX=	-8.80549E-04	74
RY=	2.36289E-07	6
RZ=	1.08889E-03	121

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (MTON METE)-

JT	EXT FX/ INT FX	EXT FY/ INT FY	EXT FZ/ INT FZ	EXT MX/ INT MX	EXT MY/ INT MY	EXT MZ/ INT MZ	
							SUPPORT=1
1	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.10	-0.55	-0.05	-0.06	0.00	0.14	111111
2	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.65	-1.83	-0.06	-0.08	0.00	0.77	111111
4	0.00	-0.22	0.00	0.17	0.00	0.00	
	0.65	0.22	0.06	-0.17	-0.00	0.00	000000
7	0.00	0.00	0.00	0.00	0.00	0.00	
	0.52	-2.51	-0.15	-0.19	0.00	-0.58	111111
8	0.00	-0.60	0.00	0.60	0.00	0.00	
	-0.52	0.60	0.15	-0.60	-0.00	0.00	000000
9	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.05	-1.58	-0.14	-0.19	0.00	0.08	111111
10	0.00	-0.60	0.00	0.60	0.00	0.00	
	0.05	0.60	0.14	-0.60	-0.00	0.00	000000
11	0.00	0.00	0.00	0.00	0.00	0.00	
	0.17	-0.73	-0.07	-0.09	0.00	-0.18	111111
12	0.00	-0.30	0.00	0.30	0.00	0.00	
	-0.17	0.30	0.07	-0.30	-0.00	0.00	000000
13	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.15	-1.17	-0.00	-0.00	0.00	0.20	111111
14	0.00	0.00	0.00	0.00	0.00	0.00	
	-1.31	-5.34	-0.04	-0.05	0.00	1.54	111111
15	0.00	-0.53	0.00	0.07	0.00	0.00	
	0.15	0.53	0.00	-0.07	-0.00	-0.00	000000
16	0.00	-0.60	0.00	0.60	0.00	0.00	
	1.31	0.60	0.04	-0.60	-0.00	-0.00	000000
18	0.00	0.00	0.00	0.00	0.00	0.00	
	1.44	-4.99	0.07	0.08	0.00	-1.65	111111
19	0.00	-0.90	0.00	-0.30	0.00	0.00	
	-1.44	0.90	-0.07	0.30	-0.00	0.00	000000
20	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.41	-2.68	0.06	0.08	0.00	0.50	111111
21	0.00	-0.90	0.00	-0.30	0.00	0.00	
	0.41	0.90	-0.06	0.30	-0.00	-0.00	000000
22	0.00	0.00	0.00	0.00	0.00	0.00	
	0.52	-1.91	0.01	0.01	0.00	-0.58	111111
23	0.00	-0.60	0.00	0.00	0.00	0.00	
	-0.52	0.60	-0.01	-0.00	-0.00	0.00	000000
24	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.29	-1.51	0.00	0.00	0.00	0.36	111111

30	0.00	-0.51	0.00	-0.15	0.00	0.00	
	-1.71	0.51	0.02	0.15	-0.00	0.00	000000
31	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.56	-1.87	-0.01	-0.01	0.00	0.66	111111
32	0.00	-0.60	0.00	0.00	0.00	0.00	
	0.56	0.60	0.01	-0.00	-0.00	0.00	000000
33	0.00	0.00	0.00	0.00	0.00	0.00	
	0.53	-1.93	-0.01	-0.02	0.00	-0.60	111111
34	0.00	-0.60	0.00	0.00	0.00	0.00	
	-0.53	0.60	0.01	-0.00	-0.00	-0.00	000000
35	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.51	-1.91	-0.01	-0.01	0.00	0.61	111111
36	0.00	0.00	0.00	0.00	0.00	0.00	
	0.48	-4.52	0.00	0.00	0.00	-0.53	111111
37	0.00	-0.60	0.00	0.00	0.00	0.00	
	0.51	0.60	0.01	-0.00	-0.00	-0.00	000000
38	0.00	-0.47	0.00	0.10	0.00	0.00	
	-0.48	0.47	-0.00	-0.10	-0.00	0.00	000000
40	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.23	-3.28	-0.05	-0.06	0.00	0.29	111111
41	0.00	-0.48	0.00	0.19	0.00	0.00	
	0.23	0.48	0.05	-0.19	-0.00	0.00	000000
42	0.00	0.00	0.00	0.00	0.00	0.00	
	0.02	-1.83	-0.01	-0.01	0.00	-0.00	111111
44	0.00	0.00	0.00	0.00	0.00	0.00	
	0.15	-0.70	0.07	0.08	0.00	-0.15	111111
45	0.00	-0.30	0.00	-0.30	0.00	0.00	
	-0.15	0.30	-0.07	0.30	-0.00	-0.00	000000
46	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.13	-0.65	0.07	0.09	0.00	0.17	111111
47	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.33	-2.48	0.16	0.20	0.00	0.39	111111
48	0.00	-0.30	0.00	-0.30	0.00	0.00	
	0.13	0.30	-0.07	0.30	-0.00	-0.00	000000
49	0.00	-0.30	0.00	-0.15	0.00	0.00	
	0.33	0.30	-0.16	0.15	-0.00	-0.00	000000
51	0.00	0.00	0.00	0.00	0.00	0.00	
	0.23	-2.48	0.16	0.21	0.00	-0.25	111111
52	0.00	-0.30	0.00	-0.15	0.00	0.00	
	-0.23	0.30	-0.16	0.15	-0.00	-0.00	000000
53	0.00	0.00	0.00	0.00	0.00	0.00	
	0.15	-0.74	0.07	0.08	0.00	-0.16	111111
54	0.00	-0.30	0.00	-0.30	0.00	0.00	
	-0.15	0.30	-0.07	0.30	-0.00	-0.00	000000

