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" DISEÑOS TIPO PARA LOS MODULOS DE LOS CENTROS DE DESARROLLO INFANTIL
CDI 160 NIÑOS"

CONTIENE

MEMORIA DE ANALISIS, CÁLCULO Y DISEÑO Y ESTRUCTURAL
INFRAESTRUCTURA EDUCATIVA

CENTRO DE DESARROLLO INFANTIL 160 NIÑOS

BLOQUE 1

ZONA ALTA / INTERMEDIA / BAJA

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JULIO DE 2014

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MEMORIAS DE ANALISIS, CALCULO Y DISEÑO ESTRUCTURAL, PARA LA INFRAESTRUCTURA EDUCATVIA – CENTRO DE DESARROLLO INFANTIL

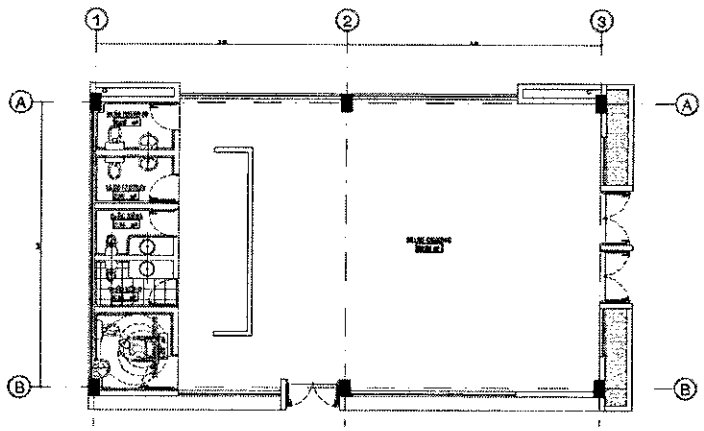
1. OBJETO

Realizar los Estudios y Diseños estructurales para el prototipo "CDI– CENTROS DE DESARROLLO INFANTIL – CDI 160 CUPOS"

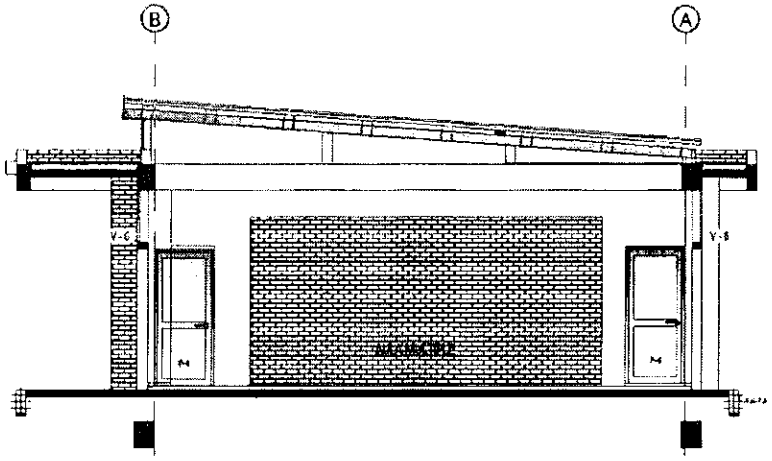
En cumplimiento de este objetivo, relacionado con el área de Diseño Estructural, se presenta a continuación la memoria de análisis y calculo estructural junto con los planos de diseño estructural para la Infraestructura del BLOQUE 1 del CDI 160 Niños.

2. DESCRIPCIÓN

El BLOQUE 1 que hace parte del CDI 160 Niños, consta de un amlio salo para comedor y batería sanitaria; la edificación arquitectónicamente esta configurada en altura en un solo nivel, y en planta se muestra implantada en un área aprox de 173.5 m2 la que resulta de una configuración conformada por tres (3) ejes en sentido longitudinal que van del 1 al 3 y en sentido transversal por dos (2) ejes, el A y B; a continuación se presentan detalles en planta y en altura de la arquitectura del modulo típico en consideración.



Configuracion en planta – BLOQUE 1 / CDI 160 Niños



Fachada lateral – BLOQUE 1 / CDI 160 Niños

3. LOCALIZACION DEL PROYECTO

La zona del proyecto en estudio corresponde al territorio nacional y esto por cuanto a que lo que se pretende es efectuar una tipificación de las instituciones educativas teniendo en cuenta que desde el punto de vista de la sismicidad donde se puedan emplazar los proyectos estos podrán localizarse en zonas de amenaza sísmica Alta, Intermedia y Baja, como las define la norma N.S.R-10; y a su vez y para cada una de estas zonas las características del suelo variarán a suelos Tipo A, B, C, D, y E de acuerdo con la definición que para el efecto indica la norma referida.

4. ALCANCE

El estudio comprende la realización del análisis estático ante la acción de las cargas muertas, vivas, de viento, y dinámicas a las que estará sometida la estructura y su cimentación, y a partir de esto la realización de los cálculos necesarios que den como resultado el diseño estructural de todos los elementos componentes de la edificación

Las instituciones educativas y sus edificaciones anexas deberán ser analizadas y producto de esto diseñadas para que puedan ser implantadas en diferentes regiones del territorio nacional; en este orden de ideas deberán tener un funcionamiento ante cargas de servicio y ultimas tal que su estabilidad global y la de sus elementos conformantes se cumpla para Condiciones de Zona Sísmica Alta, Intermedia y Baja, así como para suelos agrupados por tipo AB, CD y E, todo lo anterior de común acuerdo con las definiciones y procedimientos enmarcados en el Titulo A, B, C y E de la norma NSR-10.

4.1. CONSIDERACIONES GENERALES

El análisis y diseño se realizó de acuerdo con los lineamientos establecidos en el Reglamento Colombiano de Construcción Sismo Resistente – NSR-10

4.2. CONSIDERACIONES PARTICULARES

El análisis y diseño del BLOQUE 1 que se detalla a continuación se realizará para la zona de Amenaza Sismica Alta, Intermedia y Baja.

5. ESPECIFICACIONES DE MATERIALES

5.1. CONCRETOS _ ACERO

f'_c : Resistencia nominal del concreto a compresión
f_y : Resistencia nominal a la fluencia del acero de refuerzo
f_s : Resistencia del acero en el rango elástico
f_r : Modulo de rotura del concreto
M_{sr} : Momento de agrietamiento por flexión

Concreto Estructural

Columnas	f'_c = 28. MPa (280 Kg/cm^2). Relación agua cemento menor o igual a 0.45
Vigas aéreas	f'_c = 21. MPa (210 Kg/cm^2). Relación agua cemento menor o igual a 0.45
Vigas, Zapatas de cimentación	f'_c = 24.5. MPa (245 Kg/cm^2).
Concreto de limpieza	f'_c = 14.00 MPa (140 Kg/cm^2).

Acero de Refuerzo

Acero de Refuerzo	≥ 3/8", f_y = 420. MPa (4200 Kg/cm^2).
Malla Electrosoldada	f_y = 420. MPa (4200 Kg/cm^2).
Perfiles	Norma NSR-10, ASTM A1011 Grado 50
Angulos metálicos	A572 Gr.50

5.2. SUELOS

Se efectuaron análisis particulares para suelos Agrupados por tipo AB, CD y E de acuerdo con la descripción de la tabla A.2.4.-1 de la Norma NSR-10.

Particularmente el suelo se idealizó como un medio continuo conformado por resortes desacoplados con una magnitud Ks (kN/m2/m) = FS x 40 x $_{adm}$ (kN/m2) (ec.9-9 - foundation Analysis and Desing – Joseph Bowles -4th edition). En esta ecuación 40 esta calibrado para asentamientos de 1pulg (25.4mm) por lo que deberá modificarse cuando para un estudio particular el estudio de las condiciones de suelos considere un asentamiento diferente, asi mismo se asumió un valor de FS = 2.0.

Como se mencionó al inicio la tipificación de las edificaciones se realizó teniendo en cuenta que una de las variables para el análisis y diseño consistirá en tener en cuenta diferentes condiciones de suelos de fundación, esta variable se obtuvo agrupando los suelos en tipos AB, CD y E; a cada una de estas condiciones, y teniendo en cuenta la descripción que la norma NSR-10 en el numeral A.2.4.-1 da para los diferentes perfiles de suelos, se le asignó un valor para la capacidad admisible ($_{adm}$) por lo que a partir de ello se calculó un valor para el modulo de subrasante (Ks) aplicando la formulación antes indicada.

A continuación se presenta la tipificación de los suelos, asignando para cada una de ellas la capacidad admisible ($_{adm}$) y su correspondiente módulo de subrasante (Ks)

Tipo Suelo	$_{adm}$, (kN/m^2)	Ks (kN/m^2 / m)
AB	400	32000
CD	150	12000
E	100	8000

En el modelo matemático del sistema de cimentación los ejes estructurales se cargaron con las reacciones provenientes de la estructura (reacciones de un análisis estructural efectuado en ETABs 9.7.4), y la combinación de estas para cargas de servicio y ultimas sirvieron para verificar que las cargas trasmitidas al suelo no superaran la capacidad admisible del mismo, y para el diseño estructural de los diferentes elementos de la cimentación respectivamente.

EVALUACIÓN DE CARGAS

Las cargas evaluadas son las cargas debidas al peso propio de la estructura, las cargas permanentes impuestas por paneles de cubierta y acabados, la carga viva transitoria sobre la cubierta, Cargas por Granizo cuando aplique según la zona del país, cargas de viento y los efectos sísmicos dependientes de la zona de amenaza sísmica para cada análisis en particular.

6.1. CARGAS APLICADAS

Se adoptó por criterio para el análisis y diseño estructural el Reglamento Colombiano de Construcción Sismo Resistente NSR-10, por tanto las cargas tenidas en cuentas para el estudio son todas las aplicables del capítulo del B.1 al B.4 y particularmente las definidas en el Capitulo B.6 de la referida norma.

6.1.1. Peso Propio (Pp)

Corresponde a la carga por peso propio de los elementos que constituyen la estructura, el programa de análisis lo tiene en cuenta internamente al definir para Pp la condición Self Weight =1.0

6.1.2. Carga permanente (Ld)

La carga sobre impuesta (D) para cada eje o area de la estructura se evalúa a continuación

Analisis de Cargas

Estructura de Concreto

Nivel: Cubierta

Carga Muerta Distribuida en Cubierta:

Peso Propio **(PP)**: ETAB la tiene en cuenta para cada elemento, se ha definido en el analisis como PP. Esta condicion de carga tiene en cuenta el peso de vigas, viguetas y columnas

Carga Muerta, **LD - analisis carga cubiertas / cielo raso**:

Cub. Liviana: Teja tipo sandwich, aluzinc cal.26, aislante en poliuretano e=30mm. 4.8kg/m2 + Correas (5.5kg/m2)		kN/m2
Cielo Raso: Tablero de yeso	e(mm) = 10	kN/m2
Sistema Susp. Madera		kN/m2
Instalaciones electricas, luminarias		kN/m2
Marco metalico apoyo correas, TUB. Colmena 100x150x6		kN/m2
Total LD =	**0,60**	kN/m2

Cargas sobre ejes

Ejes: ***1 / 3 entre A y B***

Carga en cubierta / Cielo Raso	W=	3.50 kN/m2		
Apoyo 1 y 4	B =	1.25 m	D =	2.47 kN
	L =	3.00 m		
Apoyo 2 y 3	B =	2.50 m	D =	4.85 kN
	L =	3.00 m		
Ladrillo Tolete Macizo Prensado, 2.9 kg/und y 60 und/m2. Pega = 0.023m3/m2	W=	2.29 kN/m2	D =	4.01 kN/m
	h=	1.75 m		

Ejes: ***2 entre A y B***

Carga en cubierta / Cielo Raso	W=	3.50 kN/m2		
Apoyo 1 y 4	B =	1.25 m	D =	4.38 kN
	L =	3.00 m		
Apoyo 2 y 3	B =	2.50 m	D =	9.38 kN
	L =	3.00 m		
Ladrillo Tolete Macizo Prensado, 2.9 kg/und y 60 und/m2. Pega = 0.023m3/m2	W=	2.29 kN/m2	D =	1.15 kN/m
	h=	0.50 m		

Ejes: ***A / B entre 1 y 4***

Carga en cubierta / Cielo Raso	W=	3.50 kN/m2	D =	3.09 kN/m
	L =	1.50 m		
Ladrillo Tolete Macizo Prensado, 2.9 kg/und y 60 und/m2. Pega = 0.023m3/m2	W=	2.29 kN/m2	D =	3.44 kN/m
	h=	1.50 m		

6.1.3. Carga Viva de Cubierta (Lr)

La carga Viva (Lr) sobre la cubierta, para cada eje o area de la estructura se evalúa a continuación

Tabla B.4.2.1-2
Cargas vivas mínimas en cubiertas

Tipo de cubierta	Carga uniforme (kN/m²) m² de área en planta	Carga uniforme (kgf/m²) m² de área en planta
Cubiertas, Azoteas y Terrazas	la misma de resto de la edificación Nota 1	la misma del resto de la edificación (Nota 1)
Cubiertas usadas para jardines de cubierta o para reuniones	5.00	500
Cubiertas inclinadas con más de 15° de pendiente en estructura metálica o de madera con imposibilidad física de verse sometidas a cargas superiores a la aquí estipulada	0.35	35
Cubiertas inclinadas con pendiente de 15° o menos en estructura metálica o de madera con imposibilidad física de verse sometidas a cargas superiores a la aquí estipulada	0.50	50

Tabla tomada de N.S.R-10, Capitulo B.4, num B.4.2

Carga Viva (Lr)

p= 0.4% % θ = 3.37 ° => Lr en Cubiertas = **0.50** kN/m2

Ejes: ***1 / 3 entre A y B***

Apoyo 1 / 4, Carga Viva	B =	1.35 m	Lr =	2.03 kN
	L =	3.00 m		
Apoyo 2/3, Carga Viva	B =	3.60 m	Lr =	3.90 kN
	L =	3.00		

Ejes: ***2 entre A y B***

Apoyo 1 / 4, Carga Viva	B =	1.35 m	Lr =	4.05 kN
	L =	3.00 m		
Apoyo 2/3, Carga Viva	B =	2.60 m	Lr =	7.80 kN
	L =	3.00		

Ejes: ***A / B entre 1 y 4***

Carga Viva	L =	1.50 m	Lr =	0.75 kN/m

6.1.4. Carga por Granizo (G)

El mapa de sismicidad del territorio nacional, figura A.2.3-1 de la NSR-10, muestra que las regiones sísmicas Altas e Intermedias se ubican en su gran mayoría en zonas de la cordillera occidental, central y en gran medida en la oriental a alturas sobre el nivel del mar mayores a los 1500m, es decir en lugares con alta posibilidad de ocurrencia de granizadas intensas; y lo contrario ocurre en áreas de sismicidad baja, por tal motivo en el presente estudio se ha tenido en cuenta que la carga de granizo (G) solo aplica para zonas de amenaza sísmica Alta e Intermedia y no aplica para zonas de Amenaza Baja.

B.4.8.3 — CARGA DE GRANIZO

B.4.8.3.1 — Las cargas de granizo, G, deben tenerse en cuenta en las regiones del país con más de 2 000 metros de altura sobre el nivel del mar o en lugares de menor altura donde la autoridad municipal o distrital así lo exija.

B.4.8.3.2 — En los municipios y distritos donde la carga de granizo deba tenerse en cuenta, su valor es de 1.0 kN/m^2 (100 kgf/m^2). Para cubiertas con una inclinación mayor a 15° este valor puede reducirse a 0.5 kN/m^2 (50 kgf/m^2).

En B.4.8.3.2 La pendiente de 15° debe cambiarse por 15%.

Notas:

Numeral tomado de de Capitulo B.4 de N.S.R-10.
Según decreto 092 de 17 de Enero de 2011, "En B.4.8.3.2 La pendiente de 15° debe cambiarse por 15%"

Granizo (G)

p= [illegible] % θ = [illegible] => G en Cubiertas = **1.00** kN/m2

Ejes: ***1 / 3 entre A y B***					
Apoyo 1 / 4,	B =	[illegible]	m		
Granizo en Cubierta	L =	[illegible]	m	G = [illegible]4	kN
Apoyo 2/3,	B =	[illegible]	m		
Granizo en Cubierta	L =	[illegible]		G = 8	kN
Ejes: ***2 entre A y B***					
Apoyo 1 / 4,	B =	[illegible]	m		
Granizo en Cubierta	L =	[illegible]	m	G = [illegible]8	kN
Apoyo 2/3,	B =	[illegible]	m		
Granizo en Cubierta	L =	[illegible]		G = 16	kN
Ejes: ***A / B entre 1 y 4***					
Granizo en Cubierta	L =	[illegible]	m	G = 2	kN/m

6.1.5. Carga sísmica (Fx / Ex)

Para la tipificación de las Instituciones educativas y sus edificaciones anexas se exige que esta se realice con fundamento en las tres regiones en las que a nivel global la norma NSR-10 da una caracterización sísmica del país, estas regiones o zonas corresponden a Baja, Intermedia y Alta.

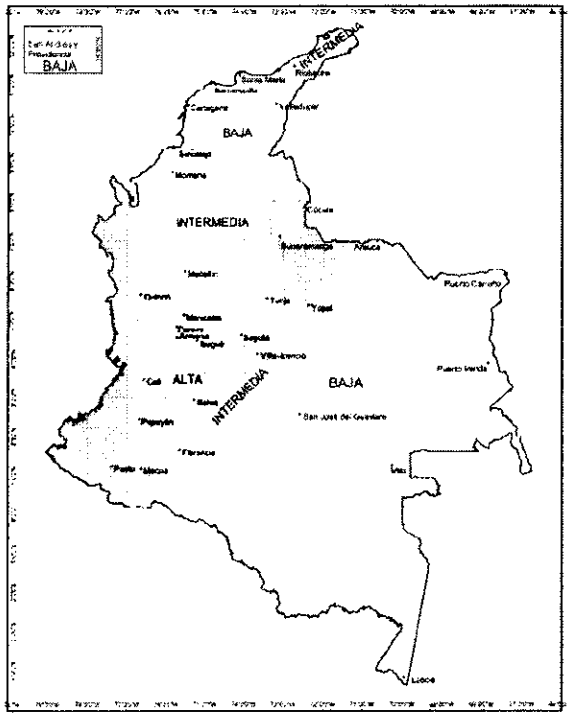


Figura A.2.3-1 — Zonas de Amenaza Sísmica aplicable a edificaciones para la NSR-10 en función de A_a y A_v

Un parámetro que puede dar una "medida" cualitativa del grado de sismicidad lo da el coeficiente que representa la aceleración horizontal pico efectiva, para diseño, Aa; así mismo ello también se puede lograr con su correspondiente en la velocidad representado por el coeficiente Av.

Los valores de Aa / Av varían desde la región 1 a la 10 entre 0.05 a 0.50 respectivamente de tal manera que a mayor región o coeficiente mayor es el grado de sismicidad de la zona en estudio

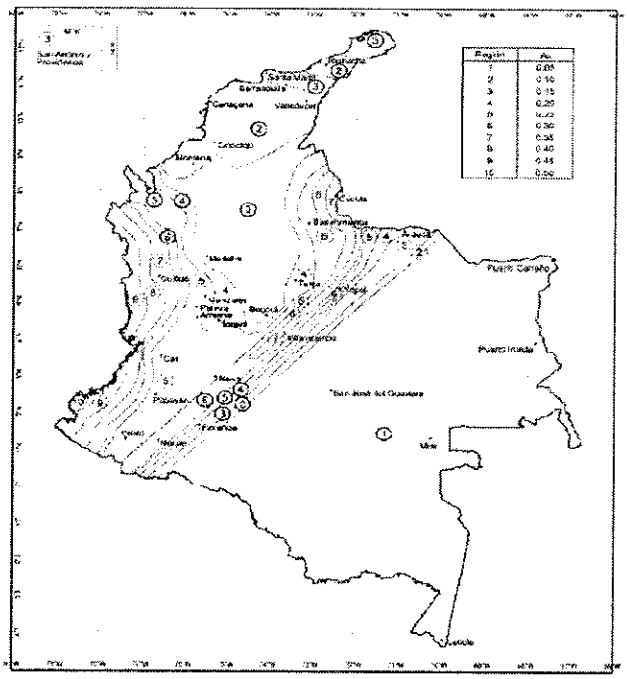


Figura A.2.3-3 — Mapa de valores de A_0

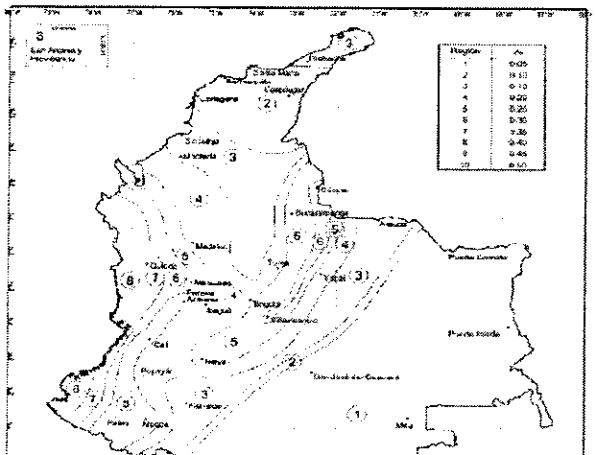


Figura A.2.3-4 - Mapa de valores de A_c

Efectuar la tipificación de las estructuras basándose para ello en cada una de las regiones y su correspondiente coeficiente, de forma sucesiva, se convierte en una labor dispendiosa, pero más allá de ello en un proceso que a nivel de diseño estructural no mostraría diferencias significativas en la geometría de las secciones de elementos estructurales y su correspondiente refuerzo.

Por otra parte y al realizar un análisis del mapa de regiones, figura A.2.3-2, y del mapa de Zona de amenaza sísmica, figura A.2.3-1, encontramos que para Zonas de Amenaza sísmica Intermedia la región que predomina es la 3 y la 4, para Zona de amenaza sísmica Alta la que va de la región 5 a la 10, y para Zona de amenaza sísmica Baja la región 1 y 2; con fundamento en lo anterior el análisis lo realizaremos para la Zona de Amenaza Sísmica alta en región 8 con coeficientes de 0.4 y 0.4 para Aa y Av respectivamente, Zona de Amenaza Sísmica Intermedia en región 4 con coeficientes de 0.15 y 0.2 para Aa y Av respectivamente, y Zona de Amenaza Sísmica Baja en región 2 con coeficientes de 0.1 y 0.1 para Aa y Av respectivamente.

Zona	Ad	Aa	Av
Alta	0.10	0.40	0.40
Intermedia	0.06	0.15	0.20
Baja	0.03	0.10	0.10

Coeficientes Aa / Av /Ad consolidados para evaluación de espectro elástico de aceleraciones

La norma NSR-10 clasifica los suelos de acuerdo con una escala que va del tipo de perfil del A al F, numeral A.2.4.4 – tabla A.2.4-1 de la norma NSR-10, de tal manera que de acuerdo con esto y con los coeficientes Aa y Av se obtengan los valores del coeficiente de amplificación que afecta la aceleración en la zona de periodos cortos, debida a los efectos de sitio, Fa, y del coeficiente de amplificación que afecta la aceleración en la zona de periodos Intermedios, debida a los efectos de sitio, Fv.

Tabla A.2.4-1
Clasificación de los perfiles de suelo

Tipo de perfil	Descripción	Definición
A	Perfil de roca competente	$\bar{v}_s \geq 1500$ m/s
B	Perfil de roca de rigidez media	760 m/s $\leq \bar{v}_s \leq$ 1500 m/s
C	Perfiles de suelos muy densos o roca blanda, que cumplan con el criterio de velocidad de la onda de cortante, $\bar{v}_s$	360 m/s $\leq \bar{v}_s <$ 760 m/s
	Perfiles de suelos muy densos o roca blanda, que cumplan con cualquiera de los dos criterios	$\bar{N} \geq 50$ ó $\bar{s}_u \geq$ 100 kPa (1 kg/cm²)
D	Perfiles de suelos rígidos que cumplan con el criterio de velocidad de la onda de cortante, $\bar{v}_s$	180 m/s $\leq \bar{v}_s <$ 360 m/s
	Perfiles de suelos rígidos que cumplan cualquiera de los dos criterios	$15 \leq \bar{N} < 50$ ó 50 kPa (0.5 kg/cm²) $\leq \bar{s}_u <$ 100 kPa (1 kg/cm²)
E	Perfil que contiene un espesor total H mayor de 3 m de arcillas blandas	$\bar{v}_s <$ 180 m/s
	Perfil que contiene un espesor total H mayor de 3 m de arcillas blandas	IP > 20 w ≥ 40% 50 kPa (0.5 kg/cm²) > $\bar{s}_u$
F	Los perfiles de suelo tipo F requieren una evaluación realizada explícitamente en el sitio por un ingeniero geotecnista de acuerdo con el procedimiento de A.2.4.6. Se contemplan las siguientes posibilidades: F_1 — Suelos susceptibles a falla o colapso causado por la saturación del suelo, tales como suelos colapsables, arenas sensitivas, suelos dispersivos o débilmente cementados, etc. F_2 — Turbas y arcillas orgánicas y muy orgánicas (H > 3 m para turbas o arcillas orgánicas y muy orgánicas). F_3 — Arcillas de muy alta plasticidad (H > 7.5 m con índice de plasticidad IP > 75). F_4 — Perfiles de gran espesor de arcillas de rigidez mediana a blanda (H > 36 m).	