FOR LOADING - 4

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
17	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
19	0.00000E+00	-6.30000E-01	0.00000E+00	-2.10000E-01	0.00000E+00	0.00000E+00
21	0.00000E+00	-6.30000E-01	0.00000E+00	-2.10000E-01	0.00000E+00	0.00000E+00
23	0.00000E+00	-4.20000E-01	0.00000E+00	2.19750E-08	0.00000E+00	0.00000E+00
26	0.00000E+00	-4.20000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
27	0.00000E+00	-7.21000E-01	0.00000E+00	-2.04283E-01	0.00000E+00	0.00000E+00
28	0.00000E+00	-7.21000E-01	0.00000E+00	-2.04283E-01	0.00000E+00	0.00000E+00
30	0.00000E+00	-3.60500E-01	0.00000E+00	-1.02142E-01	0.00000E+00	0.00000E+00
32	0.00000E+00	-4.20000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
34	0.00000E+00	-4.20000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
37	0.00000E+00	-4.20000E-01	0.00000E+00	-2.19750E-08	0.00000E+00	0.00000E+00
38	0.00000E+00	-3.29000E-01	0.00000E+00	7.12833E-02	0.00000E+00	0.00000E+00
39	0.00000E+00	-2.10000E-01	0.00000E+00	1.05000E-01	0.00000E+00	0.00000E+00
41	0.00000E+00	-3.34550E-01	0.00000E+00	1.31986E-01	0.00000E+00	0.00000E+00
43	0.00000E+00	-4.20000E-01	0.00000E+00	-2.19750E-08	0.00000E+00	0.00000E+00
45	0.00000E+00	-2.10000E-01	0.00000E+00	-2.10000E-01	0.00000E+00	0.00000E+00
48	0.00000E+00	-2.10000E-01	0.00000E+00	-2.10000E-01	0.00000E+00	0.00000E+00
49	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
50	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
52	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
54	0.00000E+00	-2.10000E-01	0.00000E+00	-2.10000E-01	0.00000E+00	0.00000E+00
55	0.00000E+00	-3.15000E-01	0.00000E+00	3.15000E-01	0.00000E+00	0.00000E+00
56	0.00000E+00	-1.19250E-01	0.00000E+00	8.94375E-02	0.00000E+00	0.00000E+00
57	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
58	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
59	0.00000E+00	-8.40000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
60	0.00000E+00	-8.40000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
61	0.00000E+00	-8.40000E-01	0.00000E+00	-4.39501E-08	0.00000E+00	0.00000E+00
62	0.00000E+00	-8.40000E-01	0.00000E+00	-4.39501E-08	0.00000E+00	0.00000E+00
63	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
64	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
65	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
66	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
67	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
68	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
69	0.00000E+00	-7.21000E-01	0.00000E+00	-2.04283E-01	0.00000E+00	0.00000E+00
70	0.00000E+00	-7.21000E-01	0.00000E+00	-2.04283E-01	0.00000E+00	0.00000E+00
71	0.00000E+00	-5.39000E-01	0.00000E+00	-1.52717E-01	0.00000E+00	0.00000E+00
72	0.00000E+00	-3.74500E-01	0.00000E+00	-2.38583E-02	0.00000E+00	0.00000E+00
73	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
74	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
75	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
76	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
77	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
78	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
79	0.00000E+00	-7.21000E-01	0.00000E+00	-2.04283E-01	0.00000E+00	0.00000E+00
80	0.00000E+00	-7.21000E-01	0.00000E+00	-2.04283E-01	0.00000E+00	0.00000E+00
81	0.00000E+00	-2.10000E-01	0.00000E+00	1.05000E-01	0.00000E+00	0.00000E+00
82	0.00000E+00	-2.10000E-01	0.00000E+00	1.05000E-01	0.00000E+00	0.00000E+00
83	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
84	0.00000E+00	-2.10000E-01	0.00000E+00	-1.05000E-01	0.00000E+00	0.00000E+00
85	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
86	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00

APPLIED JOINT EQUIVALENT LOADS

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM-Z
87	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
88	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
91	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
92	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
93	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
94	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
95	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
96	0.00000E+00	-4.20000E-01	0.00000E+00	4.20000E-01	0.00000E+00	0.00000E+00
97	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
98	0.00000E+00	-8.40000E-01	0.00000E+00	4.39501E-08	0.00000E+00	0.00000E+00
99	0.00000E+00	-8.40000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
100	0.00000E+00	-8.40000E-01	0.00000E+00	8.79001E-08	0.00000E+00	0.00000E+00
101	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
102	0.00000E+00	-4.20000E-01	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00
103	0.00000E+00	-7.87500E-02	0.00000E+00	-1.96875E-02	0.00000E+00	0.00000E+00
105	0.00000E+00	-3.15000E-01	0.00000E+00	-3.15000E-01	0.00000E+00	0.00000E+00
106	0.00000E+00	-1.98000E-01	0.00000E+00	-6.97500E-02	0.00000E+00	0.00000E+00
107	0.00000E+00	-1.57500E-01	0.00000E+00	-1.18125E-01	0.00000E+00	0.00000E+00
108	0.00000E+00	-7.87500E-02	0.00000E+00	1.96875E-02	0.00000E+00	0.00000E+00
109	0.00000E+00	-7.87500E-02	0.00000E+00	-1.96875E-02	0.00000E+00	0.00000E+00
110	0.00000E+00	-4.20000E-01	0.00000E+00	-1.82000E-01	0.00000E+00	0.00000E+00
111	0.00000E+00	-3.01000E-01	0.00000E+00	-2.15717E-01	0.00000E+00	0.00000E+00
112	0.00000E+00	-1.95550E-01	0.00000E+00	-9.50942E-02	0.00000E+00	0.00000E+00
113	0.00000E+00	-6.30000E-01	0.00000E+00	4.19999E-02	0.00000E+00	0.00000E+00
114	0.00000E+00	-4.65500E-01	0.00000E+00	-8.68584E-02	0.00000E+00	0.00000E+00
115	0.00000E+00	-3.01000E-01	0.00000E+00	-2.15717E-01	0.00000E+00	0.00000E+00
116	0.00000E+00	-3.01000E-01	0.00000E+00	-2.15717E-01	0.00000E+00	0.00000E+00
117	0.00000E+00	-4.20000E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
118	0.00000E+00	-4.99500E-01	0.00000E+00	-3.97500E-02	0.00000E+00	0.00000E+00
119	0.00000E+00	-1.24550E-01	0.00000E+00	9.75641E-02	0.00000E+00	0.00000E+00
120	0.00000E+00	-1.24550E-01	0.00000E+00	-9.75641E-02	0.00000E+00	0.00000E+00
121	0.00000E+00	-2.46750E-01	0.00000E+00	1.93287E-01	0.00000E+00	0.00000E+00
122	0.00000E+00	-2.46750E-01	0.00000E+00	-1.93287E-01	0.00000E+00	0.00000E+00
123	0.00000E+00	-1.24550E-01	0.00000E+00	9.75641E-02	0.00000E+00	0.00000E+00
124	0.00000E+00	-1.24550E-01	0.00000E+00	-9.75641E-02	0.00000E+00	0.00000E+00

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 4
LOADTYPE LIVE TITLE CV INST

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.138887780E+02
Y = 0.389999989E+01
Z = 0.115078029E+02

***TOTAL APPLIED LOAD (MTON METE) SUMMARY (LOADING 4)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -40.54
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 466.47 MY= 0.00 MZ= -562.99

***TOTAL REACTION LOAD(MTON METE) SUMMARY (LOADING 4)
SUMMATION FORCE-X = -0.00
SUMMATION FORCE-Y = 40.54
SUMMATION FORCE-Z = -0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -466.47 MY= 0.00 MZ= 562.99

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 4)