Con los coeficientes Aa / Av y el tipo del perfil de suelo se obtienen los valores de Fa y Fv en las tablas A.2.4.-3 y A.2.4-4 del título A de la norma NSR-10, ahora bien de acuerdo con la descripción del tipo de perfil de suelos dada en la tabla A.2.4-1 de la NSR-10 es posible clasificar los perfiles por grupos así: suelos constituidos por roca competente y rígida, grupo AB, suelos muy densos a rígidos, grupo CD, suelos conformados por arcillas blandas, grupo E; por tal motivo y debido a lo anterior se hace necesario construir gráficos para obtener valores de Fa / Fv en función de los coeficientes Aa / Av y los perfiles de suelos entre A y B para el grupo AB, entre C y D para el grupo CD, y entre E y F para el grupo EF

Tabla A.2.4-3
Valores del coeficiente F_a, para la zona de períodos cortos del espectro

Tipo de Perfil	Intensidad de los movimientos sísmicos				
	$A_a \leq 0.1$	$A_a = 0.2$	$A_a = 0.3$	$A_a = 0.4$	$A_a \geq 0.5$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	véase nota	véase nota	véase nota	véase nota	véase nota

Nota: Para el perfil tipo F debe realizarse una investigación geotécnica particular para el lugar específico y debe llevarse a cabo un análisis de amplificación de onda de acuerdo con A.2.10.

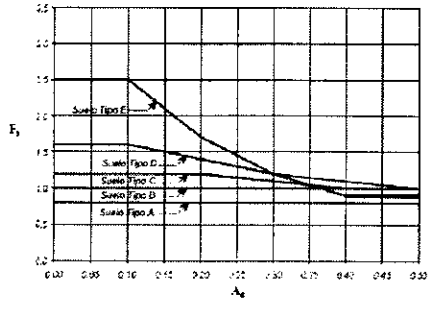


Figura A.2.4-1 - Coeficiente de amplificación F_a del suelo para la zona de períodos cortos del espectro

Tabla A.2.4-4
Valores del coeficiente F_v, para la zona de períodos intermedios del espectro

Tipo de Perfil	Intensidad de los movimientos sísmicos				
	$A_v \leq 0.1$	$A_v = 0.2$	$A_v = 0.3$	$A_v = 0.4$	$A_v \geq 0.5$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	véase nota	véase nota	véase nota	véase nota	véase nota

Nota: Para el perfil tipo F debe realizarse una investigación geotécnica particular para el lugar específico y debe llevarse a cabo un análisis de amplificación de onda de acuerdo con A.2.10.

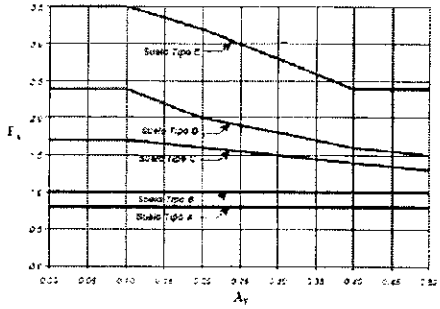
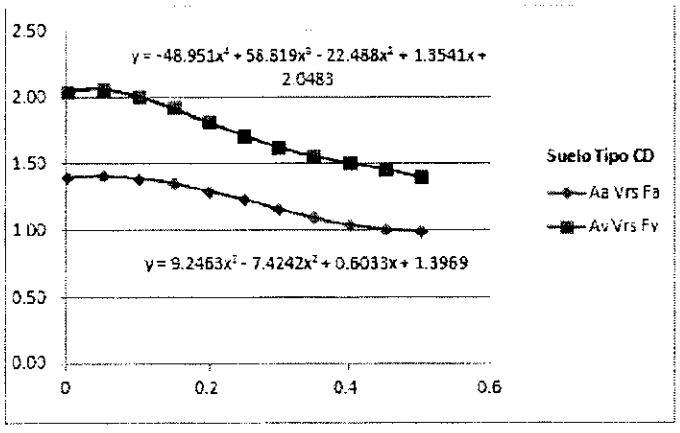
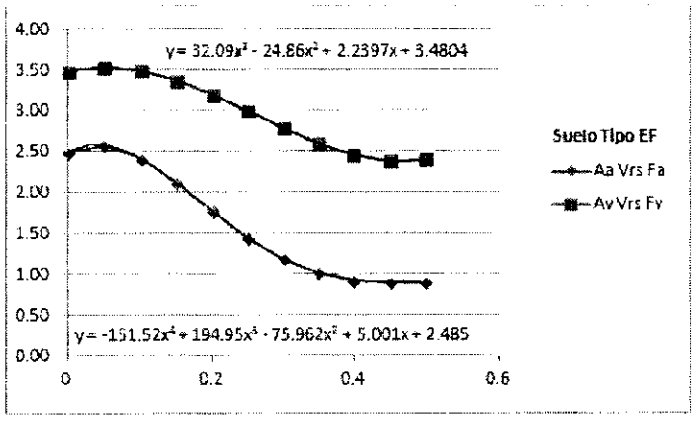


Figura A.2.4-2 — Coeficiente de amplificación F_v del suelo para la zona de períodos intermedios del espectro

Aa/Av	C-D		EF	
	Fa	Fv	Fa	Fv
0	1.40	2.05	2.49	3.48
0.05	1.41	2.07	2.57	3.53
0.1	1.39	2.01	2.41	3.49
0.15	1.35	1.92	2.11	3.37
0.2	1.29	1.81	1.76	3.19
0.25	1.23	1.71	1.44	2.99
0.3	1.16	1.62	1.19	2.78
0.35	1.10	1.55	1.01	2.59
0.4	1.04	1.50	0.93	2.45
0.45	1.01	1.46	0.90	2.38
0.5	1.00	1.40	0.89	2.40

Tabla de valores de Fa / Fv en función de coeficientes Aa / Av y perfil de suelos por Grupo



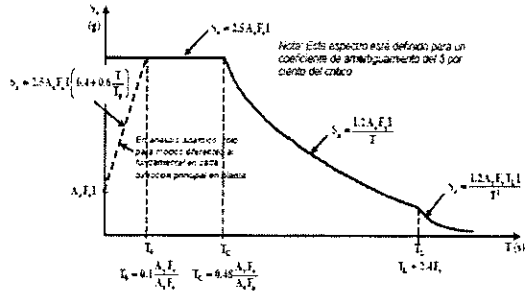


Gráficos con valores de Fa / Fv en función de coeficientes Aa / Av y perfil de suelos por Grupo, preparados a partir de tabla de valores para grupos de suelos

La edificación en estudio se analizó globalmente para dos (2) consideraciones, una que corresponde a un estado de servicio en el que la operatividad de la estructura se verificará manteniendo las deformaciones por carga sísmica dentro de las derivas máximas permitidas por la Norma NSR-10, y la otra asegurando que la resistencia de los elementos estructurales ante cargas ultimas sea mayor a las que por las solicitaciones de las diferentes cargas se producen en la estructura; el 1er caso se cumple verificando que la edificación se mantenga dentro del rango elástico de respuesta al verse sometida ante cargas sísmicas correspondientes al inicio del daño, o umbral de daño, y para el caso de diseño opteniendo la carga sísmica por medio del espectro elástico de aceleraciones, en ambos casos la carga sísmica sobre la estructura se obtuvo por medio de la forma del espectro elástico de aceleraciones, Sd o Sa, aplicada sobre la masa propia de la edificación.

Se debe tener en cuenta que los movimientos sísmicos del umbral de daño aplican a edificaciones clasificadas como indispensables de los grupos de uso III y IV.

El espectro elástico de aceleraciones, Sa, expresada como la fracción de la gravedad, para un coeficiente de cinco por ciento (5%) del amortiguamiento critico, que se utilizará en el análisis y diseño se definió de acuerdo con el numeral A.2.6 de NSR-10 y corresponde a:



Forma del espectro elástico de aceleraciones como fracción de la gravedad para diseño

El espectro de aceleraciones horizontales para el umbral de daño en el campo elástico, para un amortiguamiento critico del 2%, Sd, expresado como la fracción de la gravedad que se utilizará para verificación de derivas de acuerdo con el numeral A.12.3 de NSR-10 corresponde a:

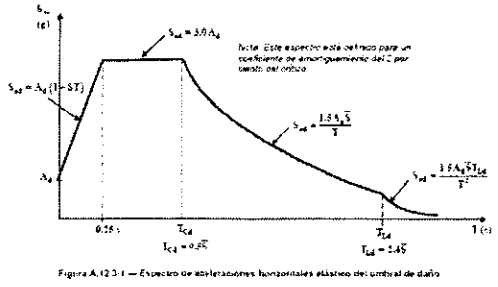


Figura A.12.3-1 — Espectro de aceleraciones horizontales elástico del umbral de daño

Forma del espectro elástico de aceleraciones en el umbral de daño como una fracción de la gravedad, para verificación de derivas

La deriva máxima permitida, para cualquier piso no puede exceder los límites definidos en la tabla A.6.4.-1 de NSR-10

Derivas máximas como porcentaje de h_{pi}

Estructuras de:	Deriva máxima
concreto reforzado, metálicas, de madera, y de mampostería que cumplen los requisitos de A.6.4.2.2	$1.0\% \left(\Delta^i_{max} \leq 0.010\ h_{pi}\right)$
de mampostería que cumplen los requisitos de A.6.4.2.3	$0.5\% \left(\Delta^i_{max} \leq 0.005\ h_{pi}\right)$

Deriva máxima permitida – Numeral A.6.4 de NSR-10

La deriva máxima permitida, para el umbral de daño, en cualquier punto de la edificación no puede exceder los limites definidos en la tabla A.12.5.-1 de NSR-10

Tabla A.12.5-1
Derivas máximas para el umbral de daño como porcentaje de h_{pi}

Estructuras de:	Deriva máxima
concreto reforzado, metálicas, de madera, y de mampostería que cumplen los requisitos de A.12.5.3.1	$0.40\% \left(\Delta^i_{max} \leq 0.0040\ h_{pi}\right)$
de mampostería que cumplen los requisitos de A.12.5.3.2	$0.20\% \left(\Delta^i_{max} \leq 0.0020\ h_{pi}\right)$

A continuación se presenta el cálculo del espectro de aceleraciones horizontales para cada grupo de suelos; el análisis dinámico empleado en el presente estudio corresponde al Método del Análisis Dinámico Elástico Espectral, por tal motivo en los cálculos que se presentan a continuación se efectúa también el ajuste de los resultados de acuerdo con el numeral A.5.4.5 de la norma NSR-10.

Los efectos dinámicos sobre la estructura producidos por el sismo se calcularon a través del método Dinámico Elástico Espectral descrito en el numeral A.5.4 del título A de la norma NSR-10.

Las fuerzas sísmicas se identifican en el modelo matemático con Fx/y y Ex/y, la primera corresponde a la carga para la determinación de desplazamientos laterales (deriva en X/Y) y la segunda a la fuerza sísmica para diseño

Fx/y = Fuerza sísmica para determinación de derivas en sentido X / Y

Ex/y = Fuerza sísmica para Diseño de elementos = Fx/y / $_{p\ a\ r}$ Ro

$_{p,\ a}$ corresponden a los factores de reducción por irregularidades en planta y altura del coeficiente de disipación de energía básico Ro, para los casos en estudio ambos factores tienen un valor de 1.0

$_{r}$ corresponde al factor de reducción por ausencia de redundancia, para los casos en estudio los valores son los siguientes:

Estructuras en Zona de Amenaza Sísmica Alta => DES => $_{r}$ = 0.75 - Num. A.3.3.8.2 de NSR-10

Estructuras en Zona de Amenaza Sísmica Inter. => DMO => $_{r}$ = 0.75 - Num. A.3.3.8.2 de NSR-10

Estructuras en Zona de Amenaza Sísmica Baja => DMI => $_{r}$ = 1.0 - Num. A.3.3.8.1 de NSR-10

El coeficiente de disipación de energía básico Ro asignado para los casos en estudio corresponde a:

Estructuras en Zona de Amenaza Sísmica Alta => DES => Ro = 7.0 – Tabla A.3.3. de NSR-10

Estructuras en Zona de Amenaza Sísmica Inter. => DMO => Ro = 5.0 – Tabla A.3.3. de NSR-10

Estructuras en Zona de Amenaza Sísmica Baja => DMI => Ro = 2.5 – Tabla A.3.3. de NSR-10

6.1.5.1. Zona Alta

Espectro de aceleraciones horizontales del Umbral de daño, Zona de Amenaza Sísmica Alta– Perfil de suelo AB/CD/E

ANALISIS SISMICO

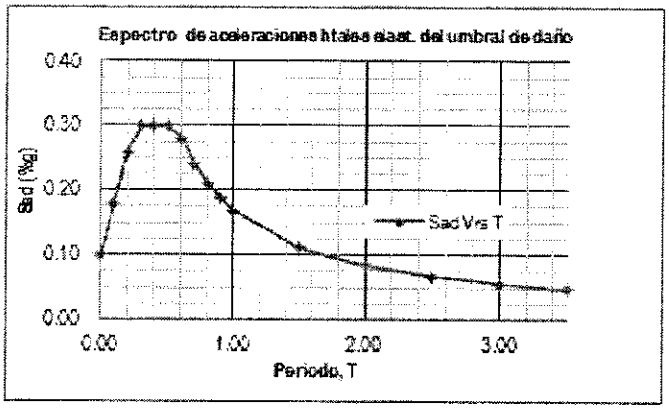
El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Metodo del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10

PARAMETROS PARA EL ANALISIS	-	Derivas
Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.00	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Alta
Perfil de Suelo	A-B
Ad (g) = Acel. mx pico efectiva para umbral de daño =	0.10
Aa (g) = Acel. mx pico efectiva, para diseño =	0.40
Av (g) = Acel. de la vel. pico efec. para diseño =	0.40
Fa = Coef. de ampl. afecta la acel. en zona de T_{corto} =	0.90
Fv = Coef. de ampl. afecta la vel. en zona de $T_{1.0}$ =	0.90
T_{0d} (s) = 0.25 s_d	0.25
T_{0a} (s) = 0.5 (1.25Fv)=	0.56
T_{cd} (s) = 2.4 (1.25Fv)=	2.70
I = Coef. de importancia	1.00

T (seg)	A-B S_{ad} %g
0.00	0.10
0.10	0.18
0.20	0.26
0.30	0.30
0.40	0.30
0.50	0.30
0.60	0.28
0.70	0.24
0.80	0.21
0.90	0.19
1.00	0.17
1.50	0.11
2.00	0.08
2.50	0.07
3.00	0.06
3.50	0.05
4.00	0.04
4.50	0.04
5.00	0.03



COEFICIENTE DE CAPACIDAD DE DISIPACION DE ENERGIA, R

(Sistema Estructural de Pórtico en Concreto)

$R = \Phi_a \Phi_p \Phi_r R_o$

Normas Aplicables: NSR-10, Numerales A.3.3.3, Tabla A.3-3, Tabla A.3-5 a la 7

Capacidad de Disipacion de Energia =	DES
Zona Amenaza Sismica =	Alta
Uso Permitido =	Si
Altura Máxima =	Sin Limite

R_o = 7.00 Porico Resistente a Mios

IRREGULARIDADES DE LA ESTRUCTURA

Irregularidad Torsional en Planta NSR-10, Capitulo A.3 figura A.3-1

No hay Irregularidad Torsional Φ_{pa} = 1.00

No hay Irregularidad Torsional Φ_{pb} = 1.00

CBI	*Sismo en X*	Δ_i =	10.8	mm	Δ_t =	9.5	mm	Φ_{pa} =	1.00
	Sismo en Y	Δ_i =	4.8	mm	Δ_t =	5.6	mm	Φ_{pb} =	1.00

Tipo 2P (Si o No):	N	Φ_p =	1.00	*Tipo 3P* (Si o No):	N	Φ_p =	1.00
Tipo 4P (Si o No):	N	Φ_p =	1.00	*Tipo 5P* (Si o No):	N	Φ_p =	1.00

Irregularidad Torsional en Altura NSR-10, Capitulo A.3 figura A.3-2

Tipo 1aA/1bA (Si o No):	N	Φ_a =	1.00	*Tipo 2A* (Si o No):	N	Φ_a =	1.00
Tipo 3A (Si o No):	N	Φ_a =	1.00	*Tipo 4A* (Si o No):	N	Φ_a =	1.00
Tipo 5aA/5bA (Si o No):	N	Φ_a =	1.00				

Irregularidad en Planta Φ_{pa} =	1.00	Rx = 7.00	Porico Resistente a Mios
Irregularidad en Planta Φ_{pb} =	1.00		
Irregularidad en altura, Φ_a =	1.00	Ry = 5.25	
Ausencia de redundancia, Φ_{ra} =	1.00		
Ausencia de redundancia, Φ_{rb} =	0.75		

Tx = 0.37 sg

Ty = 0.26 sg

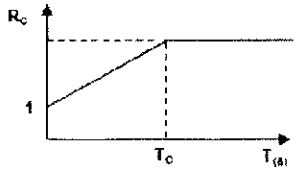
CORRECCION DE R PARA PERIODOS DE VIBRACION QUE TIENDAN A CERO NSR-10, Numeral A.2.9.4

$R_{cx} = (R-1)\ T/To + 1 \leq R$ = 23.39

Rx = 7.00

$R_{cy} = (R-1)\ T/To + 1 \leq R$ = 12.24

Ry = 5.25



M = 96.61 kN sg²/m
Tx = 0.72 sg
Ty = 0.69 sg

Numero de Modos de Vibración (NM)
NSR-10, Capitulo A.5 Numeral A.5.4.2
p = 30

Combinación de los Modos
NSR-10, Capitulo A.5 Numeral A.5.4.4
Combinación Modal: CQC
Combinación Direccional: SRSS

Análisis
Descripción: La estructura se modeló en ETABS, ***Version 9.7.4***. Para efectos de conocer el periodo de la estructura ver resultados de análisis modal

Participación de masa en X, %Mx =	99.9%	p es el adecuado => Ok	NSR-10, Capitulo A.5
Participación de masa en Y, %My =	99.7%	p es el adecuado => Ok	Numeral A.5.4.2

(Ver resultados de Análisis Modal)

Ajuste de los Resultados NSR-10, Capitulo A.5 Numeral A.5.4.5

Clasificación de la estructura (Regular o Irregular) = R

α =	0.90	C_u= 1.75 - 1.2AvFv =	1.318				
C_t =	0.047	C_uT_a (sg)= $C_uC_tH_n^{\alpha}$ =	0.24	Vs = Sa g M =	273	kN	NSR-10, Capitulo A.4, Numerales A.4.2.2
h_n (m) =	4.40	Sa =	0.29				

Cortante Dinamico (sin corregir)

Cortante Dinámico Total en la Base, V_{tx} =	266	kN	***Vtx > 0.80Vs => Ok No Ajustar Resultados***	SF_x =	0.82
Cortante Dinámico Total en la Base, V_{ty} =	239	kN	***Vty > 0.80Vs => Ok No justar Resultados***	SF_y =	0.91

Cortante Dinamico (Corregidos)

Cortante Dinámico Total en la Base, Vf_x =	266	kN	Vf_x =	SFx Vf tx	en modelo: $F_{x,y}$	SF_x =	0.82
Cortante Dinámico Total en la Base, Vf_y =	239	kN	Vf_y =	SFy Vf ty	= $SF_{x,y}$ Sa M	SF_y =	0.91

Espectro de aceleraciones para diseño, para Zona de amenaza sísmica Alta, y para cada grupo de perfil de suelos.

Espectro de aceleraciones, Zona de Amenaza Sísmica Alta – Perfil de suelo AB

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

PARAMETROS PARA EL ANALIS - Diseño

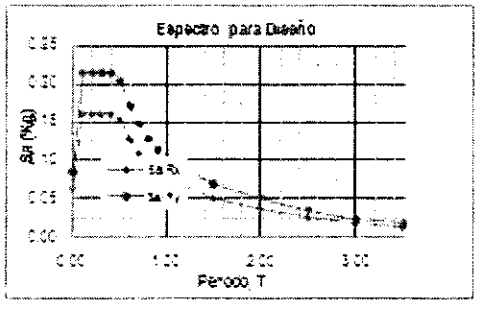
Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Alta
Perfil de Suelo	AB
Aa (g) = Acel. hrizontal pico efectiva, para diseño :	0.40
Av (g) = Acel. de la vel. pico efec. para diseño	0.40
Fa = Coef. de ampl. afecta la acel. en zona de T	0.90
Fv = Coef. de ampl. afecta la vel. en zona de T	0.90
T_o (s) = Periodo Inicial	0.10
T_c(s) = Periodo Corto	0.48
T_L(s) = Periodo largo	2.16
I = Coef. de Importantancia	1.25

T (seg)	AB S_a %g
0.00	0.45
0.10	1.13
0.20	1.13
0.30	1.13
0.40	1.13
0.50	1.08
0.60	0.90
0.70	0.77
0.80	0.68
0.90	0.60
1.00	0.54
1.50	0.36
2.00	0.27
2.50	0.19
3.00	0.13
3.50	0.10
4.00	0.07
4.50	0.06
5.00	0.05

Página 1



Espectro de aceleraciones, Zona de Amenaza Sísmica Alta – Perfil de suelo CD

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

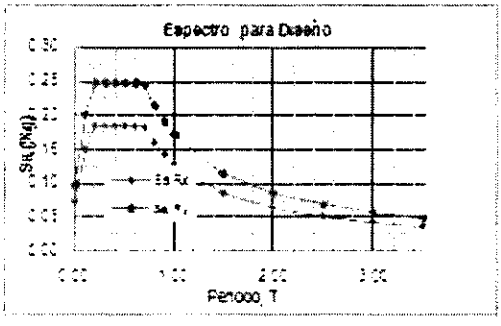
PARAMETROS PARA EL ANALIS - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.4.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Alta
Perfil de Suelo	CD
Aa (g) = Acel. hrzl pico efectiva, para diseño :	0.40
Av (g) = Acel. de la vel. pico efec. para diseñc	0.40
Fa = Coef. de ampl. afecta la acel. en zona de '	1.04
Fv = Coef. de ampl. afecta la vel. en zona de T	1.50
T$_o$ (s) = Periodo Inicial	0.14
T$_c$(s) = Periodo Corto	0.69
T$_L$(s) = Periodo largo	3.61
I = Coef. de Importantancia	1.25

T (seg)	CD S$_a$ %g
0.00	0.52
0.10	1.06
0.20	1.30
0.30	1.30
0.40	1.30
0.50	1.30
0.60	1.30
0.70	1.29
0.80	1.13
0.90	1.00
1.00	0.90
1.50	0.60
2.00	0.45
2.50	0.36
3.00	0.30
3.50	0.26
4.00	0.20
4.50	0.16
5.00	0.13



Espectro de aceleraciones, Zona de Amenaza Sísmica Alta – Perfil de suelo E

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

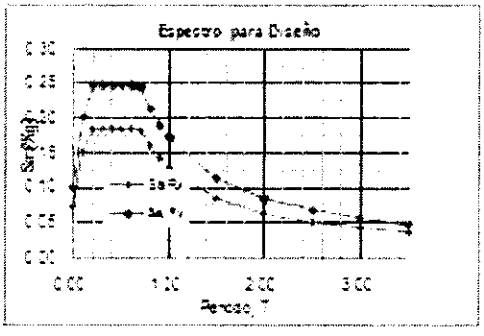
PARAMETROS PARA EL ANAL - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Alta
Perfil de Suelo	E
Aa (g) = Acel. hrizl pico efectiva, para dise	0.40
Av (g) = Acel. de la vel. pico efec. para dis	0.40
Fa = Coef. de ampl. afecta la acel. en zona	0.93
Fv = Coef. de ampl. afecta la vel. en zona c	2.45
T_o (s) = Periodo Inicial	0.26
T_c (s) = Periodo Corto	1.27
T_L (s) = Periodo largo	5.89
I = Coef. de Importantancia	1.25

T (seg)	E S_a %g
0.00	0.46
0.10	0.73
0.20	0.99
0.30	1.16
0.40	1.16
0.50	1.16
0.60	1.16
0.70	1.16
0.80	1.16
0.90	1.16
1.00	1.16
1.50	0.98
2.00	0.74
2.50	0.59
3.00	0.49
3.50	0.42
4.00	0.37
4.50	0.33
5.00	0.29



6.1.5.2. Zona Intermedia

Espectro de aceleraciones horizontales del Umbral de daño, Zona de Amenaza Sísmica Intermedia– Perfil de suelo AB/CD/E

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

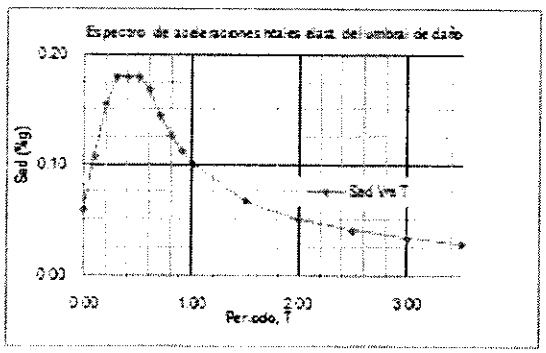
PARAMETROS PARA EL ANALIS . Derivas

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.00	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Intermedia
Perfil de Suelo	AB
Ad (g) = Acel. hital pico efectiva para umbral d	0.06
Aa (g) = Acel. hital pico efectiva, para diseño =	0.15
Av (g) = Acel. de la vel. pico efec. para diseño	0.20
Fa = Coef. de ampl. afecta la acel. en zona de	0.90
Fv = Coef. de ampl. afecta la vel. en zona de T	0.90
T_{ad} **(s)** = 025 sg	0.25
T_{ad} **(s)** = 0.5 (1.25Fv)=	0.56
T_{Ld} **(s)** = 2.4 (1.25Fv)=	2.70
I = Coef. de Importantancia	1.00