	MAXIMUMS	AT NODE
X =	-1.41443E-03	96
Y =	-3.50133E-01	111
Z =	-4.84382E-04	12
RX=	-6.63828E-04	50
RY=	1.85966E-07	6
RZ=	8.16570E-04	121

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (MTON METE)-

JT	EXT FX/ INT FX	EXT FY/ INT FY	EXT FZ/ INT FZ	EXT MX/ INT MX	EXT MY/ INT MY	EXT MZ/ INT MZ	
							SUPPORT=1
1	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.07	-0.39	-0.03	-0.04	0.00	0.10	111111
2	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.45	-1.28	-0.04	-0.05	0.00	0.54	111111
4	0.00	-0.16	0.00	0.12	0.00	0.00	
	0.45	0.16	0.04	-0.12	-0.00	0.00	000000
7	0.00	0.00	0.00	0.00	0.00	0.00	
	0.36	-1.76	-0.10	-0.13	0.00	-0.40	111111
8	0.00	-0.42	0.00	0.42	0.00	0.00	
	-0.36	0.42	0.10	-0.42	-0.00	-0.00	000000
9	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.04	-1.10	-0.10	-0.13	0.00	0.06	111111
10	0.00	-0.42	0.00	0.42	0.00	0.00	
	0.04	0.42	0.10	-0.42	-0.00	-0.00	000000
11	0.00	0.00	0.00	0.00	0.00	0.00	
	0.12	-0.51	-0.05	-0.06	0.00	-0.12	111111
12	0.00	-0.21	0.00	0.21	0.00	0.00	
	-0.12	0.21	0.05	-0.21	-0.00	0.00	000000
13	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.11	-0.82	-0.00	-0.00	0.00	0.14	111111
14	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.91	-3.73	-0.03	-0.03	0.00	1.08	111111
15	0.00	-0.37	0.00	0.05	0.00	0.00	
	0.11	0.37	0.00	-0.05	-0.00	0.00	000000

18	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00	-3.48	0.05	0.06	0.00	-1.15	111111
19	0.00	-0.63	0.00	-0.21	0.00	0.00	
	-1.00	0.63	-0.05	0.21	-0.00	-0.00	000000
20	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.29	-1.88	0.04	0.06	0.00	0.35	111111
21	0.00	-0.63	0.00	-0.21	0.00	0.00	
	0.29	0.63	-0.04	0.21	-0.00	0.00	000000
22	0.00	0.00	0.00	0.00	0.00	0.00	
	0.36	-1.34	0.00	0.00	0.00	-0.41	111111
23	0.00	-0.42	0.00	0.00	0.00	0.00	
	-0.36	0.42	-0.00	-0.00	-0.00	0.00	000000
24	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.20	-1.06	0.00	0.00	0.00	0.25	111111
25	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.84	-4.56	-0.03	-0.04	0.00	0.98	111111
26	0.00	-0.42	0.00	0.00	0.00	0.00	
	0.20	0.42	-0.00	-0.00	-0.00	0.00	000000
27	0.00	-0.72	0.00	-0.20	0.00	0.00	
	0.84	0.72	0.03	0.20	-0.00	-0.00	000000
29	0.00	0.00	0.00	0.00	0.00	0.00	
	1.21	-2.53	-0.02	-0.03	0.00	-1.39	111111
30	0.00	-0.36	0.00	-0.10	0.00	0.00	
	-1.21	0.36	0.02	0.10	-0.00	-0.00	000000
31	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.39	-1.31	-0.01	-0.01	0.00	0.47	111111
32	0.00	-0.42	0.00	0.00	0.00	0.00	
	0.39	0.42	0.01	-0.00	-0.00	-0.00	000000
33	0.00	0.00	0.00	0.00	0.00	0.00	
	0.37	-1.35	-0.01	-0.01	0.00	-0.42	111111
34	0.00	-0.42	0.00	0.00	0.00	0.00	
	-0.37	0.42	0.01	-0.00	-0.00	-0.00	000000
35	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.36	-1.34	-0.01	-0.01	0.00	0.43	111111
36	0.00	0.00	0.00	0.00	0.00	0.00	
	0.33	-3.18	0.00	0.00	0.00	-0.37	111111
37	0.00	-0.42	0.00	-0.00	0.00	0.00	
	0.36	0.42	0.01	0.00	-0.00	-0.00	000000
38	0.00	-0.33	0.00	0.07	0.00	0.00	
	-0.33	0.33	-0.00	-0.07	-0.00	0.00	000000
40	0.00	0.00	0.00	0.00	0.00	0.00	
	-0.16	-2.61	-0.03	-0.05	0.00	0.20	111111
41	0.00	-0.33	0.00	0.13	0.00	0.00	
	0.16	0.33	0.03	-0.13	-0.00	0.00	000000
42	0.00	0.00	0.00	0.00	0.00	0.00	

```
   51      0.00      0.00      0.00       0.00       0.00       0.00
           0.16     -1.82      0.13       0.16       0.00      -0.18  111111

   52      0.00     -0.21      0.00      -0.10       0.00       0.00
          -0.16      0.21     -0.13       0.10      -0.00       0.00  000000

   53      0.00      0.00      0.00       0.00       0.00       0.00
           0.11     -0.52      0.05       0.06       0.00      -0.11  111111

   54      0.00     -0.21      0.00      -0.21       0.00       0.00
          -0.11      0.21     -0.05       0.21      -0.00       0.00  000000


  LOAD COMBINATION NO.    10
  1.0 (PP+CM+CVMAX)

LOADING-     1.     2.     3.
FACTOR -   1.00   1.00   1.00

  LOAD COMBINATION NO.    11
  1.0 (PP+CM+CVINST+ SX+ 0.3 SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00   1.00   0.30

  LOAD COMBINATION NO.    12
  1.0 (PP+CM+CVINST+ SX- 0.3 SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00   1.00  -0.30

  LOAD COMBINATION NO.    13
  1.0 (PP+CM+CVINST- SX+ 0.3 SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00  -1.00   0.30

  LOAD COMBINATION NO.    14
  1.0 (PP+CM+CVINST- SX- 0.3 SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00  -1.00  -0.30

  LOAD COMBINATION NO.    15
  1.0 (PP+CM+CVINST+ 0.3 SX+ SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00   0.30   1.00

  LOAD COMBINATION NO.    16
  1.0 (PP+CM+CVINST+ 0.3 SX- SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00   0.30  -1.00

  LOAD COMBINATION NO.    17
  1.0 (PP+CM+CVINST- 0.3 SX+ SZ)

LOADING-     1.     2.     4.     6.     7.
FACTOR -   1.00   1.00   1.00  -0.30   1.00
```