T (seg)	AB S_{ad} %g
0.00	0.06
0.10	0.11
0.20	0.16
0.30	0.18
0.40	0.18
0.50	0.16
0.60	0.17
0.70	0.14
0.80	0.13
0.90	0.11
1.00	0.10
1.50	0.07
2.00	0.05
2.50	0.04
3.00	0.03
3.50	0.03
4.00	0.03
4.50	0.02
5.00	0.02



COEFICIENTE DE CAPACIDAD DE DISIPACION DE ENERGIA, R

(Sistema Estructural de Pórtico en Concreto)

$R = \Phi_a \Phi_p \Phi_r R_o$

Normas Aplicables: NSR-10, Numerales A.3.3.3, Tabla A.3-3, Tabla A.3-5 a la 7

Capacidad de Disipación de Energía =	DMO		
Zona Amenaza Sísmica =	Intermedia	R_o = 5.00	Portico Resistente a Mtos
Uso Permitido =	Si		
Altura Máxima =	Sin Limite		

IRREGULARIDADES DE LA ESTRUCTURA

Irregularidad Torsional en Planta NSR-10, Capitulo A.3 figura A.3-1

No hay Irregularidad Torsional Φ_{pa} = 1.00
No hay Irregularidad Torsional Φ_{pi} = 1.00

CBT	*Sismo en X*	Δ_i =	6.8	mm	Δ_t =	6.1	mm	Φ_{ax} =	1.00
	Sismo en Y	Δ_i =	3.7	mm	Δ_t =	3.5	mm	Φ_{ay} =	1.00

Tipo 2P (Si o No):	N	Φ_p =	1.00	*Tipo 3P* (Si o No):	N	Φ_p =	1.00
Tipo 4P (Si o No):	N	Φ_p =	1.00	*Tipo 5P* (Si o No):	N	Φ_p =	1.00

Irregularidad Torsional en Altura NSR-10, Capitulo A.3 figura A.3-2

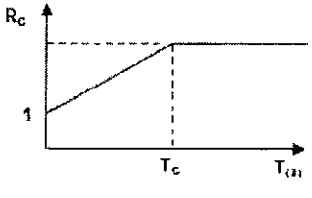
Tipo 1aA/1bA (Si o No):	N	Φ_a =	1.00	*Tipo 2A* (Si o No)	N	Φ_a =	1.00
Tipo 3A (Si o No):	N	Φ_a =	1.00	*Tipo 4A* (Si o No)	N	Φ_a =	1.00
Tipo 5aA/5bA (Si o No):	N	Φ_a =	1.00				

Irregularidad en Planta, Φ_{pa} =	1.00	Rx = 3.00	Portico Resistente a Mtos
Irregularidad en Planta, Φ_{pi} =	1.00		
Irregularidad en altura, Φ_a =	1.00	Ry = 3.75	
Ausencia de redundancia, Φ_{rx} =	1.00		
Ausencia de redundancia, Φ_{ry} =	0.75		

Tx = 0.38 sg
Ty = 0.28 sg

CORRECCION DE R PARA PERIODOS DE VIBRACION QUE TIENDAN A CERO NSR-10, Numeral A.2.9.4

$R_{cx} = (R-1)\ T/To + 1 \leq R$ = 12.54
Rx = 5.00
$R_{cy} = (R-1)\ T/To + 1 \leq R$ = 6.73
Ry = 3.75



M = 96.05 kN sg²/m
Tx = 0.335 sg
Ty = 0.276 sg

Numero de Modos de Vibración (NM)
NSR-10, Capítulo A.5 Numeral A.5.4.2
p = 30

Combinación de los Modos
NSR-10, Capítulo A.5 Numeral A.5.4.4
Combinación Modal: CQC
Combinación Direccional: SRSS

Análisis

Descripción: La estructura se modeló en ETABS, ***Versión 9.7.4***. Para efectos de conocer el periodo de la estructura ver resultados de análisis modal

Participación de masa en X, %Mx =	99.9%	p es el adecuado => Ok	NSR-10, Capítulo A.5
Participación de masa en Y, %My =	99.7%	p es el adecuado => Ok	Numeral A.5.4.2

(Ver resultados de Análisis Modal)

Ajuste de los Resultados NSR-10, Capítulo A.5 Numeral A.5.4.5

Clasificación de la estructura (Regular o Irregular) = R

α_i =	0.90	Cu= 1.75 - 1.2AvFv =	1.534				
C_t =	0.047	CuTa (sg)= $CuC_t h_n^{\alpha}$ =	0.27	Vs = Sd g M =	169	kN	NSR-10, Capítulo A.4, Numerales A.4.2.2
h_n (m) =	4.40	Sa =	0.18				

Cortante Dinamico (sin corregir)

Cortante Dinámico Total en la Base, Vi_x =	159	kN	***Vtx > 0.80Vs => Ok No Ajustar Resultados***	SF_x =	0.85
Cortante Dinámico Total en la Base, Vi_y =	144	kN	***Vty > 0.80Vs => Ok No justar Resultados***	SF_y =	0.94

Cortante Dinamico (Corregidos)

Cortante Dinámico Total en la Base, Vf_x =	307	kN	Vf_{tx} =	*SFx Vf tx*	*en modelo:* $F_{x,y}$	SF_x =	0.44
Cortante Dinámico Total en la Base, Vf_y =	288	kN	Vf_{ty} =	*SFy Vf ty*	= $SF_{x,y}$ *Sa M*	SF_y =	0.47

Espectro de aceleraciones para diseño, para Zona de amenaza sísmica Intermedia, y para cada grupo de perfil de suelos.

Espectro de aceleraciones, Zona de Amenaza Sísmica Intermedia – Perfil de suelo AB

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

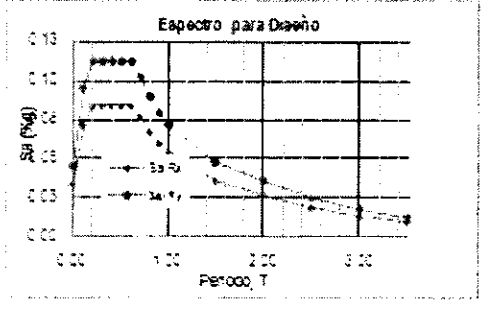
PARAMETROS PARA EL ANALIS - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Intermedia
Perfil de Suelo	AB
Aa (g) = Acel. hrizontal pico efectiva, para diseño :	0.15
Av (g) = Acel. de la vel. pico efec. para diseño	0.20
Fa = Coef. de ampl. afecta la acel. en zona de T	0.90
Fv = Coef. de ampl. afecta la vel. en zona de T	0.90
T_o (s) = Periodo Inicial	0.13
T_c (s) = Periodo Corto	0.64
T_L (s) = Periodo largo	2.16
I = Coef. de importancia	1.25

T (seg)	AB S_a %g
0.00	0.17
0.10	0.36
0.20	0.42
0.30	0.42
0.40	0.42
0.50	0.42
0.60	0.42
0.70	0.39
0.80	0.34
0.90	0.30
1.00	0.27
1.50	0.18
2.00	0.14
2.50	0.09
3.00	0.06
3.50	0.05
4.00	0.04
4.50	0.03
5.00	0.02



Espectro de aceleraciones, Zona de Amenaza Sísmica Intermedia – Perfil de suelo CD

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

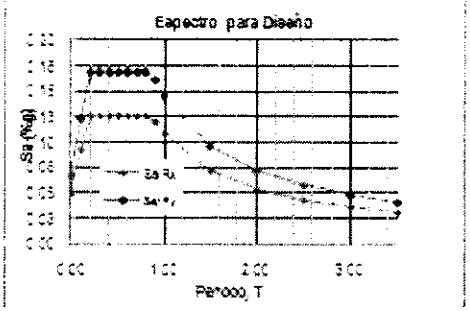
PARAMETROS PARA EL ANALIS - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Intermedia
Perfil de Suelo	CD
Aa (g) = Acel. hrizontal pico efectiva, para diseño :	0.15
Av (g) = Acel. de la vel. pico efec. para diseño	0.20
Fa = Coef. de ampl. afecta la acel. en zona de T	1.35
Fv = Coef. de ampl. afecta la vel. en zona de T	1.81
T_o (s) = Periodo Inicial	0.18
T_c (s) = Periodo Corto	0.86
T_L (s) = Periodo largo	4.35
I = Coef. de Importantancia	1.25

T (seg)	cd S_a %g
0.00	0.25
0.10	0.47
0.20	0.63
0.30	0.63
0.40	0.63
0.50	0.63
0.60	0.63
0.70	0.63
0.80	0.63
0.90	0.60
1.00	0.54
1.50	0.36
2.00	0.27
2.50	0.22
3.00	0.18
3.50	0.15
4.00	0.14
4.50	0.12
5.00	0.09



Espectro de aceleraciones, Zona de Amenaza Sísmica Intermedia – Perfil de suelo E

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

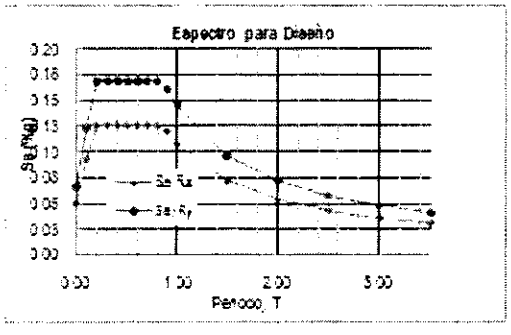
PARAMETROS PARA EL ANAL - Diseño

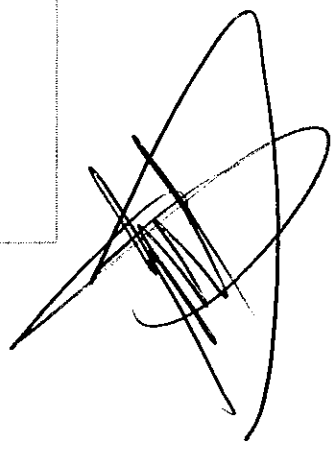
Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Progecto (Zona):	Intermedia
Perfil de Suelo	E
Aa (g) = Acel. htal pico efectiva, para diseñ	0.15
Av (g) = Acel. de la vel. pico efec. para dise	0.20
Fa = Coef. de ampl. afecta la acel. en zona	2.11
Fv = Coef. de ampl. afecta la vel. en zona d	3.19
T_o (s) = Periodo Inicial	0.20
T_c (s) = Periodo Corto	0.97
T_L (s) = Periodo largo	7.66
I = Coef. de Importantancia	1.25

T (seg)	E S_a %g
0.00	0.40
0.10	0.69
0.20	0.98
0.30	0.99
0.40	0.99
0.50	0.99
0.60	0.99
0.70	0.99
0.80	0.99
0.90	0.99
1.00	0.96
1.50	0.64
2.00	0.48
2.50	0.38
3.00	0.32
3.50	0.27
4.00	0.24
4.50	0.21
5.00	0.19





6.1.5.3. Zona Baja

Espectro de aceleraciones horizontales del Umbral de daño, Zona de Amenaza Sísmica Baja– Perfil de suelo AB/CD/E

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

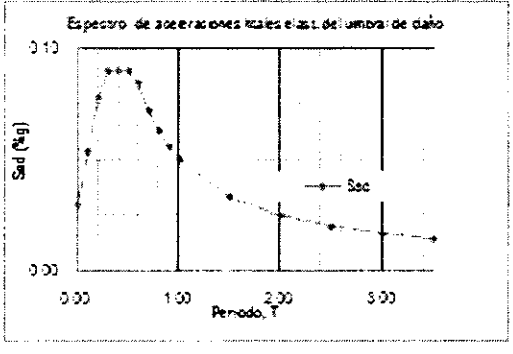
PARAMETROS PARA EL ANAL - Derivas

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.00	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Baja
Perfil de Suelo	AB
Ad (g) = Acel. htal pico efectiva para umbra	0.03
Aa (g) = Acel. htal pico efectiva, para diseñ	0.10
Av (g) = Acel. de la vel. pico efec. para dise	0.10
Fa = Coef. de ampl. afecta la acel. en zona	0.90
Fv = Coef. de ampl. afecta la vel. en zona d	0.90
T_{od} (s) = 025 sg	0.25
T_{od} (s) = 0.5 (1.25Fv)=	0.56
T_{ld} (s) = 2.4 (1.25Fv)=	2.70
I = Coef. de Importantancia	1.00

T (seg)	AB S_{ad} %g
0.00	0.03
0.10	0.05
0.20	0.08
0.30	0.09
0.40	0.09
0.50	0.09
0.60	0.08
0.70	0.07
0.80	0.06
0.90	0.06
1.00	0.05
1.50	0.03
2.00	0.03
2.50	0.02
3.00	0.02
3.50	0.01
4.00	0.01
4.50	0.01
5.00	0.01



COEFICIENTE DE CAPACIDAD DE DISIPACION DE ENERGIA, R

(Sistema Estructural de Pórtico en Concreto)

$R = \Phi_a \Phi_p \Phi_r R_O$

Normas Aplicables: NSR-10, Numerales A.3.3.3, Tabla A.3-3, Tabla A.3-5 a la 7

Capacidad de Disipación de Energía =	DMI		
Zona Amenaza Sísmica =	Baja	R_O = 2.50	Porico Resistente a Mios
Uso Permitido =	Si		
Altura Máxima =	Sin Limite		

IRREGULARIDADES DE LA ESTRUCTURA

Irregularidad Torsional en Planta NSR-10, Capitulo A.3 figura A.3-1

No hay irregularidad Torsional Φ_{pi} = 1.00

No hay irregularidad Torsional Φ_{pi} = 1.00

CBT	*Sismo en X*	Δ_1 =	3.4	mm	Δ_2 =	3.0	mm	Φ_{px} =	1.00
	Sismo en Y	Δ_1 =	1.8	mm	Δ_2 =	1.8	mm	Φ_{py} =	1.00

Tipo 2P (Si o No):	N	Φ_c =	1.00	*Tipo 3P* (Si o No):	N	Φ_c =	1.00
Tipo 4P (Si o No):	N	Φ_c =	1.00	*Tipo 5P* (Si o No):	N	Φ_c =	1.00

Irregularidad Torsional en Altura NSR-10, Capitulo A.3 figura A.3-2

Tipo 1aA/1bA (Si o No):	N	Φ_a =	1.00	*Tipo 2A* (Si o No):	N	Φ_a =	1.00
Tipo 3A (Si o No):	N	Φ_a =	1.00	*Tipo 4A* (Si o No):	N	Φ_a =	1.00
Tipo 5aA/5bA (Si o No):	N	Φ_a =	1.00				

Irregularidad en Planta, Φ_{pi} =	1.00	Rx = 2.50	Porico Resistente a Mios
Irregularidad en Planta, Φ_{pi} =	1.00		
Irregularidad en altura, Φ_a =	1.00	Ry = 1.88	
Ausencia de redundancia, Φ_{ra} =	1.00		
Ausencia de redundancia, Φ_{ra} =	0.75		

Tx = 0.38 sg

Ty = 0.28 sg

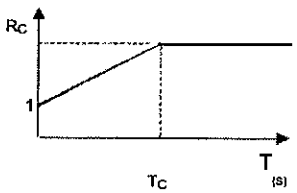
CORRECCION DE R PARA PERIODOS DE VIBRACION QUE TIENDAN A CERO NSR-10, Numeral A.2.9.4

$R_{Cx} = (R-1)\,T/To + 1 \leq R$ = 6.18

Rx = 2.50

$R_{Cy} = (R-1)\,T/To + 1 \leq R$ = 3.16

Ry = 1.88



M = 96.05 kN sg²/m
Tx = [illegible] sg
Ty = [illegible] sg

Numero de Modos de Vibración (NM)
NSR-10, Capitulo A.5 Numeral A.5.4.2
p = 30

Combinación de los Modos
NSR-10, Capitulo A.5 Numeral A.5.4.4
Combinación Modal: CQC
Combinación Direccional: SRSS

Análisis
Descripción: La estructura se modeló en ETABS, ***Versión 9.7.4***. Para efectos de conocer el periodo de la estructura ver resultados de análisis modal.

Participación de masa en X, %Mx =	99.9%	p es el adecuado => Ok	NSR-10, Capitulo A.5
Participación de masa en Y, %My =	99.7%	p es el adecuado => Ok	Numeral A.5.4.2

(Ver resultados de Análisis Modal)

Ajuste de los Resultados NSR-10, Capitulo A.5 Numeral A.5.4.5

Clasificación de la estructura (Regular o Irregular) = R

α_t = 0.90 Cu= 1.75 - 1.2AvFv = 1.642

C_t = 0.047 C_uTa (sg)= $C_uC_tH_n^{\alpha}$ = 0.29 Vs = Sa g M = 85 kN NSR-10, Capitulo A.4, Numerales A.4.2.2

h_n (m) = 4.40 Sa = 0.09

Cortante Dinamico (sin corregir)

Cortante Dinámico Total en la Base, Vf_x = 80 kN ***Vtx > 0.80Vs => Ok No Ajustar Resultados*** SF_x = 0.85

Cortante Dinámico Total en la Base, Vf_y = 72 kN ***Vty > 0.80Vs => Ok No justar Resultados*** SF_y = 0.94

Cortante Dinamico (Corregidos)

Cortante Dinámico Total en la Base Vf_x = 80 kN ***Vf_x = SFx Vf tx*** *en modelo.* $F_{x,y}$ SF_x = 0.85

Cortante Dinámico Total en la Base, Vf_y = 72 kN ***Vf_y = SFy Vf ty*** = $SF_{x,y}$ Sa M SF_y = 0.94

Espectro de aceleraciones para diseño, para Zona de amenaza sísmica Baja, y para cada grupo de perfil de suelos.

Espectro de aceleraciones, Zona de Amenaza Sísmica Baja – Perfil de suelo AB

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

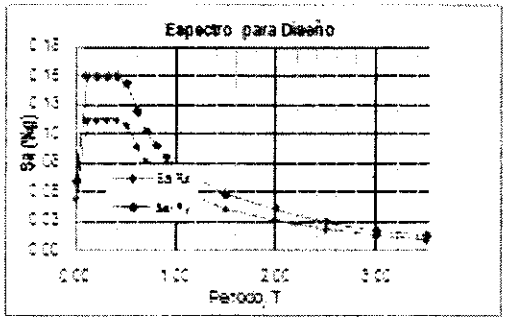
PARAMETROS PARA EL ANALIS - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Baja
Perfil de Suelo	AB
Aa (g) = Acel. hrizl pico efectiva, para diseño :	0.10
Av (g) = Acel. de la vel. pico efec. para diseñc	0.10
Fa = Coef. de ampl. afecta la acel. en zona de'	0.90
Fv = Coef. de ampl. afecta la vel. en zona de T	0.90
T_o (s) = Periodo Inicial	0.10
T_c(s) = Periodo Corto	0.48
T_L(s) = Periodo largo	2.16
I = Coef. de importantancia	1.25

T (seg)	AB S_a %g
0.00	0.11
0.10	0.28
0.20	0.28
0.30	0.28
0.40	0.28
0.50	0.27
0.60	0.23
0.70	0.19
0.80	0.17
0.90	0.15
1.00	0.14
1.50	0.09
2.00	0.07
2.50	0.05
3.00	0.03
3.50	0.02
4.00	0.02
4.50	0.01
5.00	0.01



Espectro de aceleraciones, Zona de Amenaza Sísmica Baja – Perfil de suelo CD

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

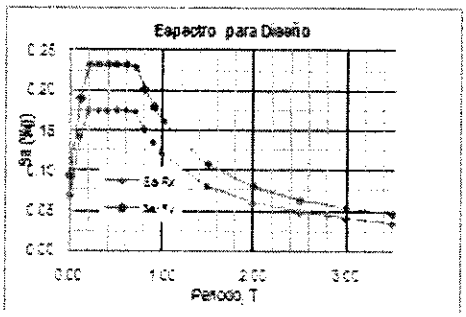
PARAMETROS PARA EL ANALIS - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Baja
Perfil de Suelo	CD
Aa (g) = Acel. hrtal pico efectiva, para diseño :	0.10
Av (g) = Acel. de la vel. pico efec. para diseñc	0.10
Fa = Coef. de ampl. afecta la acel. en zona de	1.39
Fv = Coef. de ampl. afecta la vel. en zona de T	2.01
T_o (s) = Periodo Inicial	0.14
T_c (s) = Periodo Corto	0.69
T_L (s) = Periodo largo	4.83
I = Coef. de Importantancia	1.25

T (seg)	cd S_a %g
0.00	0.17
0.10	0.35
0.20	0.44
0.30	0.44
0.40	0.44
0.50	0.44
0.60	0.44
0.70	0.43
0.80	0.38
0.90	0.34
1.00	0.30
1.50	0.20
2.00	0.15
2.50	0.12
3.00	0.10
3.50	0.09
4.00	0.08
4.50	0.07
5.00	0.06



Espectro de aceleraciones, Zona de Amenaza Sísmica Baja – Perfil de suelo E

ANALISIS SISMICO

El procedimiento que se seguirá para efectos de tener en cuenta los efectos dinámicos producidos en la estructura por el sismo de diseño será el Método del Análisis Dinamico Elastico Espectral, este se describe en el numeral A.5.4 de la N.S.R-10.

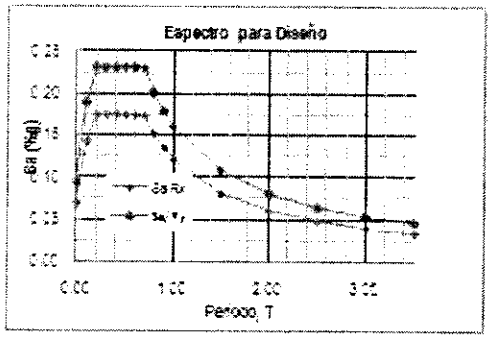
PARAMETROS PARA EL ANALIS - Diseño

Grupo de Uso :	III	NSR-10, Tabla A.2.5-1
Coeficiente de Importancia (I) =	1.25	NSR-10, A.6.2.1.2

MOVIMIENTO SISMICO DE DISEÑO
ESPECTRO DE DISEÑO

Localización de Proyecto (Zona):	Baja
Perfil de Suelo	E
Aa (g) = Acel. hrizl pico efectiva, para diseño :	0.10
Av (g) = Acel. de la vel. pico efec. para diseñc	0.10
Fa = Coef. de ampl. afecta la acel. en zona de`	2.41
Fv = Coef. de ampl. afecta la vel. en zona de T	3.49
T_o (s) = Periodo Inicial	0.15
T_c (s) = Periodo Corto	0.70
T_L (s) = Periodo largo	8.37
I = Coef. de Importantancia	1.25

T (seg)	E S_a %g
0.00	0.30
0.10	0.61
0.20	0.75
0.30	0.75
0.40	0.75
0.50	0.75
0.60	0.75
0.70	0.75
0.80	0.65
0.90	0.58
1.00	0.52
1.50	0.35
2.00	0.26
2.50	0.21
3.00	0.17
3.50	0.15
4.00	0.13
4.50	0.12
5.00	0.10



6.1.6. Cargas de Viento (W)

La carga de viento se tuvo en cuenta solo para el análisis y diseño de elementos de cubierta metálica, en este caso para el diseño de elementos de lamina delgada (perlines); para la estructura aporticada en concreto no se tuvo en cuenta dado que su magnitud comparada con la carga sísmica es muy pequeña y por tanto no es determinante.

La carga de viento (w) para diseño de perlines corresponde a 0.40 kN/m2

6.2. COMBINACIONES DE CARGA

Fueron tenidas en cuenta las combinaciones de carga del capítulo B.2 de la NSR-10, tanto las relacionadas para el método de Resistencia Ultima, numeral B.2.4, como las del Método de los Esfuerzos admisibles, numeral B.2.3, las primeras para la definición del diseño y las segundas para verificación de los criterios de estabilidad.

7. ANALISIS DE LA ESTRUCTURA

El sistema estructural básico propuesto para el BLOQUE 1 corresponde a pórticos en concreto resistentes a momento; el pórtico para el modulo en estudio lo conforman cuatro (4) ejes localizados en sentido transversal (sentido Y) implantados sobre los ejes del 1 al 4, dos (2) en sentido Longuitudinal (sentido X) el A y B, y un solo nivel en altura (sentido Z).

La estructura la conforman columnas en concreto de 30x50 para la zona alta, zona Intermedia y baja; y vigas aéreas también en concreto de 30x50cm.

Todo el sistema descrito anteriormente se soporta en zapatas de cimentación vinculadas en sentido transversal y longitudinal por vigas de amarre, este sistema así conformado se localiza dentro del terreno a una cota asumida en el presente estudio de -1.50m bajo el nivel de piso terminado.