LOAD COMBINATION NO. 18
1.0 (PP+CM+CVINST- 0.3 SX- SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.00	1.00	1.00	-0.30	-1.00

LOAD COMBINATION NO. 19
1.0 (PP+CM+CVINST)

LOADING-	1.	2.	4.
FACTOR -	1.00	1.00	1.00

LOAD COMBINATION NO. 20
1.4 (PP+CM+CVMAX)

LOADING-	1.	2.	3.
FACTOR -	1.40	1.40	1.40

LOAD COMBINATION NO. 21
1.1 (PP+CM+CVINST+ SX+ 0.33 SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	1.10	0.33

LOAD COMBINATION NO. 22
1.1 (PP+CM+CVINST+ SX- 0.33 SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	1.10	-0.33

LOAD COMBINATION NO. 23
1.1 (PP+CM+CVINST- SX+ 0.33 SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	-1.10	0.33

LOAD COMBINATION NO. 24
1.1 (PP+CM+CVINST- SX- 0.33 SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	-1.10	-0.33

LOAD COMBINATION NO. 25
1.1 (PP+CM+CVINST+ 0.33 SX+ SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	0.33	1.10

LOAD COMBINATION NO. 26
1.1 (PP+CM+CVINST+ 0.33 SX- SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	0.33	-1.10

LOAD COMBINATION NO. 27
1.1 (PP+CM+CVINST- 0.33 SX+ SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	-0.33	1.10

LOAD COMBINATION NO. 28
1.1 (PP+CM+CVINST- 0.33 SX- SZ)

LOADING-	1.	2.	4.	6.	7.
FACTOR -	1.10	1.10	1.10	-0.33	-1.10

********** END OF DATA FROM INTERNAL STORAGE **********

271. LOAD LIST 20 TO 28
272. PARAMETER 1
273. CODE LRFD
274. FU 45700 ALL
275. FYLD 35150 ALL
276. CHECK CODE ALL

STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION) v1.0
****

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.205	28
		3.37 C	-5.43	-4.65	0.00
2	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.300	28
		13.37 C	4.24	13.81	3.90
3	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.350	25
		0.15 C	1.36	3.30	0.00
5	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.944	25
		0.49 C	4.49	18.30	0.00
6	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.267	20
		21.77 C	3.21	-12.61	3.90
7	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.570	28
		0.10 T	-2.64	-11.51	0.00
8	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.225	28
		9.74 C	-5.87	-4.74	0.00
9	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.530	25
		0.19 C	1.25	9.55	0.00
10	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.185	28
		4.30 C	-5.61	-2.58	0.00
11	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.698	25
		0.19 C	2.78	6.00	0.00
12	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.206	28
		7.84 C	-5.80	-3.50	0.00
13	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.483	28
		35.01 C	5.01	24.91	3.90
14	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.328	25
		0.21 C	2.04	3.72	0.00
15	TC W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.941	25
		0.60 C	12.32	42.34	0.00
16	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.517	25
		31.58 C	-5.40	-27.13	3.90