El sistema estructural propuesto para la estructura aporticada en concreto se analizó utilizando para ello ETABS 9.7.4; mediante este software el edificio es idealizado por pórticos interconectados por losas de entrepiso que constituyen diafragmas rígidos en su propio plano, cada columna admite deformaciones axiales por flexión y corte (en el caso particular de la estructura en consideración estas deformaciones son prácticamente nulas dada la poca carga que llega a las columnas), así mismo las vigas admiten deformaciones por flexión y corte.

Las cargas aplicadas a la estructura fueron las correspondientes al peso propio de los elementos estructurales (PP), carga muerta (LD) debida a los acabados, muros de fachada y divisorios, carga viva para cubiertas (Lr), Granizo (G) y las correspondientes a las solicitaciones por sismo en dirección X (Fx / Ex) y Y (Fy / Ey).

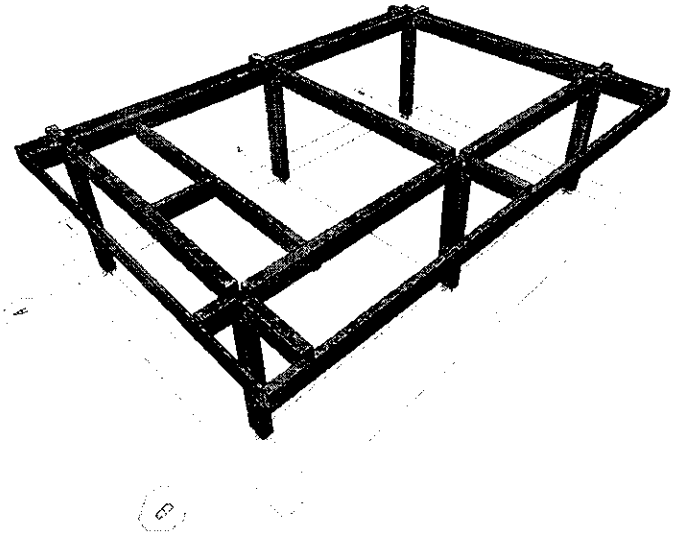
La cimentación se analizó a través de un modelo matemático en SAFE v12., estructurado por elementos tipo Frame para las vigas de cimentación y elementos tipo Shell para las zapatas; en este modelo todo el sistema se apoya directamente al suelo a través de resortes desacoplados con una magnitud Ks definida según lo anunciado en el numeral 5.2 del presente estudio.

Los ejes en el modelo matematico se cargaron con las reacciones provenientes de la estructura, y la combinación de estas para cargas de servicio y últimas sirvieron para verificar que las cargas trasmitidas al suelo no superaran la capacidad admisible del mismo, y para el diseño estructural de los diferentes elementos de la cimentación respectivamente.

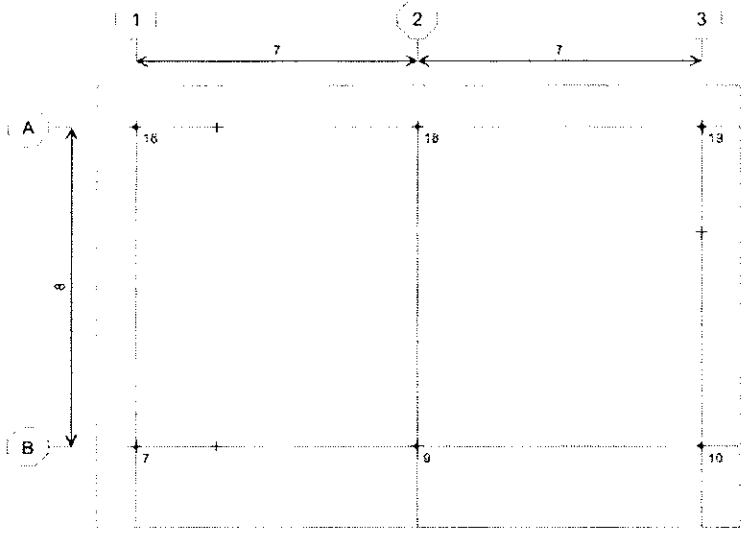
8. ANALISIS y DISEÑO CON ETABs 9.7.4

8.1. Modulo BLOQUE 1 _ CDI 160 Niños

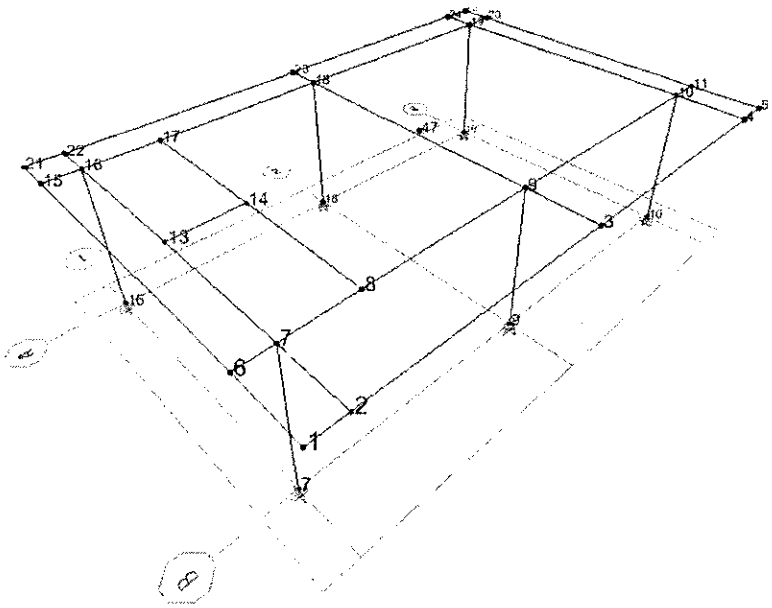
8.1.1. Modelo Matematico



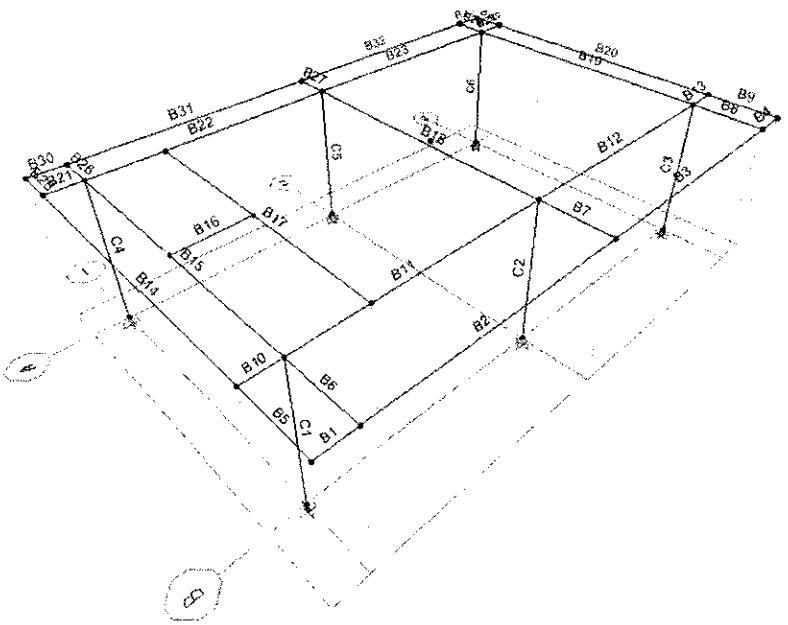
Modelo 3D – Portico en concreto



Modelo 2D - Numeracion apoyos



Modelo 3D – Numeracion nudos



Modelo 3D – Numeracion elementos

8.1.2. Sistema de coordenadas, conectividades, Materiales, Geometria Secciones

ETABS v9.7.4 File:CDI_BLOQUE 1_ALTA/Int./Baja_AB/CD/E_160_VR.1.0 Units:KN-m julio 17, 2013 8:14 PAGE 1

S T O R Y D A T A

STORY	SIMILAR TO	HEIGHT	ELEVATION
CBT	None	4.40	4.40
BASE	None		0.00

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

NAME	TYPE	X	Y	RDTATION	BUBBLESIZE	VISIBLE
GLOBAL	Cartesian	0.00	0.00	0.00000	1.00	Yes

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

SYSTEM NAME	GRID DIR	GRID ID	GRID TYPE	GRID HIDE	BUBBLE LOC	GRID COORDINATE
GLOBAL	X		Sec	No	Top	-0.95
GLOBAL	X	1	Primary	No	Top	0.00
GLOBAL	X	2	Primary	No	Top	7.00
GLOBAL	X	3	Primary	No	Top	14.00
GLOBAL	X		Sec	No	Top	14.95
GLOBAL	Y		Sec	No	Left	-2.05
GLOBAL	Y	B	Primary	No	Left	0.00
GLOBAL	Y	A	Primary	No	Left	8.00
GLOBAL	Y		Sec	No	Left	9.05

P O I N T C O O R D I N A T E S

POINT	X	Y	DZ-BELOW
1	-0.95	-2.05	0.00
2	0.00	-2.05	0.00
3	7.00	-2.05	0.00
4	14.00	-2.05	0.00
5	14.95	-2.05	0.00
6	-0.95	0.00	0.00
7	0.00	0.00	0.00
8	2.00	0.00	0.00
9	7.00	0.00	0.00
10	14.00	0.00	0.00
11	14.95	0.00	0.00
13	0.00	4.00	0.00
14	2.00	4.00	0.00
15	-0.95	8.00	0.00
16	0.00	8.00	0.00
17	2.00	8.00	0.00
18	7.00	8.00	0.00
19	14.00	8.00	0.00
20	14.95	8.00	0.00
21	-0.95	9.05	0.00
22	0.00	9.05	0.00
23	7.00	9.05	0.00
24	14.00	9.05	0.00
25	14.95	9.05	0.00

C O L U M N C O N N E C T I V I T Y D A T A

COLUMN	I END PT	J END PT	I END STORY
C1	7	7	Below
C2	9	9	Below
C3	10	10	Below
C4	16	16	Below
C5	18	18	Below
C6	19	19	Below

B E A M C O N N E C T I V I T Y D A T A

BEAM	I END PT	J END PT
B1	1	2
B2	2	3
B3	3	4
B4	4	5
B5	1	6
B6	2	7
B7	3	9
B8	4	10
B9	5	11
B10	6	7
B11	7	9
B12	9	10
B13	10	11
B14	6	15
B15	7	16
B16	13	14
B17	8	17
B18	9	18
B19	10	19
B20	11	20
B21	15	16
B22	16	18
B23	18	19
B24	19	20
B25	15	21
B26	16	22
B27	18	23
B28	19	24
B29	20	25
B30	21	22
B31	22	23
B32	23	24
B33	24	25

F L O O R C O N N E C T I V I T Y D A T A

FLOOR	POINT	POINT	POINT	POINT
F1	1	2	7	6
F2	2	3	9	7
F3	3	4	10	9
F4	4	5	11	10
F5	7	8	14	13
F6	6	7	16	15
F7	10	11	20	19
F8	13	14	17	16
F9	15	16	22	21
F10	16	18	23	22
F11	18	19	24	23
F12	19	20	25	24

M A T E R I A L P R O P E R T Y D A T A

MATERIAL NAME	MATERIAL TYPE	DESIGN TYPE	MATERIAL DIR/PLANE	MODULUS OF ELASTICITY	POISSON'S RATIO	THERMAL COEFF	SHEAR MODULUS
STEEL	Iso	Steel	All	199947978.80	0.3000	1.1700E-05	76903068.77
FC21	Iso	Concrete	All	21538106.00	0.2000	9.9000E-06	8974210.83
OTHER	Iso	None	All	199947978.80	0.3000	1.1700E-05	76903068.77
FC28	Iso	Concrete	All	24870062.00	0.2000	9.9000E-06	10362525.83

M A T E R I A L P R O P E R T Y M A S S A N D W E I G H T

MATERIAL NAME	MASS PER UNIT VOL	WEIGHT PER UNIT VOL
STEEL	7.8271E+00	7.6820E+01
FC21	2.4007E+00	2.3562E+01
OTHER	7.8271E+00	7.6820E+01
FC28	2.4007E+00	2.3562E+01

MATERIAL DESIGN DATA FOR CONCRETE MATERIALS

MATERIAL NAME	LIGHTWEIGHT CONCRETE	CONCRETE FC	REBAR FY	REBAR FYS	LIGHTWT REDUC FACT
FC21	No	21000.00	420000.00	420000.00	N/A
FC28	No	28000.00	420000.00	420000.00	N/A

ETABS v9.7.4 File:CDI_BLOQUE 1_ALTA_AB_160_VR. 0 Units:KN-m julio 17, 2013 8:23 PAGE 2

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	MATERIAL NAME	SECTION SHAPE NAME OR NAME IN SECTION DATABASE FILE	CONC COL	CONC BEAM
C30X60A	FC28	Rectangular	Yes	
VG30X50	FC21	Rectangular		Yes
VG20X50	FC21	Rectangular		Yes
R	FC21	Rectangular		Yes
C30X60B	FC28	Rectangular	Yes	
C30X60C	FC28	Rectangular	Yes	
C30X50A	FC28	Rectangular	Yes	
C30X50B	FC28	Rectangular	Yes	
C30X50C	FC28	Rectangular	Yes	
C30X50D	FC28	Rectangular	Yes	
C30X50E	FC28	Rectangular	Yes	
C30X50	FC28	Rectangular	Yes	
C30X60D	FC28	Rectangular	Yes	
C30X60E	FC28	Rectangular	Yes	
C30X60F	FC28	Rectangular	Yes	

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION DEPTH	FLANGE WIDTH TOP	FLANGE THICK TOP	WEB THICK	FLANGE WIDTH BOT	FLANGE THICK BOT
C30X60A	0.3000	0.6000	0.0000	0.0000	0.0000	0.0000
VG30X50	0.5000	0.3000	0.0000	0.0000	0.0000	0.0000
VG20X50	0.5000	0.2000	0.0000	0.0000	0.0000	0.0000
R	0.5000	0.1000	0.0000	0.0000	0.0000	0.0000
C30X60B	0.3000	0.6000	0.0000	0.0000	0.0000	0.0000
C30X60C	0.3000	0.6000	0.0000	0.0000	0.0000	0.0000
C30X50A	0.3000	0.5000	0.0000	0.0000	0.0000	0.0000
C30X50B	0.3000	0.5000	0.0000	0.0000	0.0000	0.0000
C30X50C	0.3000	0.5000	0.0000	0.0000	0.0000	0.0000
C30X50D	0.3000	0.5000	0.0000	0.0000	0.0000	0.0000
C30X50E	0.3000	0.5000	0.0000	0.0000	0.0000	0.0000
C30X50	0.3000	0.5000	0.0000	0.0000	0.0000	0.0000
C30X60D	0.3000	0.6000	0.0000	0.0000	0.0000	0.0000
C30X60E	0.3000	0.6000	0.0000	0.0000	0.0000	0.0000
C30X60F	0.3000	0.6000	0.0000	0.0000	0.0000	0.0000

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION AREA	TORSIONAL CONSTANT	MOMENTS OF INERTIA I33	MOMENTS OF INERTIA I22	SHEAR AREAS A2	SHEAR AREAS A3
C30X60A	0.1800	0.0037	0.0014	0.0054	0.1500	0.1500
VG30X50	0.1500	0.0028	0.0031	0.0011	0.1250	0.1250
VG20X50	0.1000	0.0010	0.0021	0.0003	0.0833	0.0833
R	0.0500	0.0001	0.0010	0.0000	0.0417	0.0417
C30X60B	0.1800	0.0037	0.0014	0.0054	0.1500	0.1500
C30X60C	0.1800	0.0037	0.0014	0.0054	0.1500	0.1500
C30X50A	0.1500	0.0028	0.0011	0.0031	0.1250	0.1250
C30X50B	0.1500	0.0028	0.0011	0.0031	0.1250	0.1250
C30X50C	0.1500	0.0028	0.0011	0.0031	0.1250	0.1250
C30X50D	0.1500	0.0028	0.0011	0.0031	0.1250	0.1250
C30X50E	0.1500	0.0028	0.0011	0.0031	0.1250	0.1250
C30X50	0.1500	0.0028	0.0011	0.0031	0.1250	0.1250
C30X60D	0.1800	0.0037	0.0014	0.0054	0.1500	0.1500
C30X60E	0.1800	0.0037	0.0014	0.0054	0.1500	0.1500
C30X60F	0.1800	0.0037	0.0014	0.0054	0.1500	0.1500

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION MODULI S33	SECTION MODULI S22	PLASTIC MODULI Z33	PLASTIC MODULI Z22	RADIUS OF GYRATION R33	RADIUS OF GYRATION R22
C30X60A	0.0090	0.0180	0.0135	0.0270	0.0866	0.1732
VG30X50	0.0125	0.0075	0.0188	0.0113	0.1443	0.0866
VG20X50	0.0083	0.0033	0.0125	0.0050	0.1443	0.0577
R	0.0042	0.0008	0.0063	0.0013	0.1443	0.0289

RAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION MODULI S33	SECTION MODULI S22	PLASTIC MODULI Z33	PLASTIC MODULI Z22	RADIUS OF GYRATION R33	RADIUS OF GYRATION R22
C30X60B	0.0090	0.0180	0.0135	0.0270	0.0866	0.1732
C30X60C	0.0090	0.0180	0.0135	0.0270	0.0866	0.1732
C30X50A	0.0075	0.0125	0.0113	0.0188	0.0866	0.1443
C30X50B	0.0075	0.0125	0.0113	0.0188	0.0866	0.1443
C30X50C	0.0075	0.0125	0.0113	0.0188	0.0866	0.1443
C30X50O	0.0075	0.0125	0.0113	0.0188	0.0866	0.1443
C30X50E	0.0075	0.0125	0.0113	0.0188	0.0866	0.1443
C30X50	0.0075	0.0125	0.0113	0.0188	0.0866	0.1443
C30X60D	0.0090	0.0180	0.0135	0.0270	0.0866	0.1732
C30X60E	0.0090	0.0180	0.0135	0.0270	0.0866	0.1732
C30X60F	0.0090	0.0180	0.0135	0.0270	0.0866	0.1732

FRAME SECTION WEIGHTS AND MASSES

FRAME SECTION NAME	TOTAL WEIGHT	TOTAL MASS
C30X60A	0.0000	0.0000
VG30X50	212.4078	21.6423
VG20X50	63.2629	6.4459
R	101.4916	10.3410
C30X60B	0.0000	0.0000
C30X60C	0.0000	0.0000
C30X50A	0.0000	0.0000
C30X50B	0.0000	0.0000
C30X50C	62.2026	6.3378
C30X50D	0.0000	0.0000
C30X50E	0.0000	0.0000
C30X50	0.0000	0.0000
C30X60O	0.0000	0.0000
C30X60E	0.0000	0.0000
C30X60F	37.3216	3.8027

CONCRETE COLUMN DATA

FRAME SECTION NAME	REINF CONFIGURATION LONGIT	REINF CONFIGURATION LATERAL	REINF SIZE/TYPE	NUM BARS 3DIR/2DIR	NUM BARS CIRCULAR	BAR COVER
C30X60A	Rectangular	Ties	#5/Check	4/3	N/A	0.0400
C30X60B	Rectangular	Ties	#5/Check	5/3	N/A	0.0457
C30X60C	Rectangular	Ties	#6/Check	4/3	N/A	0.0300
C30X50A	Rectangular	Ties	#4/Check	5/3	N/A	0.0400
C30X50B	Rectangular	Ties	#5/Check	4/3	N/A	0.0400
C30X50C	Rectangular	Ties	#6/Check	5/3	N/A	0.0400
C30X50D	Rectangular	Ties	#6/Check	4/3	N/A	0.0400
C30X50E	Rectangular	Ties	#6/Check	5/3	N/A	0.0400
C30X50	Rectangular	Ties	#9/Design	3/3	N/A	0.0400
C30X60D	Rectangular	Ties	#6/Check	5/3	N/A	0.0400
C30X60E	Rectangular	Ties	#6/Check	6/3	N/A	0.0400
C30X60F	Rectangular	Ties	#7/Check	5/3	N/A	0.0400

CONCRETE BEAM DATA

FRAME SECTION NAME	TOP COVER	BOT COVER	TOP LEFT AREA	TOP RIGHT AREA	BOT LEFT AREA	BOT RIGHT AREA
VG30X50	0.0400	0.0300	0.00	0.00	0.00	0.00
VG20X50	0.0400	0.0300	0.00	0.00	0.00	0.00
R	0.0400	0.0300	0.00	0.00	0.00	0.00

SHELL SECTION PROPERTY DATA

SHELL SECTION	MATERIAL NAME	SHELL TYPE	LOAD DIST ONE WAY	MEMBRANE THICK	BENDING THICK	TOTAL WEIGHT	TOTAL MASS
PLACA	FC21	Membrane	No	0.1000	0.1000	189.6473	19.3232

WALL, SLAB, DECK & DPENING ASSIGNMENTS TO AREA OBJECTS

STORY LEVEL	AREA ID	AREA TYPE	SECTION TYPE	SECTION LABEL
CBT	F1	Floor	Slab	PLACA
CBT	F2	Floor	Slab	PLACA
CBT	F3	Floor	Slab	PLACA
CBT	F4	Floor	Slab	PLACA
CBT	F5	Floor	Slab	PLACA
CBT	F6	Floor	Slab	PLACA

WALL, SLAB, DECK & OPENING ASSIGNMENTS TO AREA OBJECTS

STORY LEVEL	AREA ID	AREA TYPE	SECTION TYPE	SECTION LABEL
CBT	F7	Floor	Slab	PLACA
CBT	F8	Floor	Slab	PLACA
CBT	F9	Floor	Slab	PLACA
CBT	F10	Floor	Slab	PLACA
CBT	F11	Floor	Slab	PLACA
CBT	F12	Floor	Slab	PLACA

8.1.3. Asignación de elementos.

8.1.3.1. Vigas - Zona Alta / Intermedia / Baja, Todos los tipos de Suelo

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FRAME SECTION ASSIGNMENTS TO LINE OBJECTS

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	B1	Beam	Rectangular	None	VG20X50	Conc Frame	VG20X50
CBT	B2	Beam	Rectangular	None	VG20X50	Conc Frame	VG20X50
CBT	B3	Beam	Rectangular	None	VG20X50	Conc Frame	VG20X50
CBT	B4	Beam	Rectangular	None	VG20X50	Conc Frame	VG20X50
CBT	B5	Beam	Rectangular	None	R	Conc Frame	R
CBT	B6	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B7	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B8	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B9	Beam	Rectangular	None	R	Conc Frame	R
CBT	B10	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B11	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B12	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B13	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B14	Beam	Rectangular	None	R	Conc Frame	R
CBT	B15	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B16	Beam	Rectangular	None	VG20X50	Conc Frame	VG20X50
CBT	B17	Beam	Rectangular	None	VG20X50	Conc Frame	VG20X50
CBT	B18	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B19	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B20	Beam	Rectangular	None	R	Conc Frame	R
CBT	B21	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B22	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B23	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B24	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B25	Beam	Rectangular	None	R	Conc Frame	R
CBT	B26	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B27	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B28	Beam	Rectangular	None	VG30X50	Conc Frame	VG30X50
CBT	B29	Beam	Rectangular	None	R	Conc Frame	R
CBT	B30	Beam	Rectangular	None	R	Conc Frame	R
CBT	B31	Beam	Rectangular	None	R	Conc Frame	R
CBT	B32	Beam	Rectangular	None	R	Conc Frame	R
CBT	B33	Beam	Rectangular	None	R	Conc Frame	R

8.1.3.2. Columnas

Zona alta / Suelo Tipo AB

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F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C3	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C4	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C5	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C6	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C

Zona alta / Suelo Tipo CD

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F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C3	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C4	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C5	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C6	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C

Zona alta / Suelo Tipo E

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F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C3	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C4	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C5	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C6	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C

Zona Intermedia / Suelo Tipo AB

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F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C3	Column	Rectangular	None	C30X50B	Conc Frame	C30X50B
CBT	C4	Column	Rectangular	None	C30X50B	Conc Frame	C30X50B
CBT	C5	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C6	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A

- **Zona Intermedia / Suelo Tipo CD**

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F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C3	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C4	Column	Rectangular	None	C30X50B	Conc Frame	C30X50B
CBT	C5	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C6	Column	Rectangular	None	C30X50B	Conc Frame	C30X50B

- **Zona Intermedia / Suelo Tipo E**

ETABS v9.7.4 File:CDI_BLOQUE 1_INT._E_160_VR. 0 Units:KN-m julio 17, 2013 8:30 PAGE 1

F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X60F	Conc Frame	C30X60F
CBT	C3	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C4	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C5	Column	Rectangular	None	C30X50F	Conc Frame	C30X50F
CBT	C6	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C

- **Zona Baja / Suelo Tipo AB, CD**

ETABS v9.7.4 File:CDI_BLOQUE 1_BAJA_AB/CD_160_VR. 0 Units:KN-m julio 17, 2013 8:31 PAGE 1

F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A
CBT	C2	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A
CBT	C3	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A
CBT	C4	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A
CBT	C5	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A
CBT	C6	Column	Rectangular	None	C30X50A	Conc Frame	C30X50A

- **Zona Baja / Suelo Tipo E**

ETABS v9.7.4 File:CDI_BLOQUE 1_BAJA_E_160_VR. 0 Units:KN-m julio 17, 2013 8:32 PAGE 1

F R A M E S E C T I O N A S S I G N M E N T S T O L I N E O B J E C T S

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
CBT	C1	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C2	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C3	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C4	Column	Rectangular	None	C30X50C	Conc Frame	C30X50C
CBT	C5	Column	Rectangular	None	C30X50B	Conc Frame	C30X50B
CBT	C6	Column	Rectangular	None	C30X50B	Conc Frame	C30X50B

8.1.4. Cargas, Combinaciones

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S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
PP	DEAD	N/A	1.0000		
DL	DEAD	N/A	0.0000		
LR	LIVE	N/A	0.0000		
G	SNOW	N/A	0.0000		

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RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION C OMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.036
U2	SARY	2.617
UZ	----	N/A

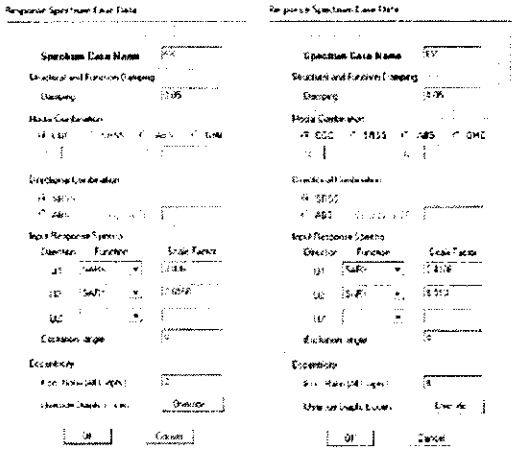
RESP SPEC CASE: EY

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT OATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4108
U2	SARY	8.9180
UZ	----	N/A

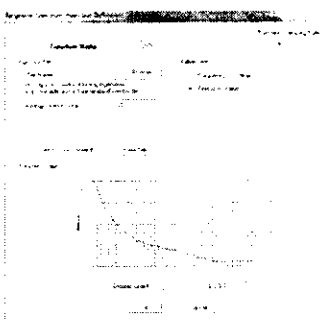


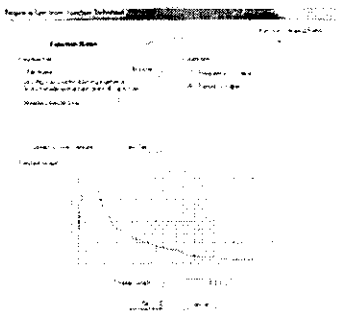
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0600
0.1000	0.1600
0.2000	0.1600
0.3000	0.1600
0.4000	0.1600
0.5000	0.1500
0.6000	0.1300
0.7000	0.1100
0.8000	0.1000
0.9000	0.0900
1.0000	0.0800
1.5000	0.0500
2.0000	0.0400
2.5000	0.0300
3.0000	0.0200
3.5000	0.0100
4.0000	0.0100
4.5000	0.0100

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.0900
0.1000	0.2100
0.2000	0.2100
0.3000	0.2100
0.4000	0.2100
0.5000	0.2100
0.6000	0.1700
0.7000	0.1500
0.8000	0.1300
0.9000	0.1100
1.0000	0.1000
1.5000	0.0700
2.0000	0.0500
2.5000	0.0400
3.0000	0.0200
3.5000	0.0200
4.0000	0.0100
4.5000	0.0100





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R E S P O N S E S P E C T R U M C A S E S

R ESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.0360
U2	SARY	2.6754
UZ	----	N/A

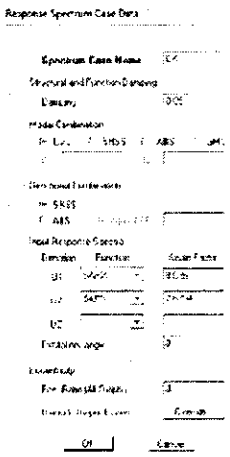
RESP SPEC CASE: EY

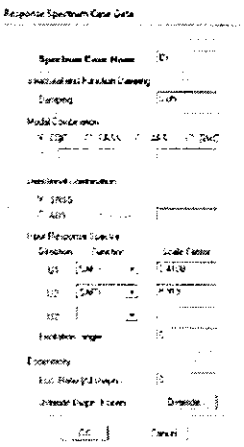
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4108
U2	SARY	8.9180
UZ	----	N/A





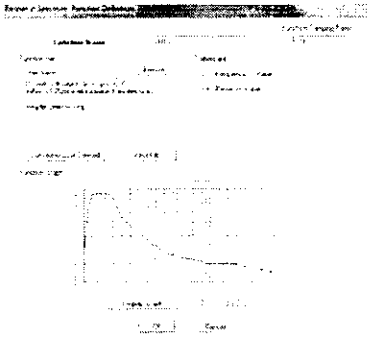
R E S P O N S E S P E C T R U M F U N C T I O N - F R O M F I L E

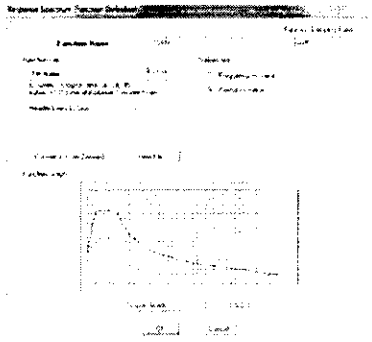
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0700
0.1000	0.1500
0.2000	0.1900
0.3000	0.1900
0.4000	0.1900
0.5000	0.1900
0.6000	0.1900
0.7000	0.1800
0.8000	0.1600
0.9000	0.1400
1.0000	0.1300
1.5000	0.0900
2.0000	0.0600
2.5000	0.0500
3.0000	0.0400
3.5000	0.0400
4.0000	0.0300
4.5000	0.0200

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.1000
0.1000	0.2000
0.2000	0.2500
0.3000	0.2500
0.4000	0.2500
0.5000	0.2500
0.6000	0.2500
0.7000	0.2500
0.8000	0.2100
0.9000	0.1900
1.0000	0.1700
1.5000	0.1100
2.0000	0.0900
2.5000	0.0700
3.0000	0.0600
3.5000	0.0500
4.0000	0.0400
4.5000	0.0300





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R E S P O N S E S P E C T R U M C A S E S

RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.0360
U2	SARY	2.6754
UZ	----	N/A

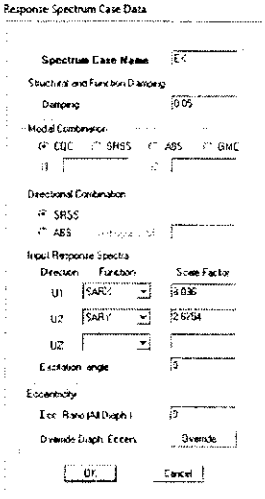
RESP SPEC CASE: EY

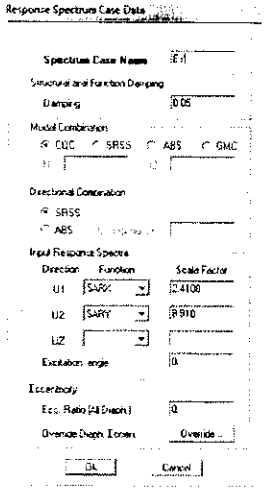
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4108
U2	SARY	8.9180
UZ	----	N/A





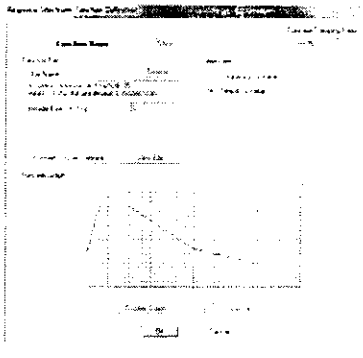
R E S P O N S E S P E C T R U M F U N C T I O N - F R O M F I L E

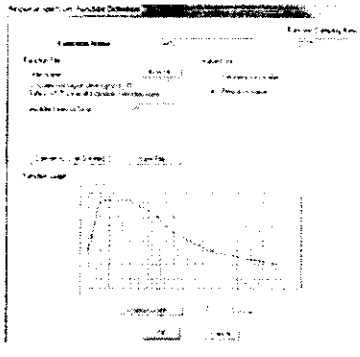
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0700
0.1000	0.1000
0.2000	0.1400
0.3000	0.1700
0.4000	0.1700
0.5000	0.1700
0.6000	0.1700
0.7000	0.1700
0.8000	0.1700
0.9000	0.1700
1.0000	0.1700
1.5000	0.1400
2.0000	0.1100
2.5000	0.0800
3.0000	0.0700
3.5000	0.0600
4.0000	0.0500
4.5000	0.0500

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.0900
0.1000	0.1400
0.2000	0.1900
0.3000	0.2200
0.4000	0.2200
0.5000	0.2200
0.6000	0.2200
0.7000	0.2200
0.8000	0.2200
0.9000	0.2200
1.0000	0.2200
1.5000	0.1900
2.0000	0.1400
2.5000	0.1100
3.0000	0.0900
3.5000	0.0800
4.0000	0.0700
4.5000	0.0600





ETABS v9.7.4 File: CDI-BLDQUE 1-INT.-A8-16D-VR.1.D Units:KN-m julio 114, 2013 12:03 PAGE 1

R E S P O N S E S P E C T R U M C A S E S

RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.3300
U2	SARY	2.7636
UZ	----	N/A

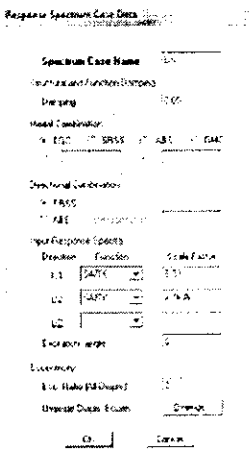
RESP SPEC CASE: EY

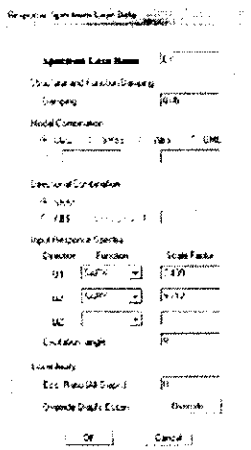
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.499
U2	SARY	9.212
UZ	----	N/A





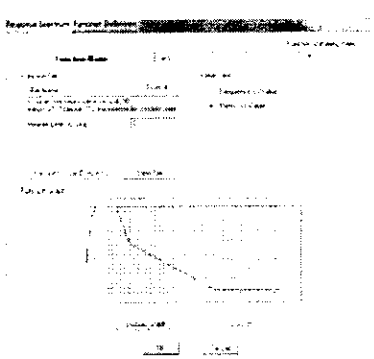
R E S P O N S E S P E C T R U M F U N C T I O N - F R O M F I L E

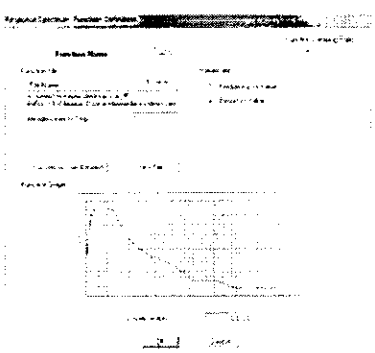
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0300
0.1000	0.0700
0.2000	0.0800
0.3000	0.0800
0.4000	0.0800
0.5000	0.0800
0.6000	0.0800
0.7000	0.0800
0.8000	0.0700
0.9000	0.0600
1.0000	0.0500
1.5000	0.0400
2.0000	0.0300
2.5000	0.0200
3.0000	0.0100
3.5000	0.0100
4.0000	0.0100
4.5000	0.0100

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.0500
0.1000	0.1000
0.2000	0.1100
0.3000	0.1100
0.4000	0.1100
0.5000	0.1100
0.6000	0.1100
0.7000	0.1000
0.8000	0.0900
0.9000	0.0800
1.0000	0.0700
1.5000	0.0500
2.0000	0.0400
2.5000	0.0200
3.0000	0.0200
3.5000	0.0100
4.0000	0.0100
4.5000	0.0100





ETABS v9.7.4 File: CDI-BLOQUE 1-INT.-CD-160-VR.1.0 Units:KN-m julio 17, 2013 12:04 PAGE 1

RESPONSE SPECTRUM CASES

RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.3300
U2	SARY	2.7636
UZ	----	N/A

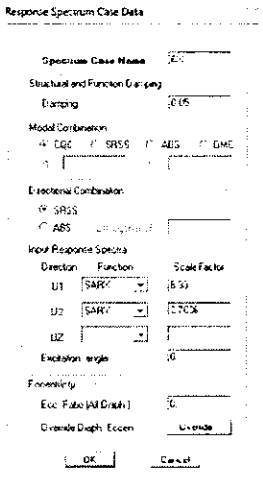
RESP SPEC CASE: EY

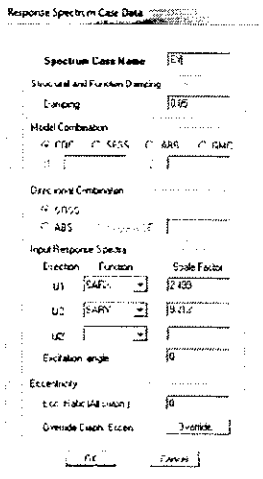
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4990
U2	SARY	9.2120
UZ	----	N/A





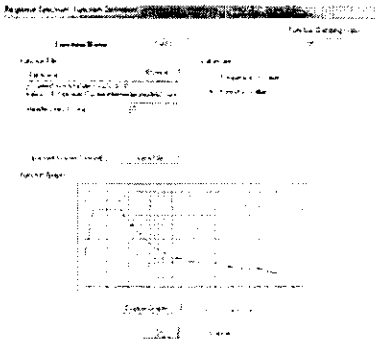
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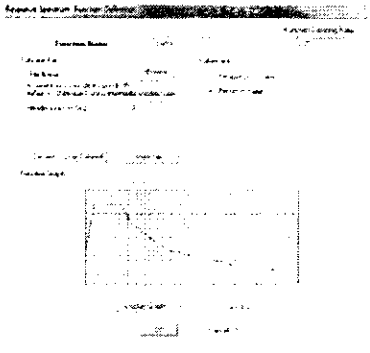
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0500
0.1000	0.0900
0.2000	0.1300
0.3000	0.1300
0.4000	0.1300
0.5000	0.1300
0.6000	0.1300
0.7000	0.1300
0.8000	0.1300
0.9000	0.1200
1.0000	0.1100
1.5000	0.0700
2.0000	0.0500
2.5000	0.0400
3.0000	0.0400
3.5000	0.0300
4.0000	0.0300
4.5000	0.0200

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.0700
0.1000	0.1200
0.2000	0.1700
0.3000	0.1700
0.4000	0.1700
0.5000	0.1700
0.6000	0.1700
0.7000	0.1700
0.8000	0.1700
0.9000	0.1600
1.0000	0.1400
1.5000	0.1000
2.0000	0.0700
2.5000	0.0600
3.0000	0.0500
3.5000	0.0400
4.0000	0.0400
4.5000	0.0300





ETABS v9.7.4 File:CDI-BLOQUE 1-INT.-E-160-VR.1.0 Units:KN-m juli 14, 2013 12:07 PAGE 1

R E S P O N S E S P E C T R U M C A S E S

RE SP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.3300
U2	SARY	2.7636
UZ	-----	N/A

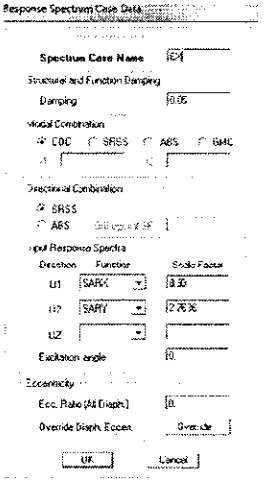
RESP SPEC CASE: EY

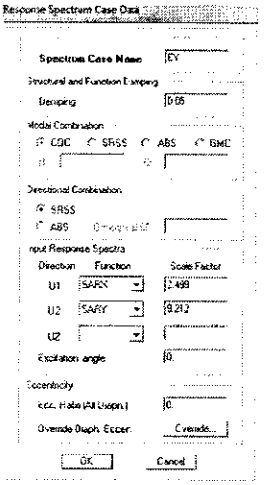
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4990
U2	SARY	9.2120
UZ	-----	N/A





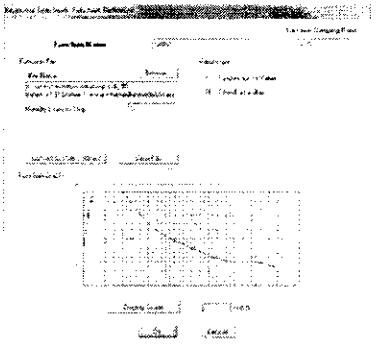
R E S P O N S E S P E C T R U M F U N C T I O N - F R O M F I L E

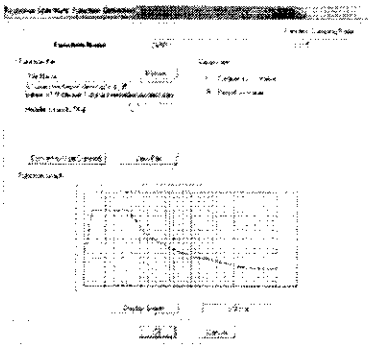
FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.0600
0.1000	0.1400
0.2000	0.2000
0.3000	0.2000
0.4000	0.2000
0.5000	0.2000
0.6000	0.2000
0.7000	0.2000
0.8000	0.2000
0.9000	0.2000
1.0000	0.1900
1.5000	0.1300
2.0000	0.1000
2.5000	0.0800
3.0000	0.0600
3.5000	0.0500
4.0000	0.0500
4.5000	0.0400

FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.1100
0.1000	0.1800
0.2000	0.2600
0.3000	0.2600
0.4000	0.2600
0.5000	0.2600
0.6000	0.2600
0.7000	0.2600
0.8000	0.2600
0.9000	0.2600
1.0000	0.2600
1.5000	0.1700
2.0000	0.1300
2.5000	0.1000
3.0000	0.0900
3.5000	0.0700
4.0000	0.0600
4.5000	0.0600





RESPONSE SPECTRUM CASES

RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.3300
U2	SARY	2.7636
UZ	----	N/A

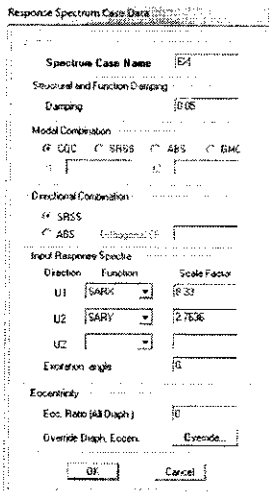
RESP SPEC CASE: EY

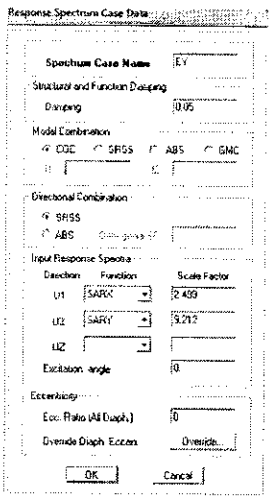
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4990
U2	SARY	9.212
UZ	----	N/A





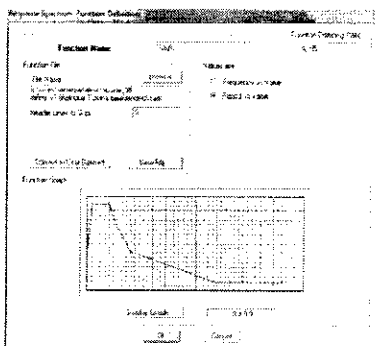
RESPONSE SPECTRUM FUNCTION - FROM FILE

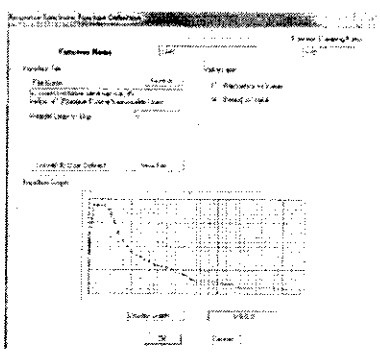
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0500
0.1000	0.1100
0.2000	0.1100
0.3000	0.1100
0.4000	0.1100
0.5000	0.1100
0.6000	0.0900
0.7000	0.0800
0.8000	0.0700
0.9000	0.0600
1.0000	0.0500
1.5000	0.0400
2.0000	0.0300
2.5000	0.0200
3.0000	0.0100
3.5000	0.0100
4.0000	0.0100
4.5000	0.0100

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.0700
0.1000	0.1500
0.2000	0.1500
0.3000	0.1500
0.4000	0.1500
0.5000	0.1600
0.6000	0.1300
0.7000	0.1100
0.8000	0.1000
0.9000	0.0900
1.0000	0.0800
1.5000	0.0500
2.0000	0.0400
2.5000	0.0300
3.0000	0.0200
3.5000	0.0100
4.0000	0.0100
4.5000	0.0100





ETABS v9.7.4 File: CDI-BLOQUE 1-BAJA-CO-160-VR.1.0 Units:KN-m julio 17, 2013 12:16 PAGE 1

RESPONSE SPECTRUM CASES

RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMB O	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.3300
U2	SARY	2.7636
U Z	----	N/A

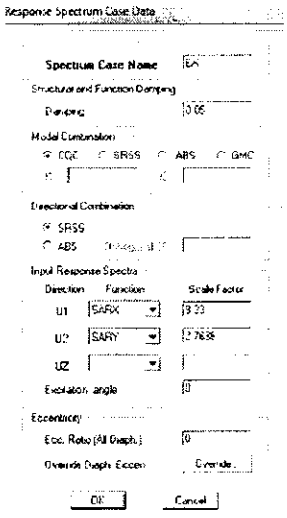
RESP SPEC CASE: EY

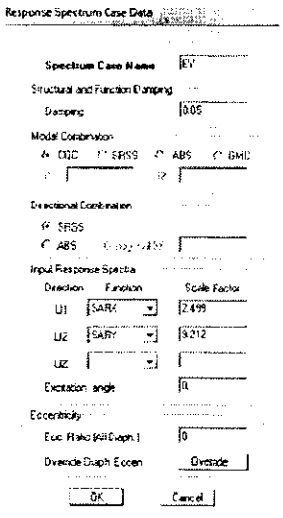
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4990
U2	SARY	9.2120
UZ	----	N/A





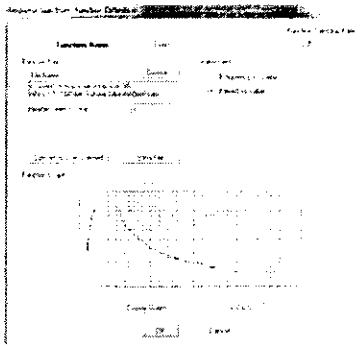
RESPONSE SPECTRUM FUNCTION - FROM FILE

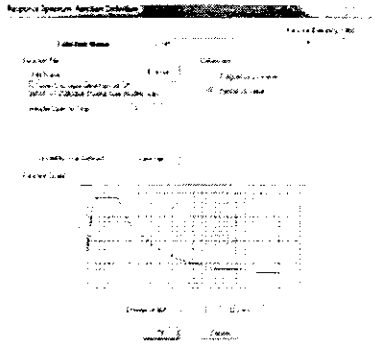
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.0700
0.1000	0.1400
0.2000	0.1700
0.3000	0.1700
0.4000	0.1700
0.5000	0.1700
0.6000	0.1700
0.7000	0.1700
0.8000	0.1500
0.9000	0.1300
1.0000	0.1200
1.5000	0.0800
2.0000	0.0600
2.5000	0.0500
3.0000	0.0400
3.5000	0.0300
4.0000	0.0300
4.5000	0.0300

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.1000
0.1000	0.2100
0.2000	0.2300
0.3000	0.2300
0.4000	0.2300
0.5000	0.2300
0.6000	0.2300
0.7000	0.2300
0.8000	0.2200
0.9000	0.2000
1.0000	0.1800
1.5000	0.1200
2.0000	0.0900
2.5000	0.0700
3.0000	0.0600
3.5000	0.0500
4.0000	0.0400
4.5000	0.0400





ETABS v9.7.4 File: CDI-BLOQUE 1-BAJA-E-160-VR.1.0 Units:KN-m julio 17, 2013 12:21 PAGE 1

RESPONSE SPECTRUM CASES

RESP SPEC CASE: EX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	8.3300
U2	SARY	2.7636
UZ	----	N/A

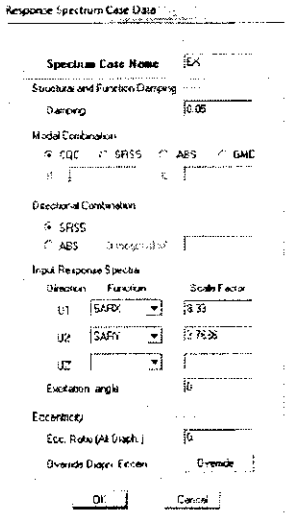
RESP SPEC CASE: EY

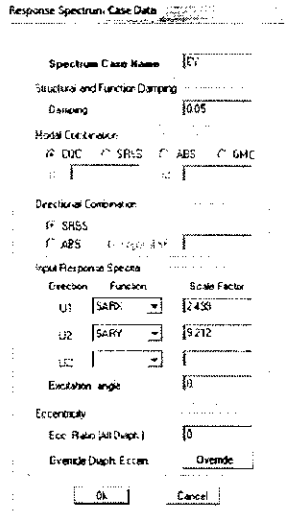
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SARX	2.4990
U2	SARY	9.2120
UZ	----	N/A