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
17	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.693	28
		0.12 T	-6.62	-35.14	0.00
18	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.246	27
		16.89 C	-5.34	6.87	3.90
19	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.636	25
		0.12 C	1.25	12.95	0.00
20	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.268	25
		11.74 C	-4.94	-9.97	3.90
21	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.861	25
		0.23 C	2.78	11.18	0.00
22	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.210	28
		9.99 C	-5.63	-4.05	0.00
23	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.496	28
		42.97 C	5.93	23.34	3.90
24	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.363	25
		0.21 C	1.96	5.75	0.00
25	TC W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.965	25
		0.47 C	12.40	45.02	0.00
26	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.578	20
		31.91 C	0.86	-41.48	3.90
27	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.702	28
		0.09 T	-6.64	-36.05	0.00
28	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.260	28
		12.25 C	4.46	10.29	3.90
30	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.260	25
		11.84 C	-4.58	-10.08	3.90
31	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.832	25
		0.21 C	2.78	10.29	0.00
32	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.281	28
		13.02 C	5.02	10.68	3.90

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
33	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.314	25
		29.10 C	-5.83	-10.23	3.90
34	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.469	25
		0.34 C	1.95	10.68	0.00
36	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.263	28
		25.51 C	6.40	5.27	3.90
38	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.206	28
		12.35 C	-5.51	-3.77	0.00
39	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.292	25
		0.17 C	0.69	5.28	0.00
40	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.207	25
		6.25 C	5.52	4.39	0.00
41	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.659	25
		0.17 C	4.19	6.78	0.00
42	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.204	25
		5.95 C	5.58	4.00	0.00
43	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.250	27
		15.70 C	-6.86	4.09	3.90
44	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.343	25
		0.25 C	1.94	4.90	0.00
45	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.885	25
		0.32 C	4.58	15.08	0.00
46	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.326	25
		15.89 C	-7.79	-8.22	3.90
47	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.501	28
		0.06 T	-2.67	-8.08	0.00
48	ST W14X90		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.222	25
		6.54 C	5.22	6.12	0.00
49	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.354	25
		0.25 C	1.04	10.55	0.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
50	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.326	28
		0.00 C	0.00	4.53	6.00
51	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.306	28
		0.00 C	0.00	4.25	6.00
52	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.306	28
		0.00 C	0.00	4.25	6.00
53	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.352	25
		0.00 C	0.00	4.89	0.00
54	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.237	25
		0.15 C	0.25	4.23	0.00
55	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.434	28
		0.00 C	0.00	6.03	6.00
56	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.231	25
		0.55 T	-1.84	-6.51	4.30
57	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.586	21
		0.35 C	5.33	14.83	0.00
58	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.427	20
		0.00 C	0.00	5.40	6.00
59	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.543	20
		0.00 C	0.00	6.86	6.00
60	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.334	20
		0.00 C	0.00	6.86	0.00
61	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.078	20
		0.00 C	0.00	-1.91	1.50
62	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.443	28
		0.00 C	0.00	6.15	6.00
63	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.312	25
		0.00 C	0.00	4.34	0.00
64	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.201	25
		0.59 T	-1.80	-4.63	4.30

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
65	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.584	21
		0.36 C	5.31	14.77	0.00
66	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.448	28
		0.00 C	0.00	6.23	6.00
67	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.343	25
		0.00 C	0.00	4.77	0.00
68	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.298	28
		0.00 C	0.00	4.14	6.00
69	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.343	25
		0.00 C	0.00	4.76	0.00
70	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.350	28
		0.00 C	0.00	4.86	6.00
71	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.300	25
		0.00 C	0.00	4.17	0.00
72	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.353	25
		0.00 C	0.00	4.91	0.00
73	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.202	25
		0.02 T	-0.91	-1.16	1.50
74	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.442	28
		0.07 C	0.98	7.45	3.00
75	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.208	28
		0.04 T	-0.94	-4.44	0.00
76	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.169	20
		0.00 C	0.00	8.06	0.50
77	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.447	20
		0.00 C	0.00	-5.65	3.00
78	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.192	20
		0.00 C	0.00	-3.78	3.38
79	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.271	28
		0.00 C	-1.00	-6.91	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
80	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.723	28
		0.21 C	1.88	22.91	2.00
81	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.499	20
		0.00 C	0.00	6.31	6.00
82	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.521	20
		0.00 C	0.00	6.59	6.00
83	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.295	28
		0.00 C	-1.00	-8.06	0.00
84	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.451	28
		0.34 C	1.88	10.24	2.00
85	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.499	20
		0.00 C	0.00	6.30	0.00
86	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.521	20
		0.00 C	0.00	6.59	0.00
87	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.197	28
		0.00 C	-0.99	-3.53	0.00
88	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.446	28
		0.25 C	1.88	10.04	2.00
89	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.409	20
		0.00 C	0.00	-5.17	3.50
90	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.421	20
		0.00 C	0.00	-5.32	3.50
91	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.399	25
		0.29 T	-1.73	-8.68	2.00
92	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.570	25
		0.10 T	-2.64	-11.51	2.00
93	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.479	25
		0.36 T	-4.26	-26.37	2.00
94	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.693	25
		0.12 T	-6.62	-35.14	2.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
95	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.473	25
		0.28 T	-4.20	-26.16	2.00
96	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.702	25
		0.09 T	-6.64	-36.05	2.00
99	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.367	25
		0.19 T	-1.75	-7.13	2.00
100	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.501	25
		0.06 T	-2.67	-8.08	2.00
101	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.435	20
		0.00 C	0.00	5.50	6.00
102	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.417	20
		0.00 C	0.00	5.27	6.00
103	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.518	20
		0.00 C	0.00	6.54	6.00
104	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.582	20
		0.00 C	0.00	7.35	6.00
105	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.319	20
		0.00 C	0.00	6.55	0.00
106	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.358	20
		0.00 C	0.00	7.36	0.00
107	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.126	20
		0.00 C	0.00	-3.06	1.00
108	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.203	20
		0.00 C	0.00	-4.96	0.50
109	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.391	28
		0.29 T	-1.69	-8.56	0.00
110	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.931	28
		0.49 C	4.33	18.61	2.00
111	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.487	28
		0.36 T	-4.15	-28.03	0.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
112	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.795	28
		0.60 C	9.38	28.45	1.50
113	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.499	28
		0.28 T	-4.10	-29.76	0.00
114	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.747	28
		0.47 C	9.41	22.74	1.50
117	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.287	28
		0.19 T	-1.36	-5.61	0.00
118	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.857	28
		0.32 C	4.58	13.83	2.00
119	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.436	20
		0.00 C	0.00	5.51	6.00
120	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.451	20
		0.00 C	0.00	5.70	6.00
121	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.509	20
		0.00 C	0.00	6.44	6.00
122	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.458	20
		0.00 C	0.00	5.79	6.00
123	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.314	20
		0.00 C	0.00	6.44	0.00
124	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.282	20
		0.00 C	0.00	5.80	0.00
125	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.078	20
		0.00 C	0.00	-1.89	1.50
126	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.079	20
		0.00 C	0.00	-1.92	1.50
127	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.204	25
		0.00 C	-0.63	-2.83	2.00
128	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.391	28
		0.19 C	1.26	5.09	2.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
129	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.173	25
		0.00 C	0.62	1.86	0.00
130	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.359	28
		0.12 C	1.26	4.07	2.00
133	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.179	28
		0.00 C	-0.34	-3.71	0.00
134	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.338	28
		0.17 C	0.69	6.72	2.00
135	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.155	25
		0.00 C	-0.53	-4.21	2.00
136	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.246	28
		0.25 C	1.05	5.47	2.00
137	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.592	20
		0.00 C	0.00	-7.48	3.00
138	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.592	20
		0.00 C	0.00	-7.48	3.00
143	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.592	20
		0.00 C	0.00	-7.48	3.00
144	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.592	20
		0.00 C	0.00	-7.48	3.00
145	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.359	25
		0.00 C	-1.40	-3.26	2.00
146	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.661	28
		0.19 C	2.79	4.75	2.00
147	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.490	25
		0.00 C	-1.40	-7.42	2.00
148	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.826	28
		0.23 C	2.80	9.97	2.00
149	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.487	25
		0.00 C	-1.40	-7.35	2.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
150	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.828	28
		0.21 C	2.79	10.08	2.00
151	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.334	25
		0.00 C	-2.11	-3.50	2.00
152	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.613	28
		0.17 C	4.21	4.54	2.00
153	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.443	20
		0.00 C	0.00	5.60	6.00
154	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.441	20
		0.00 C	0.00	5.58	6.00
155	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.443	20
		0.00 C	0.00	5.60	0.00
156	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.441	20
		0.00 C	0.00	5.58	0.00
157	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.423	20
		0.00 C	0.00	5.35	0.00
158	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.427	20
		0.00 C	0.00	5.39	0.00
159	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.168	28
		0.05 C	0.94	2.53	1.00
161	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.209	25
		0.13 T	-0.94	-4.44	0.50
162	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.118	20
		0.00 C	0.00	-3.34	0.00
163	ST W16X36		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.223	28
		0.45 C	0.36	5.14	1.50
164	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.058	25
		0.17 C	0.31	0.00	0.00
227	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.099	28
		0.22 C	0.53	0.00	1.50