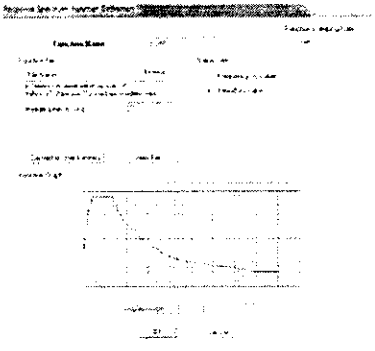
RESPONSE SPECTRUM FUNCTION - FROM FILE

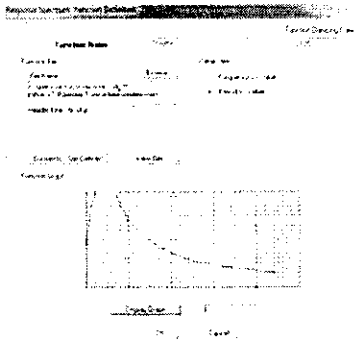
FUNCTION NAME: SARX

PERIOD	ACCEL
0.0000	0.1200
0.1000	0.2400
0.2000	0.3000
0.3000	0.3000
0.4000	0.3000
0.5000	0.3000
0.6000	0.3000
0.7000	0.3000
0.8000	0.2600
0.9000	0.2300
1.0000	0.2100
1.5000	0.1400
2.0000	0.1000
2.5000	0.0800
3.0000	0.0700
3.5000	0.0600
4.0000	0.0500
4.5000	0.0500

FUNCTION NAME: SARY

PERIOD	ACCEL
0.0000	0.1800
0.1000	0.3600
0.2000	0.4000
0.3000	0.4000
0.4000	0.4000
0.5000	0.4000
0.6000	0.4000
0.7000	0.4400
0.8000	0.3900
0.9000	0.3400
1.0000	0.3100
1.5000	0.2100
2.0000	0.1600
2.5000	0.1200
3.0000	0.1000
3.5000	0.0900
4.0000	0.0800
4.5000	0.0700





DISTRIBUTED LOAD ASSIGNMENTS TO LINE OBJECTS

LOAD CASE	STORY LEVEL	LINE ID	LOAD TYPE	LOAD DIRECTION	ABSOLUTE DISTANCE A	ABSOLUTE DISTANCE B	LOAD A PER LENGTH	LOAD B PER LENGTH
DL	CBT	B11	Force	Gravity	0.00	7.00	4.35	4.35
DL	CBT	B12	Force	Gravity	0.00	7.00	4.35	4.35
DL	CBT	B15	Force	Gravity	0.00	8.00	4.00	4.00
DL	CBT	B18	Force	Gravity	0.00	8.00	1.20	1.20
DL	CBT	B19	Force	Gravity	0.00	8.00	4.00	4.00
DL	CBT	B22	Force	Gravity	0.00	7.00	4.35	4.35
DL	CBT	B23	Force	Gravity	0.00	7.00	4.35	4.35
LR	CBT	B11	Force	Gravity	0.00	7.00	0.75	0.75
LR	CBT	B12	Force	Gravity	0.00	7.00	0.75	0.75
LR	CBT	B22	Force	Gravity	0.00	7.00	0.75	0.75
LR	CBT	B23	Force	Gravity	0.00	7.00	0.75	0.75
G	CBT	B11	Force	Gravity	0.00	7.00	1.50	1.50
G	CBT	B12	Force	Gravity	0.00	7.00	1.50	1.50
G	CBT	B22	Force	Gravity	0.00	7.00	1.50	1.50
G	CBT	B23	Force	Gravity	0.00	7.00	1.50	1.50

UNIFORM LOAD ASSIGNMENTS TO AREA OBJECTS

CASE	STORY	AREA	AREATYPE	DIRECTION	LOAD
DL	CBT	F1	Floor	Gravity	1.1000
DL	CBT	F2	Floor	Gravity	1.1000
DL	CBT	F3	Floor	Gravity	1.1000
DL	CBT	F4	Floor	Gravity	1.1000
DL	CBT	F5	Floor	Gravity	1.1000
DL	CBT	F6	Floor	Gravity	1.1000
DL	CBT	F7	Floor	Gravity	1.1000
DL	CBT	F8	Floor	Gravity	1.1000
DL	CBT	F9	Floor	Gravity	1.1000
DL	CBT	F10	Floor	Gravity	1.1000
DL	CBT	F11	Floor	Gravity	1.1000
DL	CBT	F12	Floor	Gravity	1.1000
LR	CBT	F1	Floor	Gravity	1.0000
LR	CBT	F2	Floor	Gravity	1.0000
LR	CBT	F3	Floor	Gravity	1.0000
LR	CBT	F4	Floor	Gravity	1.0000
LR	CBT	F5	Floor	Gravity	2.5000
LR	CBT	F6	Floor	Gravity	1.0000
LR	CBT	F7	Floor	Gravity	1.0000
LR	CBT	F8	Floor	Gravity	2.5000
LR	CBT	F9	Floor	Gravity	1.0000
LR	CBT	F10	Floor	Gravity	1.0000
LR	CBT	F11	Floor	Gravity	1.0000
LR	CBT	F12	Floor	Gravity	1.0000
G	CBT	F1	Floor	Gravity	1.0000
G	CBT	F2	Floor	Gravity	1.0000
G	CBT	F3	Floor	Gravity	1.0000
G	CBT	F4	Floor	Gravity	1.0000
G	CBT	F5	Floor	Gravity	1.0000
G	CBT	F6	Floor	Gravity	1.0000
G	CBT	F7	Floor	Gravity	1.0000
G	CBT	F8	Floor	Gravity	1.0000
G	CBT	F9	Floor	Gravity	1.0000
G	CBT	F10	Floor	Gravity	1.0000
G	CBT	F11	Floor	Gravity	1.0000
G	CBT	F12	Floor	Gravity	1.0000

LOADING COMBINATIONS

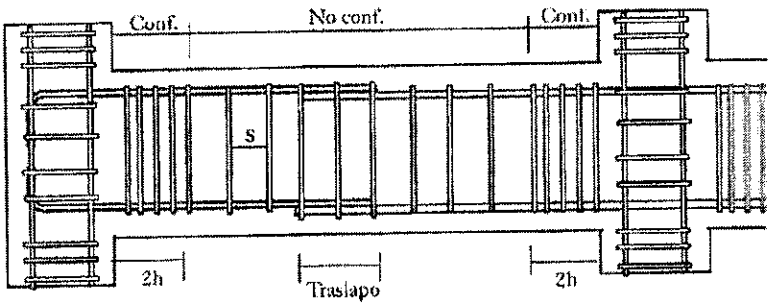
COMBO	COMBO TYPE	CASE	CASE TYPE	SCALE FACTOR
D	ADD	PP	Static	1.0000
		DL	Static	1.0000
DRV1X	ADD	D	Combo	1.0000
		EX	Spectra	1.0000
DRV1Y	ADD	D	Combo	1.0000
		EY	Spectra	1.0000
DRV2X	ADD	D	Combo	0.6000
		EX	Spectra	1.0000
DRV2Y	ADD	D	Combo	0.6000
		EY	Spectra	1.0000
DIS1A	ADD	D	Combo	1.2000
		LR	Static	1.6000
DIS1B	ADD	D	Combo	1.2000
		G	Static	1.6000
DIS2X	ADD	D	Combo	1.2000
		EX	Spectra	1.0000
		LR	Static	1.0000
DIS2Y	ADD	D	Combo	1.2000
		EY	Spectra	1.0000
		LR	Static	1.0000
DIS3X	ADD	D	Combo	0.9000
		EX	Spectra	1.0000
DIS3Y	ADD	D	Combo	0.9000
		EY	Spectra	1.0000
ENVDL	ENVE	DIS1A	Combo	1.0000
		DIS1B	Combo	1.0000
		DIS2X	Combo	1.0000
		DIS2Y	Combo	1.0000
		DIS3X	Combo	1.0000
		DIS3Y	Combo	1.0000

8.1.5. Resultados – Diseño, vigas

Realizado el análisis estructural se presentan a continuación los diagramas de momento, cortante, y refuerzo de vigas para las tres zonas y tipos de suelo en estudio

Combinacion para diseño: ENVOL (ver 8.1.4)

Diseño a cortante



Porticos con DES

Norma: NSR-10, Numeral C.21.5.3.2

Zona Confinada:

Nota. Análisis para fleje No.3, Av= 0.71

cm2 S ≤ 15 cm => Av / S = 0.095 cm2/cm

S ≤ d/4; d= 50 - 4= 46cm, S = 11.5cm => Av / S = 0.125 cm2 /

cm S ≤ 6 db; db = 5/8", S = 9.5cm => Av / S = 0.149 cm2 / cm

Acero transv. para oortante = Av / S = 0.149 cm2 / cm para S = 9.5 c/c en una long. de 2h = 100 cm , o lo que por diseño se requiera; se tomará la cuantia mayor.

Zona No Confinada:

S ≤ d/2; d= 50 - 4= 46cm, S = 23cm => Av / S = 0.062 cm2 / cm, o lo que por diseño se requiera; se tomará la cuantia mayor.

Porticos con DMO

Norma: NSR-10, Numeral C.21.3.4.6

Zona Confinada:

Nota. Análisis para fleje No.3, Av= 0.71

cm2 S ≤ 30 cm => Av / S = 0.047 cm2/cm

S ≤ d/4; d= 50 - 4= 46cm, S = 11.5cm => Av / S = 0.125 cm2 /

cm S ≤ 8 db; db = 5/8", S = 12.7 => Av / S = 0.112 cm2 / cm

S ≤ 24 de; de = 3/8", S = 22.9 => Av / S = 0.0.062 cm2 / cm

Acero transv. para oortante = Av / S = 0.125 cm2 / cm para S = 11.5 c/c en una long. de 2h = 100 cm , o lo que por diseño se requiera; se tomará la cuantia mayor.

Zona No Confinada:

S ≤ d/2; d= 50 - 4= 46cm, S = 23cm => Av / S = 0.062 cm2 / cm, o lo que por diseño se requiera; se tomará la cuantia mayor.

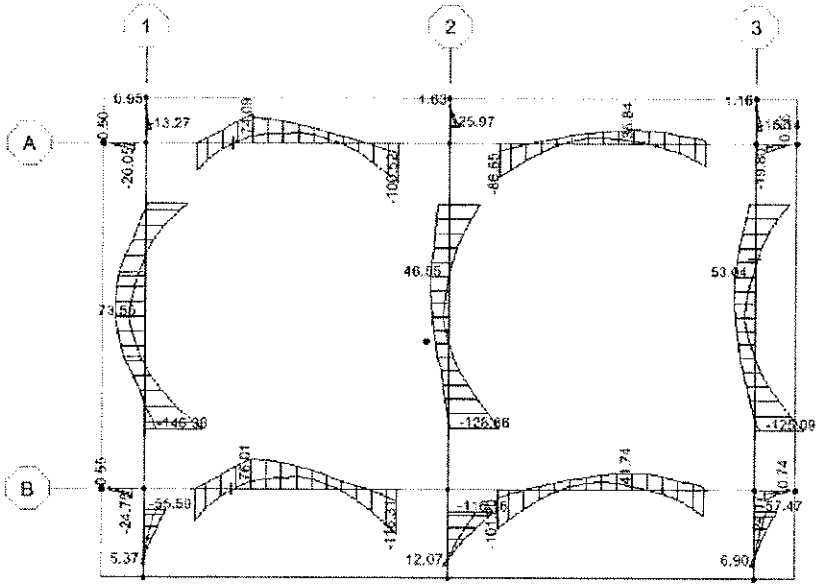
Diseño a flexion

$_{min}$ = 1.4 / fy (Mpa), fy = 420 Mpa => $_{min}$ **= 0.0033**

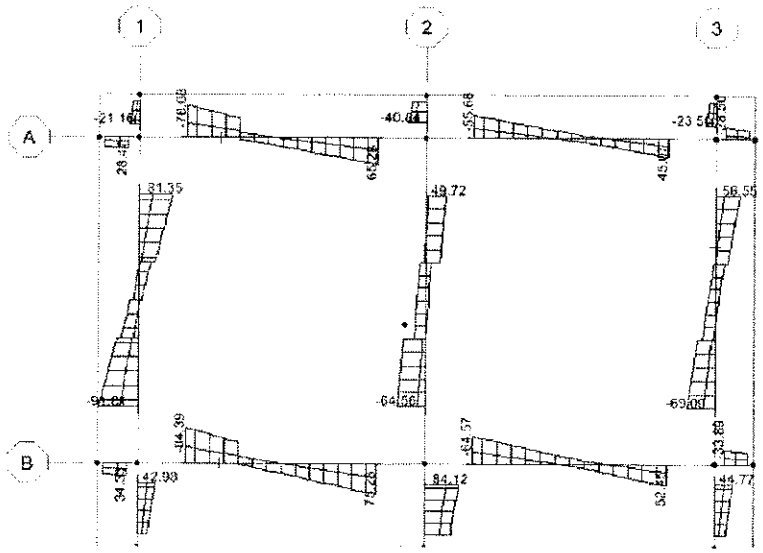
$_{max}$ **= 0.025**

Para DMO (NSR 10, numeral C.21.3.4.3) debe haber al menos dos (2) barras continuas arriba y abajo, para pórticos con DES la NSR-10 (numeral C.21.5.2.1) no especifica el diámetro de este refuerzo

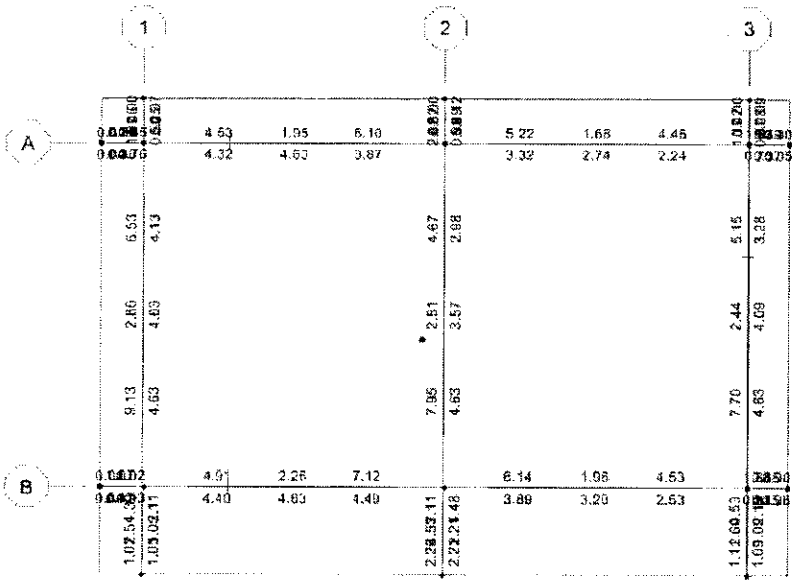
8.1.5.1. Vigas Zona alta, Suelo Tipo AB



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

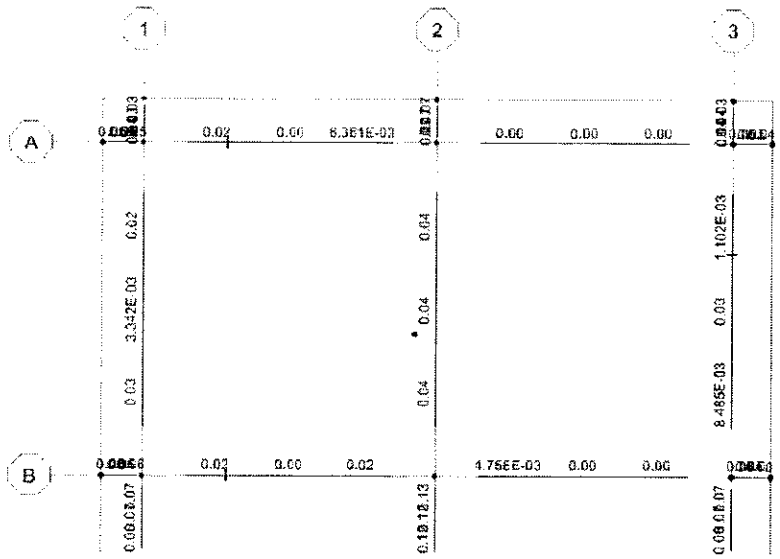


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

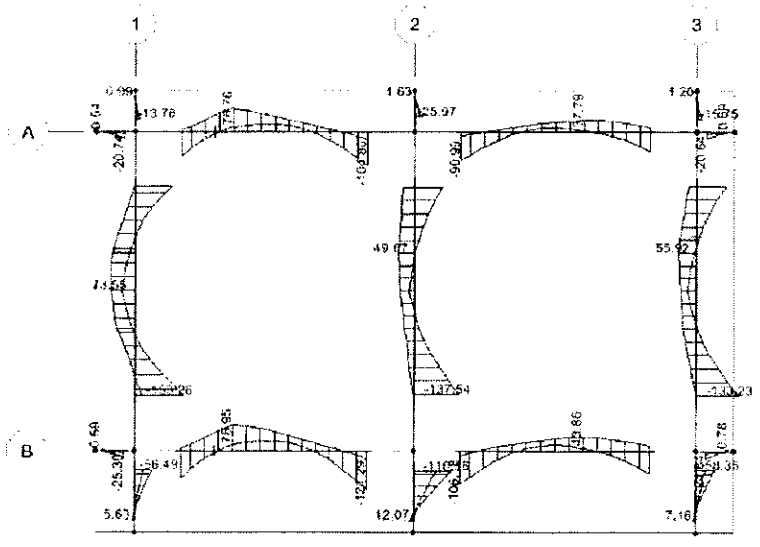
Nota: acero en cm2



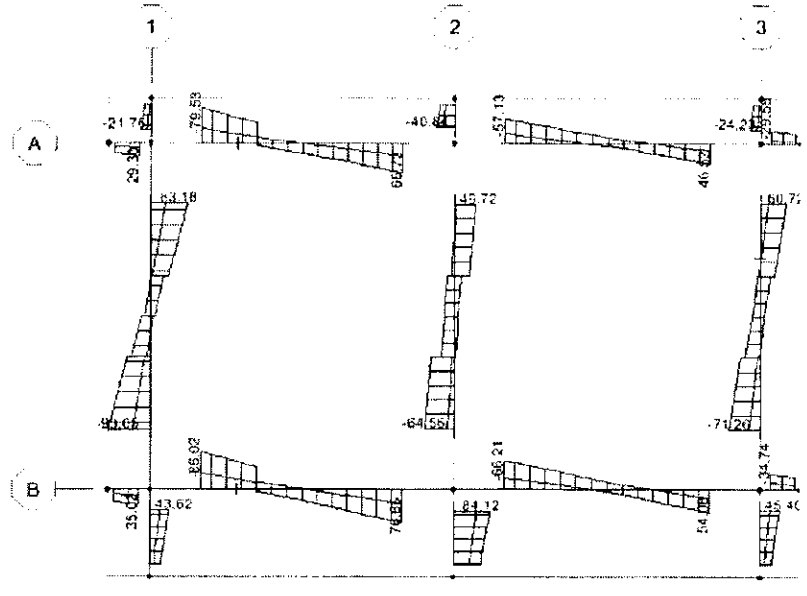
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

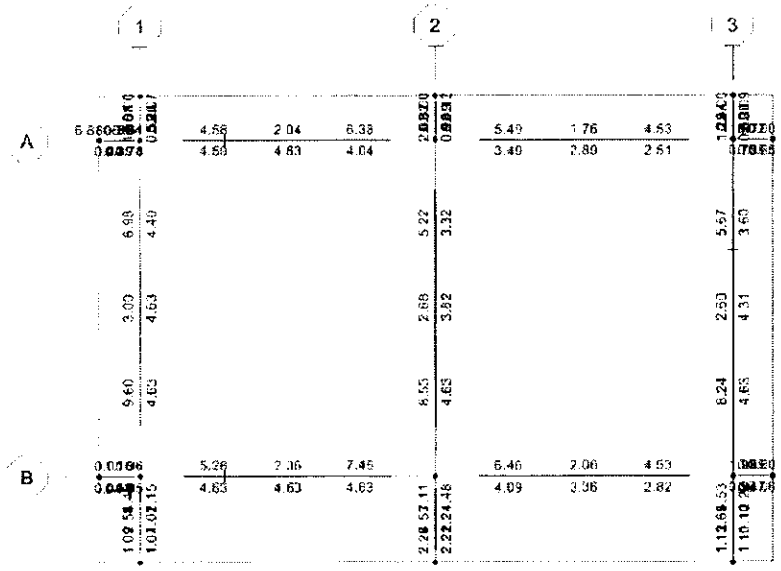
8.1.5.2. Vigas Zona alta, Suelo Tipo CD



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

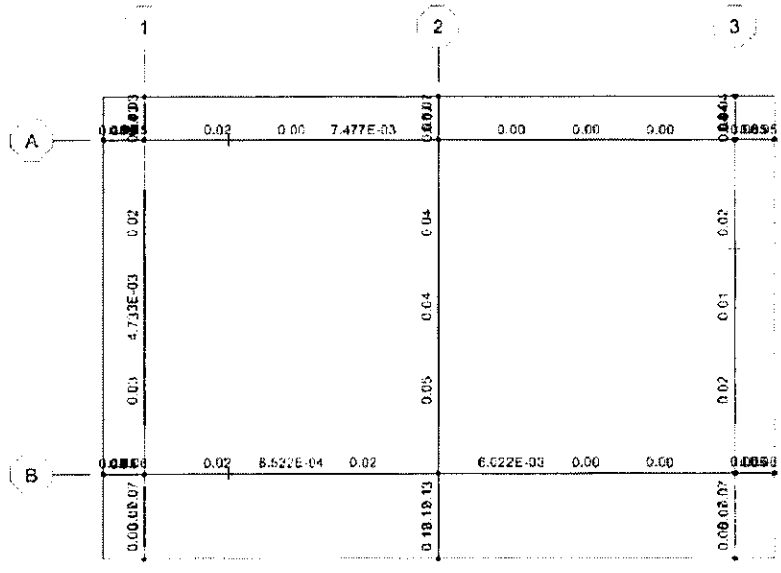


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

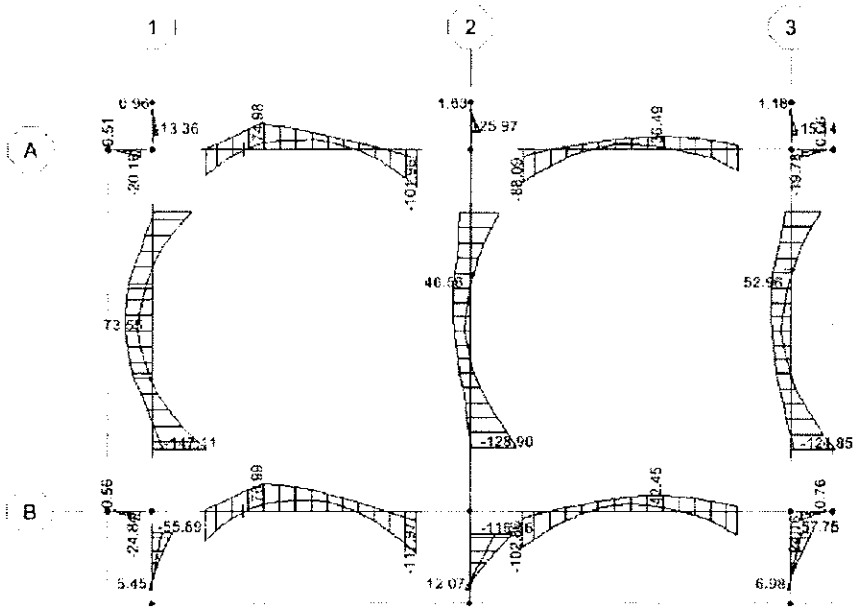
Nota: acero en cm2



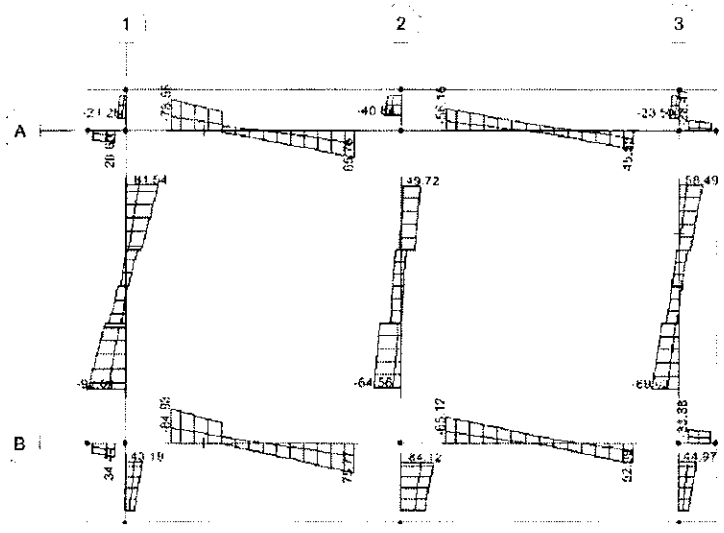
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