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
228	ST W16X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.631	28
		0.18 C	1.87	19.19	1.50
229	ST W14X34		(AISC SECTIONS)		
		PASS	SHEAR-Y	0.020	20
		0.00 C	0.00	0.07	1.50
237	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.389	28
		1.39 T	-4.15	-6.52	0.00
239	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.370	28
		1.50 T	-4.18	-4.64	0.00
244	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.431	25
		3.12 C	5.65	0.00	0.00
245	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.726	28
		2.92 T	-5.08	-30.13	0.00
246	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.593	25
		2.94 T	-3.51	-28.90	2.00
247	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.655	25
		2.82 T	-4.12	-30.33	1.32
248	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.552	28
		3.01 T	-3.39	-26.10	0.00
249	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.378	28
		3.15 T	-2.38	-17.33	0.00
250	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.546	24
		0.35 T	-5.52	-10.39	0.00
251	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.569	24
		0.36 T	-5.51	-12.39	0.00
252	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.404	25
		2.76 C	5.29	0.00	0.00
253	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.663	28
		0.50 T	-4.69	-27.41	0.00
254	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.525	25
		1.39 T	-3.32	-24.21	2.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
255	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.686	25
		0.41 T	-5.07	-26.92	1.32
256	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.485	28
		1.06 T	-2.73	-24.71	0.00
257	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.389	25
		1.95 T	-3.24	-12.72	0.60
258	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.302	20
		0.00 C	0.00	-5.54	2.74
259	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.307	20
		0.00 C	0.00	-5.64	3.13
260	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.378	25
		3.05 T	-2.38	-17.33	0.80
261	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.333	25
		1.42 T	-1.89	-16.75	0.80
262	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.104	20
		0.00 C	0.00	-1.90	2.35
263	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.432	28
		3.23 C	5.66	0.00	1.40
264	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.390	28
		2.59 T	-3.24	-12.72	0.00
265	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.160	20
		0.00 C	0.00	-2.93	2.35
266	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.725	25
		2.83 T	-5.08	-30.13	0.68
267	ST W21X73		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.685	28
		0.05 T	-5.07	-26.92	0.00
268	ST W14X34		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.105	20
		0.00 C	0.00	-1.92	2.35
269	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.840	25
		0.60 C	9.65	31.72	0.00

ALL UNITS ARE - MTON METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
270	ST W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.863	25
		0.47 C	9.69	34.12	0.00
271	TC W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.892	28
		0.60 C	11.88	38.83	0.50
272	TC W21X93		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.845	28
		0.47 C	11.94	32.35	0.50

********** END OF TABULATED RESULT OF DESIGN **********

277. STEEL TAKE OFF LIST ALL

STEEL TAKE-OFF

	PROFILE	LENGTH(METE)	WEIGHT(MTON)
ST	W14X90	93.60	12.535
ST	W16X36	132.00	7.071
ST	W16X50	60.00	4.457
TC	W21X93	2.00	0.313
ST	W21X93	22.00	3.035
ST	W21X73	48.00	5.216
ST	W14X34	232.50	11.750
	TOTAL =		44.378

********** END OF DATA FROM INTERNAL STORAGE **********

278. *PRINT DIA CR
279. FINISH

********** END OF THE STAAD.Pro RUN **********

**** DATE= FEB 14,2018 TIME= 15:27:33 ****

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*************************************************************
*   For technical assistance on STAAD.Pro, please visit     *
*   http://selectservices.bentley.com/en-US/                *
*                                                           *
*   Details about additional assistance from                *
*   Bentley and Partners can be found at program menu       *
*   Help->Technical Support                                 *
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