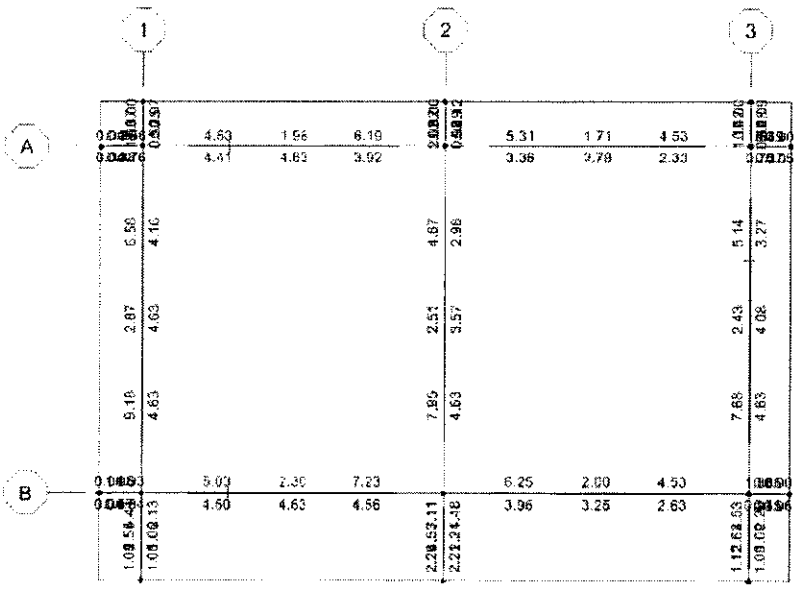
8.1.5.3. Vigas Zona alta, Suelo Tipo E



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

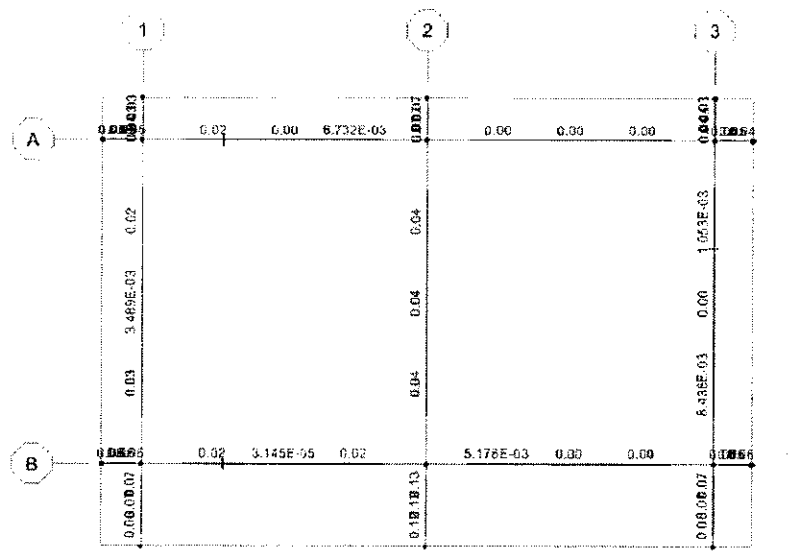


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

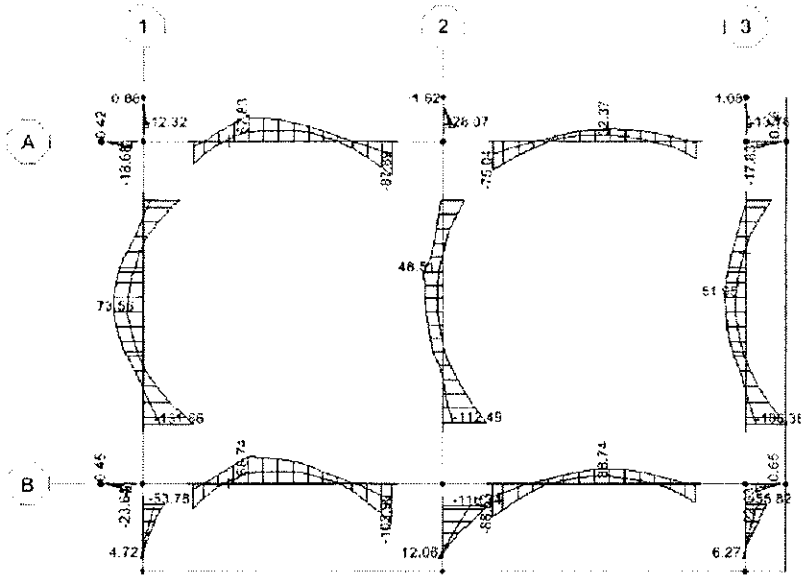
Nota: acero en cm2



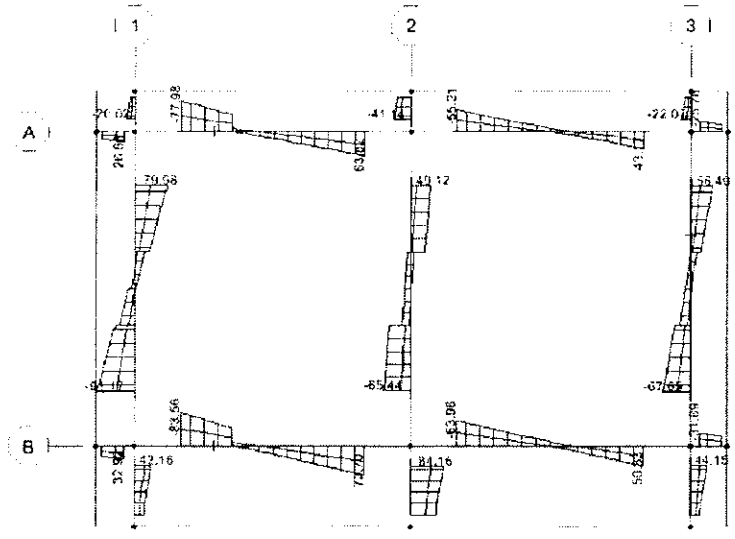
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

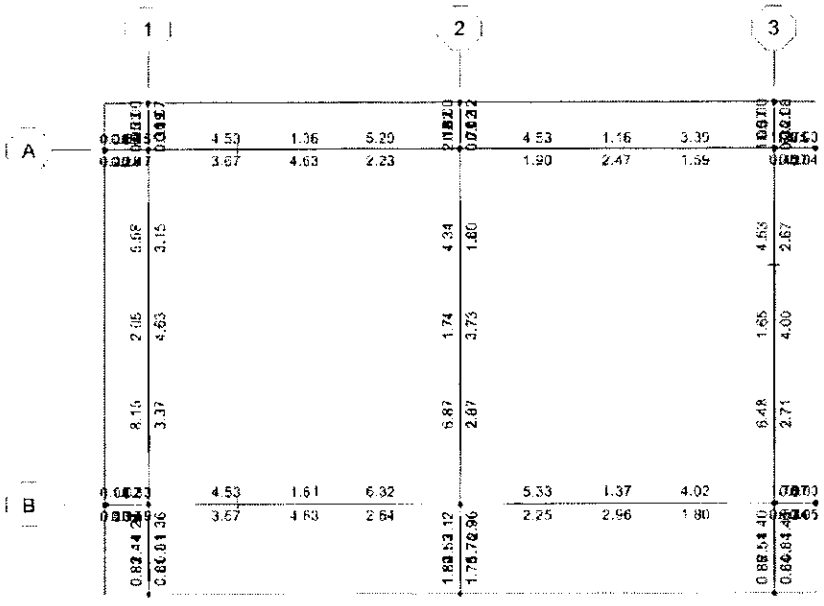
8.1.5.4. Vigas Zona Intermedia, Suelo Tipo AB



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

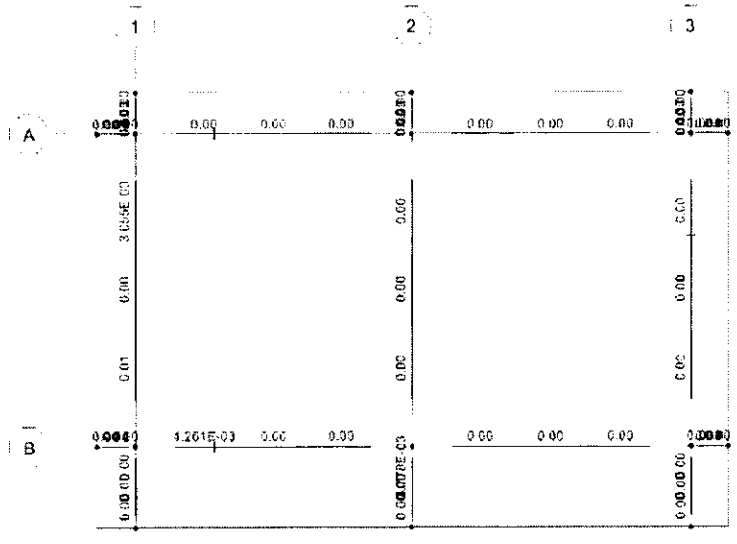


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

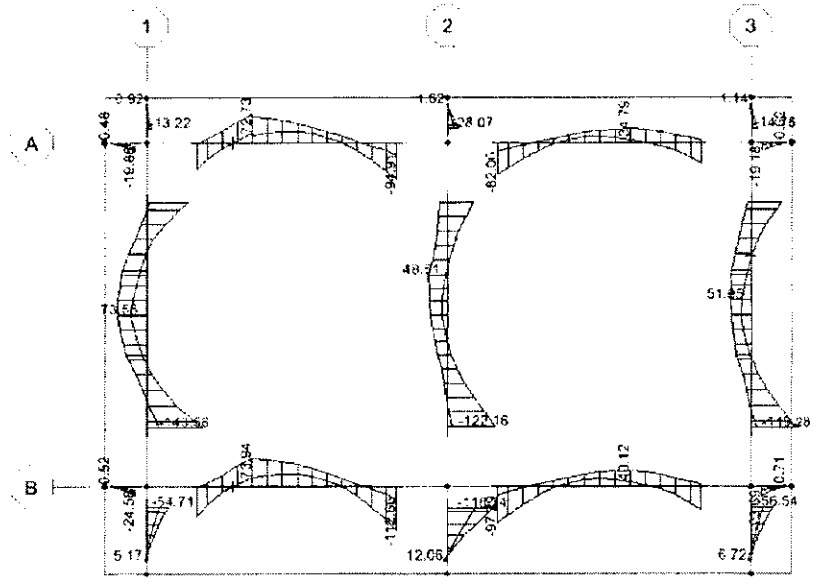
Nota: acero en cm2



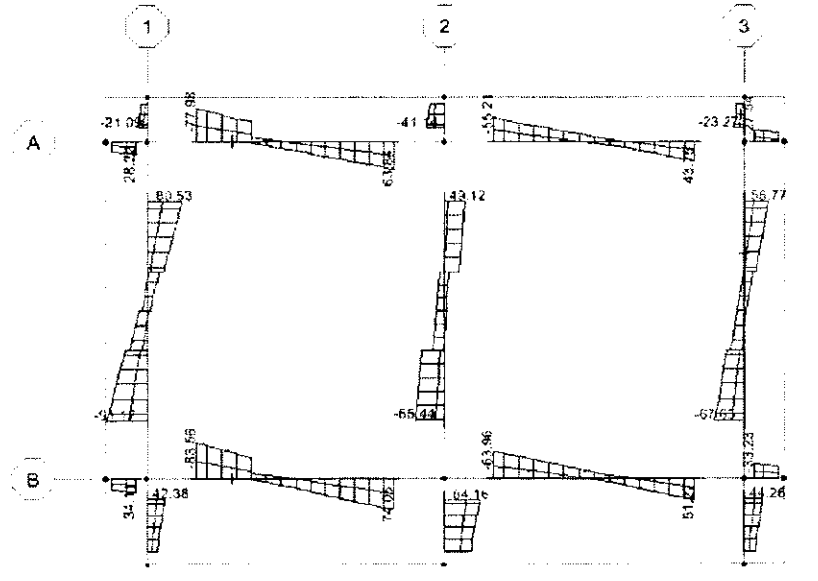
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

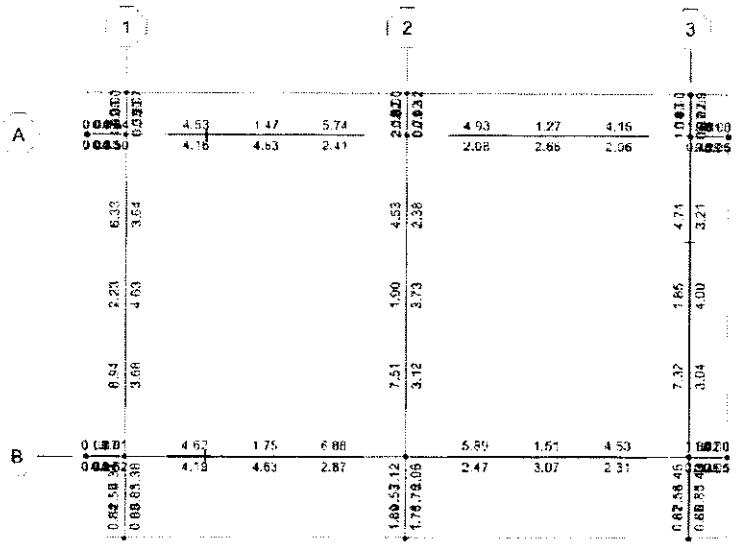
8.1.5.5. Vigas Zona Intermedia, Suelo Tipo CD



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

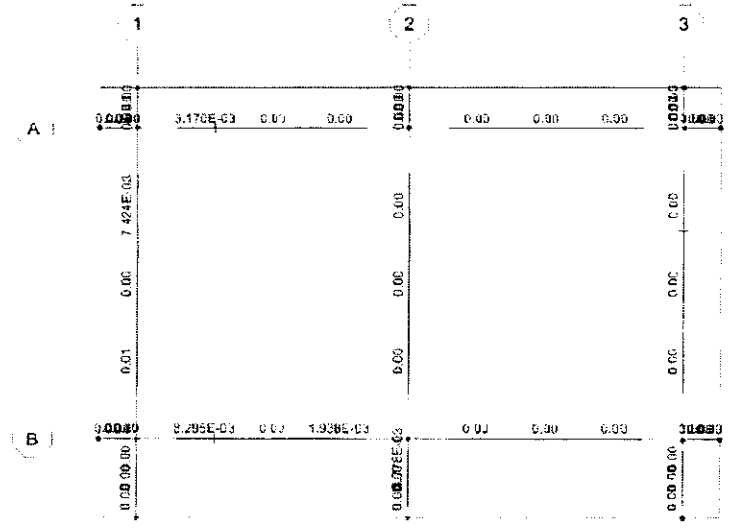


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

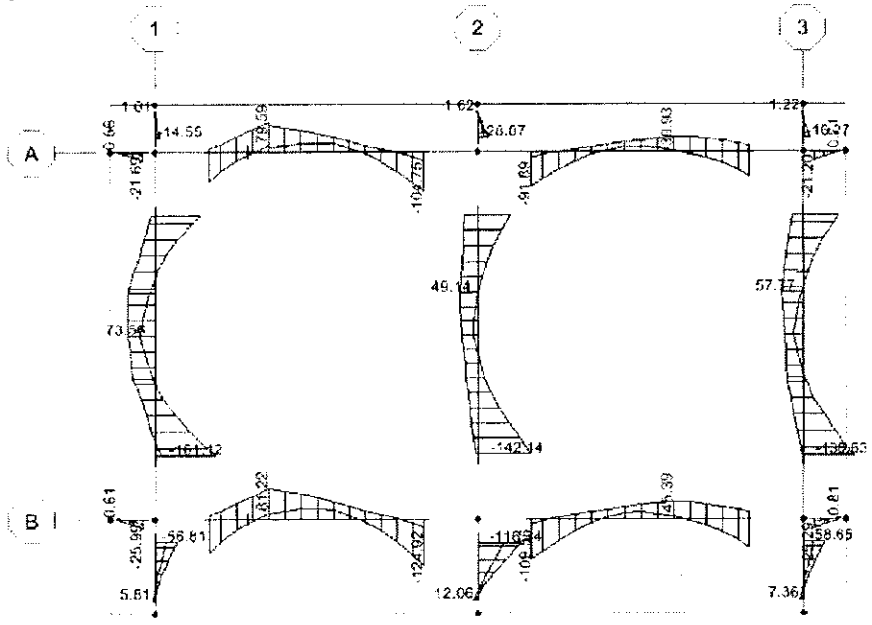
Nota: acero en cm2



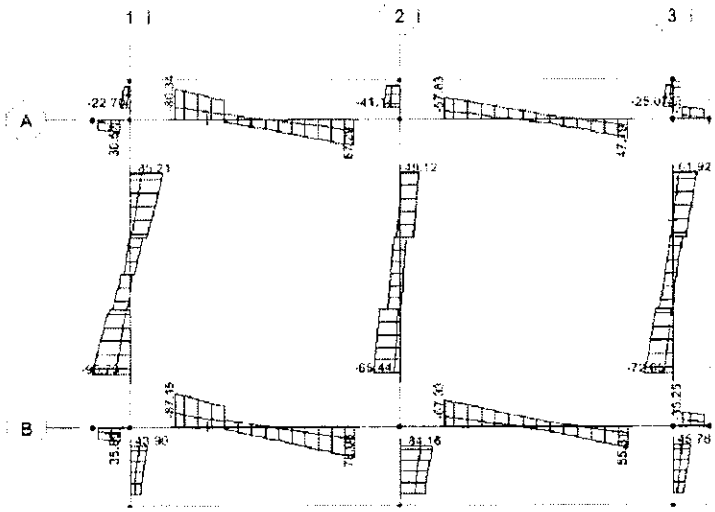
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

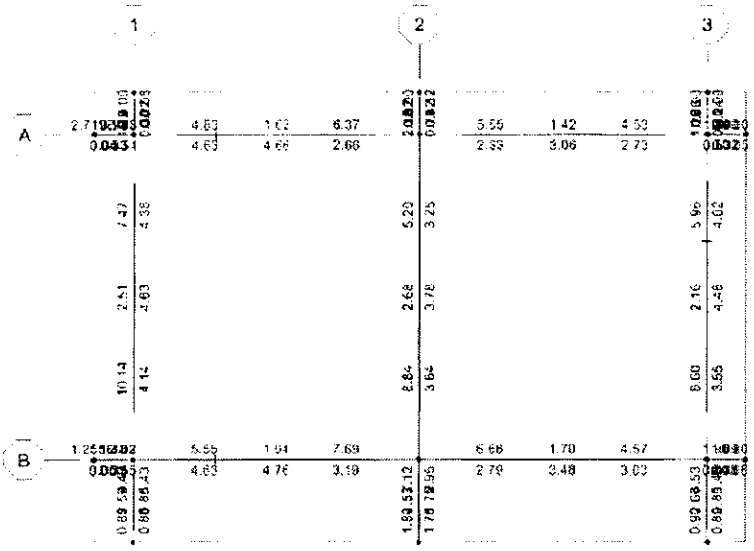
8.1.5.6. Vigas Zona Intermedia, Suelo Tipo E



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

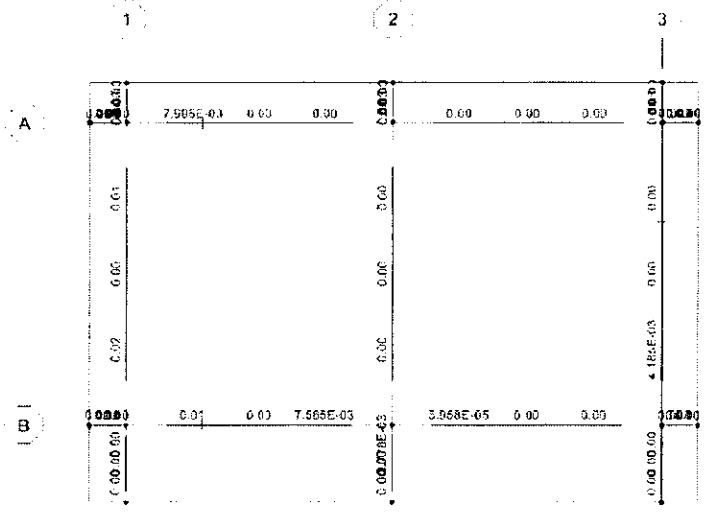


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

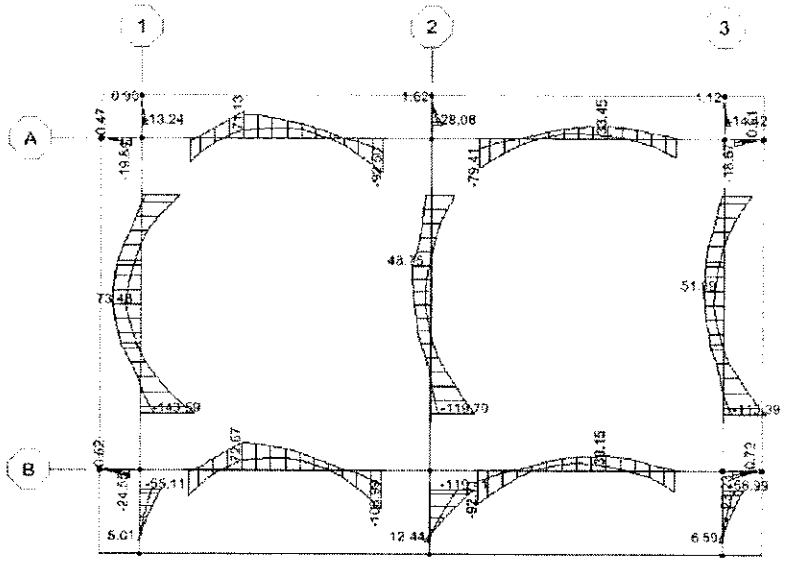
Nota: acero en cm2



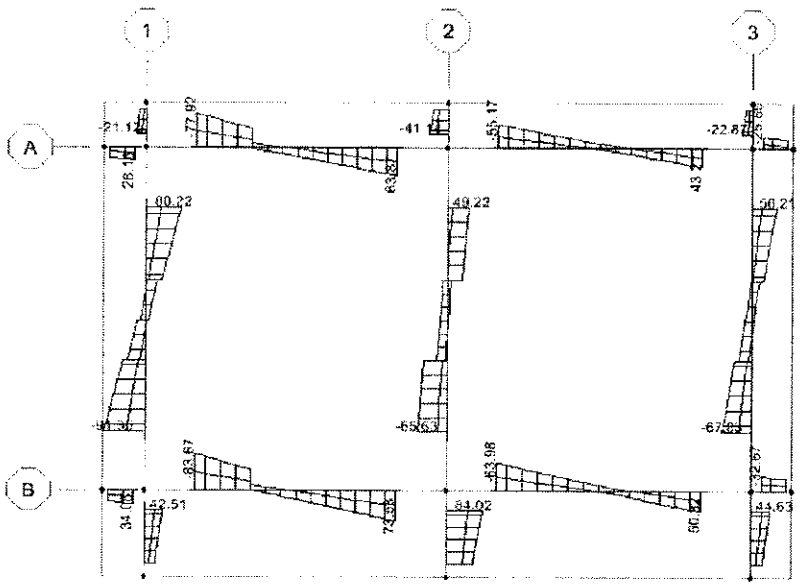
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

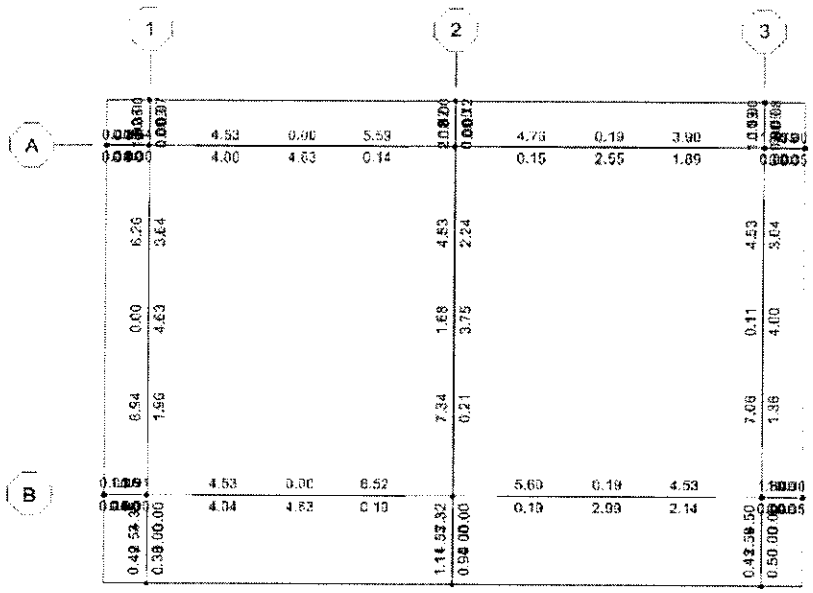
8.1.5.7. **Vigas Zona Baja, Suelo Tipo AB**



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

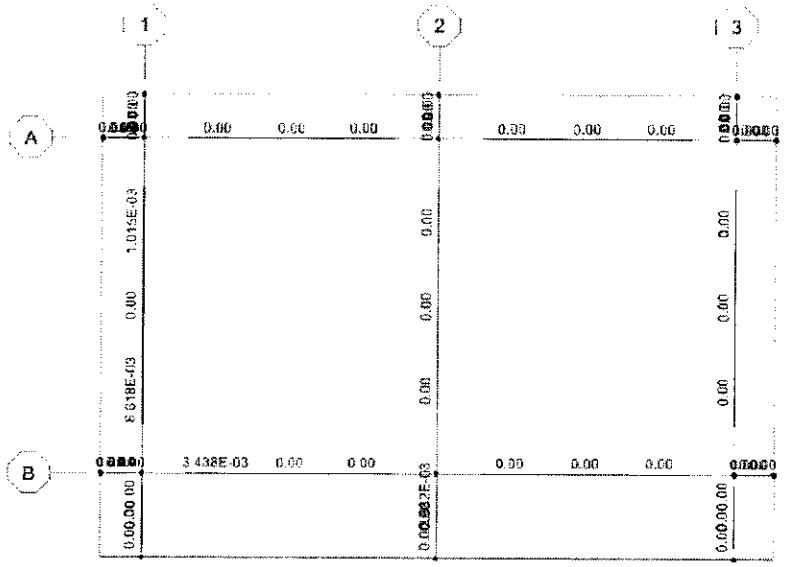


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

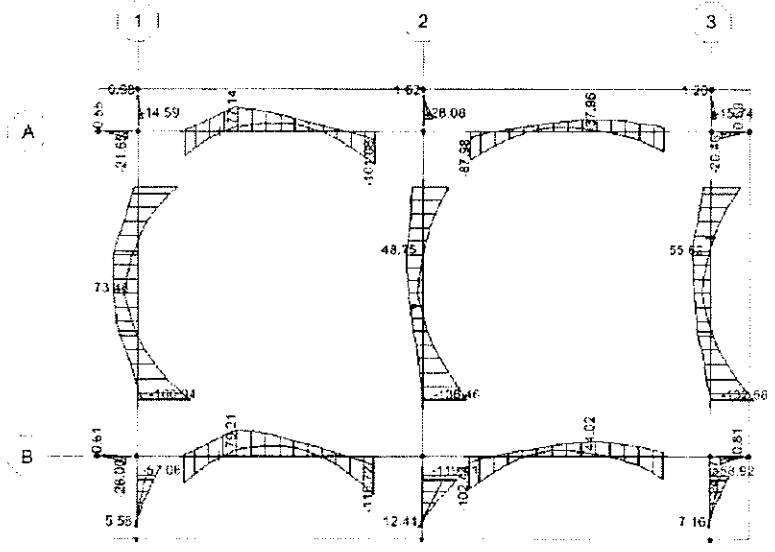
Nota: acero en cm2



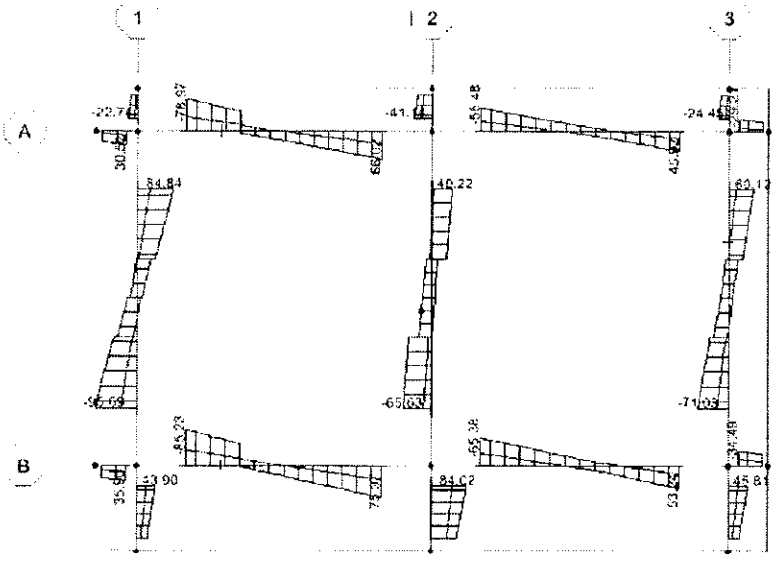
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

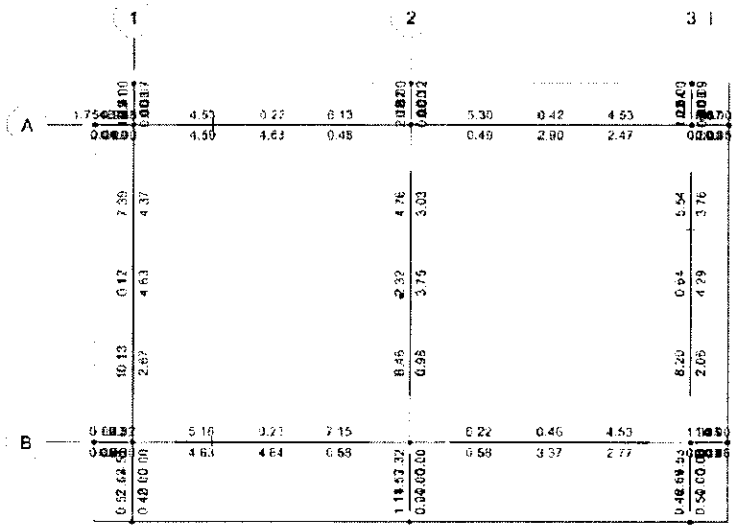
8.1.5.8. Vigas Zona Baja, Suelo Tipo CD



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

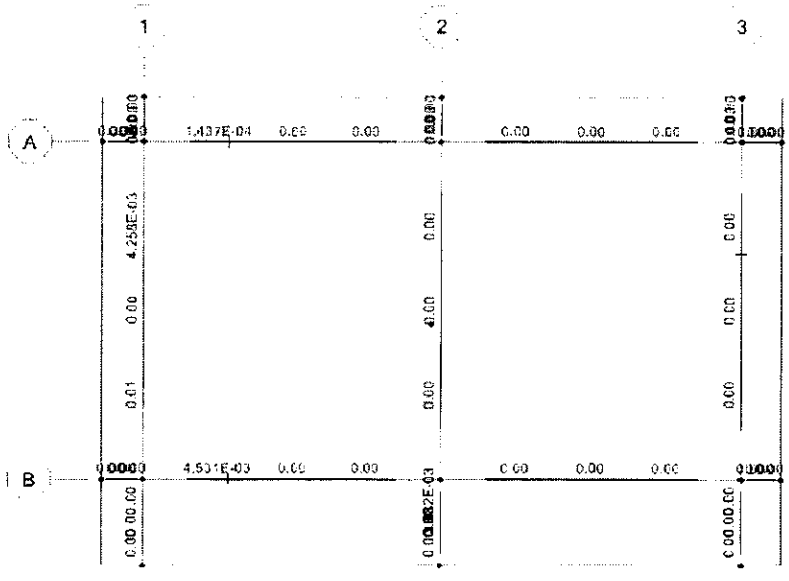


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

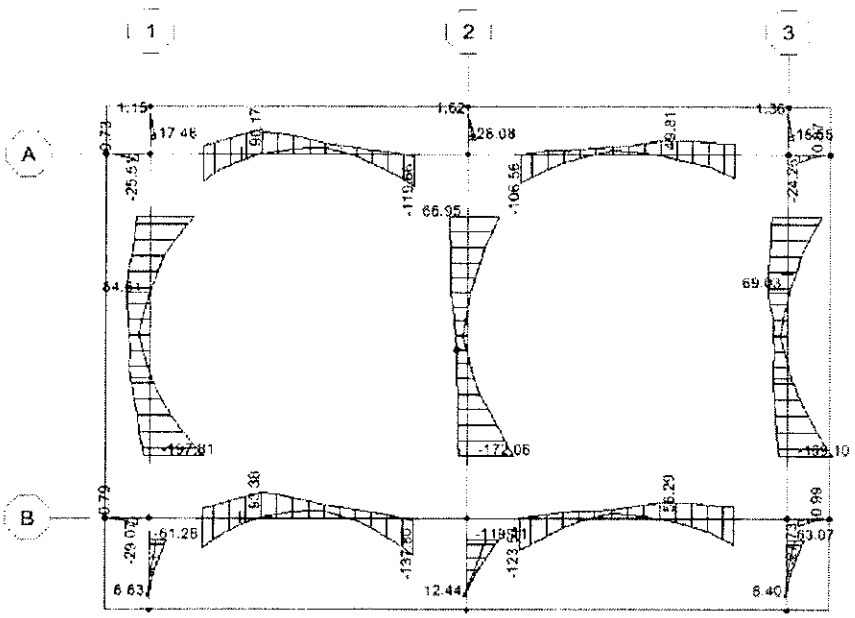
Nota: acero en cm2



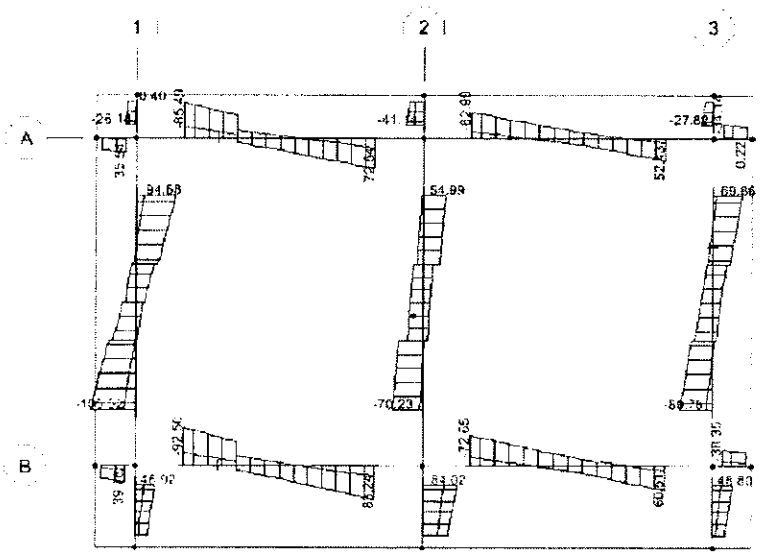
Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

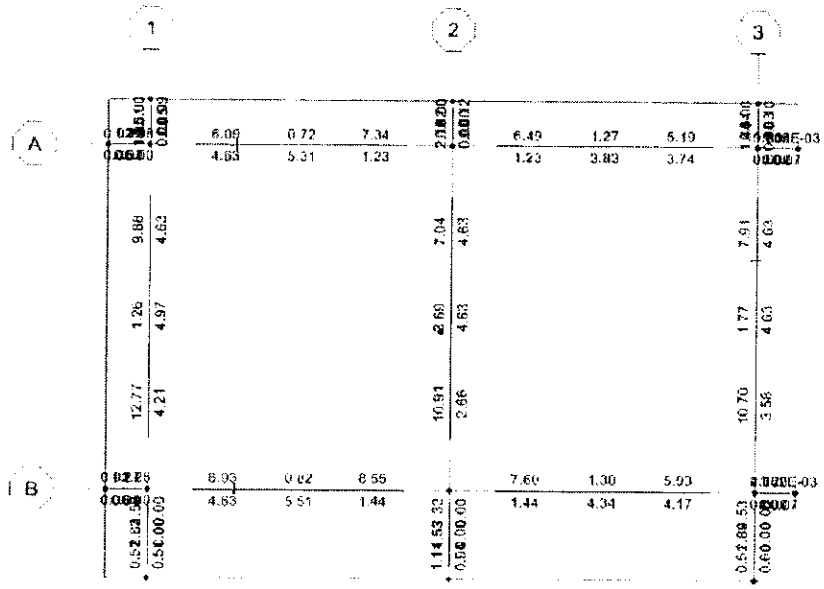
8.1.5.9. Vigas Zona Baja, Suelo Tipo E



Plan View - CBT - Elevation 4.4 Moment 3-3 Diagram (ENVOL)

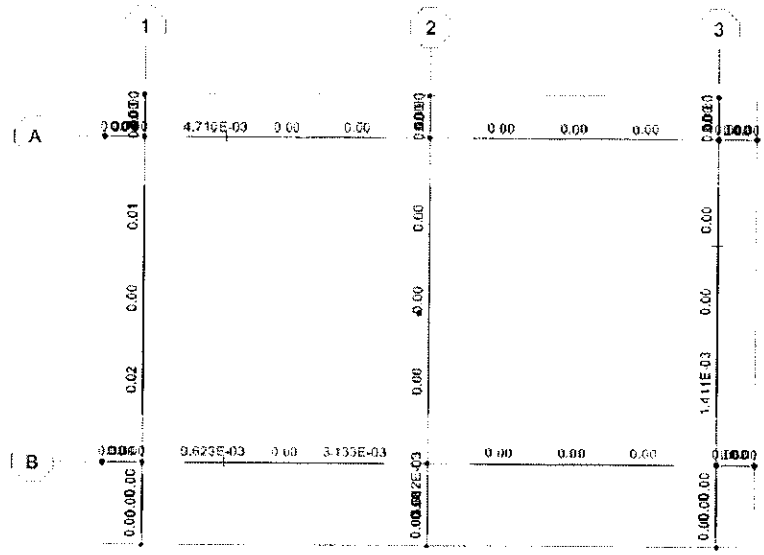


Plan View - CBT - Elevation 4.4 Shear Force 2-2 Diagram (ENVOL)



Plan View - CBT - Elevation 440 Longitudinal Reinforcing

Nota: acero en cm2



Plan View - CBT - Elevation 440 Shear Reinforcing

Nota: el refuerzo se da en términos de Av / s (cm2/cm)

8.1.6. Resultados – Diseño, columnas

8.1.6.1. Zona alta, Suelo Tipo AB

ETABS v9.7.4 File:CDI_BLDQUE 1_ALTA_AB_160_VR. 0 Units:KN-m julio 17, 2013 18:13 PAGE 2

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-249.08	3.75	-17.12	0.71	-22.44	20.33
			1.9500	-240.81	3.75	-17.12	0.71	10.99	13.02
			3.9000	-232.54	3.75	-17.12	0.71	71.92	67.70
CBT	C1	DIS2X MIN							
			0.0000	-266.77	-32.47	-35.82	-0.71	-67.80	-58.94
			1.9500	-258.50	-32.47	-35.82	-0.71	1.99	4.38
			3.9000	-250.23	-32.47	-35.82	-0.71	44.28	5.72
CBT	C1	DIS2Y MAX	0.0000	-245.97	-8.42	-2.54	1.34	14.28	-6.39
			1.9500	-237.70	-8.42	-2.54	1.34	19.25	10.06
			3.9000	-229.43	-8.42	-2.54	1.34	92.02	46.98
CBT	C1	DIS2Y MIN							
			0.0000	-269.88	-20.30	-50.39	-1.35	-104.52	-32.22
			1.9500	-261.61	-20.30	-50.39	-1.35	-6.27	7.35
			3.9000	-253.34	-20.30	-50.39	-1.35	24.18	26.44
CBT	C1	DIS3X MAX							
			0.0000	-156.10	9.31	-6.03	0.71	-4.21	27.73
			1.9500	-149.90	9.31	-6.03	0.71	7.61	9.58
			3.9000	-143.70	9.31	-6.03	0.71	46.93	53.40
CBT	C1	DIS3X MIN							
			0.0000	-173.80	-26.90	-24.73	-0.71	-49.57	-51.53
			1.9500	-167.60	-26.90	-24.73	-0.71	-1.39	0.93
			3.9000	-161.39	-26.90	-24.73	-0.71	19.28	-8.58
CBT	C1	DIS3Y MAX							
			0.0000	-152.99	-2.85	8.54	1.34	32.51	1.01
			1.9500	-146.79	-2.85	8.54	1.34	15.87	6.61
			3.9000	-140.59	-2.85	8.54	1.34	67.03	32.68
CBT	C1	DIS3Y MIN							
			0.0000	-176.91	-14.74	-39.31	-1.35	-86.29	-24.81
			1.9500	-170.70	-14.74	-39.31	-1.35	-9.65	3.90
			3.9000	-164.50	-14.74	-39.31	-1.35	-0.81	12.14
CBT	C2	DIS2X MAX	0.0000	-282.58	31.58	17.36	0.93	24.10	62.96
			1.9500	-272.66	31.58	17.36	0.93	-9.74	1.38
			3.9000	-262.73	31.58	17.36	0.93	-22.41	35.30
CBT	C2	DIS2X MIN							
			0.0000	-289.69	-20.41	-1.87	-0.94	-29.69	-44.31
			1.9500	-279.76	-20.41	-1.87	-0.94	-26.05	-4.50
			3.9000	-269.84	-20.41	-1.87	-0.94	-43.59	-60.21
CBT	C2	DIS2Y MAX							
			0.0000	-274.37	13.96	39.59	1.76	86.32	26.60
			1.9500	-264.44	13.96	39.59	1.76	9.12	-0.62
			3.9000	-254.52	13.96	39.59	1.76	2.08	2.92
CBT	C2	OIS2Y MIN							
			0.0000	-297.90	-2.79	-24.10	-1.77	-91.91	-7.94
			1.9500	-287.98	-2.79	-24.10	-1.77	-44.91	-2.51
			3.9000	-278.05	-2.79	-24.10	-1.77	-68.08	-27.84
CBT	C2	OIS3X MAX							
			0.0000	-182.69	29.08	16.20	0.93	27.05	58.78
			1.9500	-175.24	29.08	16.20	0.93	-4.55	2.07
			3.9000	-167.80	29.08	16.20	0.93	-14.97	40.86
CBT	C2	DIS3X MIN							
			0.0000	-189.79	-22.91	-3.02	-0.94	-26.75	-48.49
			1.9500	-182.35	-22.91	-3.02	-0.94	-20.86	-3.81
			3.9000	-174.90	-22.91	-3.02	-0.94	-36.15	-54.65
CBT	C2	DIS3Y MAX	0.0000	-174.47	11.46	38.44	1.77	89.27	22.41
			1.9500	-167.03	11.46	38.44	1.77	14.31	0.07
			3.9000	-159.59	11.46	38.44	1.77	9.53	8.49
CBT	C2	DIS3Y MIN							
			0.0000	-198.00	-5.28	-25.25	-1.77	-88.96	-12.12
			1.9500	-190.56	-5.28	-25.25	-1.77	-39.72	-1.82
			3.9000	-183.12	-5.28	-25.25	-1.77	-60.64	-22.27
CBT	C3	OIS2X MAX							
			0.0000	-192.65	26.91	-5.38	0.71	-5.27	53.30
			1.9500	-184.38	26.91	-5.38	0.71	5.27	0.84
			3.9000	-176.11	26.91	-5.38	0.71	45.00	10.33

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2X MIN	0.0000	-211.06	-9.30	-25.32	-0.71	-53.78	-25.94
			1.9500	-202.79	-9.30	-25.32	-0.71	-4.46	-7.81
			3.9000	-194.52	-9.30	-25.32	-0.71	15.68	-51.63
CBT	C3	DIS2Y MAX	0.0000	-188.33	14.82	13.34	1.34	41.51	26.69
			1.9500	-180.06	14.82	13.34	1.34	15.49	-2.15
			3.9000	-171.79	14.82	13.34	1.34	71.22	-10.19
CBT	C3	DIS2Y MIN	0.0000	-215.38	2.79	-44.04	-1.35	-100.56	0.67
			1.9500	-207.11	2.79	-44.04	-1.35	-14.68	-4.82
			3.9000	-198.84	2.79	-44.04	-1.35	-10.54	-31.11
CBT	C3	DIS3X MAX	0.0000	-126.51	23.83	0.04	0.71	5.02	48.40
			1.9500	-120.31	23.83	0.04	0.71	4.98	1.94
			3.9000	-114.10	23.83	0.04	0.71	34.13	17.43
CBT	C3	DIS3X MIN	0.0000	-144.92	-12.38	-19.89	-0.71	-43.49	-30.85
			1.9500	-138.72	-12.38	-19.89	-0.71	-4.75	-6.71
			3.9000	-132.52	-12.38	-19.89	-0.71	4.81	-44.52
CBT	C3	DIS3Y MAX	0.0000	-122.19	11.74	18.77	1.34	51.80	21.78
			1.9500	-115.99	11.74	18.77	1.34	15.20	-1.05
			3.9000	-109.78	11.74	18.77	1.34	60.35	-3.08
CBT	C3	DIS3Y MIN	0.0000	-149.24	-0.29	-38.62	-1.35	-90.27	-4.24
			1.9500	-143.04	-0.29	-38.62	-1.35	-14.97	-3.72
			3.9000	-136.84	-0.29	-38.62	-1.35	-21.41	-24.01
CBT	C4	DIS2X MAX	0.0000	-202.48	2.33	32.11	0.71	46.89	16.63
			1.9500	-194.21	2.33	32.11	0.71	-15.71	12.09
			3.9000	-185.94	2.33	32.11	0.71	-53.72	60.41
CBT	C4	DIS2X MIN	0.0000	-225.07	-28.84	14.59	-0.71	3.16	-52.05
			1.9500	-216.80	-28.84	14.59	-0.71	-25.29	4.17
			3.9000	-208.53	-28.84	14.59	-0.71	-78.34	7.54
CBT	C4	DIS2Y MAX	0.0000	-201.95	-6.88	47.31	1.34	84.47	-3.83
			1.9500	-193.68	-6.88	47.31	1.34	-7.77	9.61
			3.9000	-185.41	-6.88	47.31	1.34	-32.03	44.96
CBT	C4	DIS2Y MIN	0.0000	-225.59	-19.63	-0.61	-1.35	-34.42	-31.59
			1.9500	-217.32	-19.63	-0.61	-1.35	-33.24	6.65
			3.9000	-209.05	-19.63	-0.61	-1.35	-100.02	22.99
CBT	C4	DIS3X MAX	0.0000	-124.32	7.40	22.13	0.71	35.46	23.33
			1.9500	-118.12	7.40	22.13	0.71	-7.68	8.89
			3.9000	-111.91	7.40	22.13	0.71	-26.22	47.32
CBT	C4	DIS3X MIN	0.0000	-146.90	-23.77	4.61	-0.71	-8.27	-45.36
			1.9500	-140.70	-23.77	4.61	-0.71	-17.26	0.98
			3.9000	-134.50	-23.77	4.61	-0.71	-50.85	-5.54
CBT	C4	DIS3Y MAX	0.0000	-123.79	-1.81	37.33	1.34	73.05	2.87
			1.9500	-117.59	-1.81	37.33	1.34	0.27	6.42
			3.9000	-111.39	-1.81	37.33	1.34	-4.54	31.87
CBT	C4	DIS3Y MIN	0.0000	-147.43	-14.56	-10.59	-1.35	-45.85	-24.90
			1.9500	-141.23	-14.56	-10.59	-1.35	-25.21	3.46
			3.9000	-135.03	-14.56	-10.59	-1.35	-72.53	9.91
CBT	C5	DIS2X MAX	0.0000	-211.79	28.45	8.07	0.93	11.12	56.49
			1.9500	-201.86	28.45	8.07	0.93	-4.61	1.00
			3.9000	-191.94	28.45	8.07	0.93	0.51	30.54
CBT	C5	DIS2X MIN	0.0000	-219.01	-17.66	-11.03	-0.94	-42.49	-38.34
			1.9500	-209.09	-17.66	-11.03	-0.94	-20.99	-3.90
			3.9000	-199.16	-17.66	-11.03	-0.94	-20.35	-54.48
CBT	C5	DIS2Y MAX	0.0000	-203.43	14.54	30.16	1.76	73.14	27.87
			1.9500	-193.51	14.54	30.16	1.76	14.33	-0.48
			3.9000	-183.59	14.54	30.16	1.76	24.64	4.89
CBT	C5	DIS2Y MIN	0.0000	-227.37	-3.75	-33.11	-1.77	-104.50	-9.72
			1.9500	-217.44	-3.75	-33.11	-1.77	-39.93	-2.41
			3.9000	-207.52	-3.75	-33.11	-1.77	-44.47	-28.83

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MAX	0.0000	-137.05	26.06	7.00	0.93	14.19	52.46
			1.9500	-129.61	26.06	7.00	0.93	0.53	1.63
			3.9000	-122.17	26.06	7.00	0.93	7.74	35.82
CBT	C5	DIS3X MIN	0.0000	-144.28	-20.05	-12.09	-0.94	-39.42	-42.37
			1.9500	-136.83	-20.05	-12.09	-0.94	-15.84	-3.28
			3.9000	-129.39	-20.05	-12.09	-0.94	-13.12	-49.20
CBT	C5	DIS3Y MAX	0.0000	-128.70	12.15	29.09	1.77	76.20	23.83
			1.9500	-121.26	12.15	29.09	1.77	19.48	0.14
			3.9000	-113.81	12.15	29.09	1.77	31.86	10.17
CBT	C5	DIS3Y MIN	0.0000	-152.63	-6.14	-34.18	-1.77	-101.44	-13.75
			1.9500	-145.19	-6.14	-34.18	-1.77	-34.79	-1.79
			3.9000	-137.74	-6.14	-34.18	-1.77	-37.25	-23.55
CBT	C6	DIS2X MAX	0.0000	-145.45	23.42	21.67	0.71	32.83	46.66
			1.9500	-137.18	23.42	21.67	0.71	-9.41	0.99
			3.9000	-128.90	23.42	21.67	0.71	-24.95	8.22
CBT	C6	DIS2X MIN	0.0000	-167.80	-7.76	2.74	-0.71	-14.28	-22.05
			1.9500	-159.53	-7.76	2.74	-0.71	-19.63	-6.91
			3.9000	-151.26	-7.76	2.74	-0.71	-51.69	-44.69
CBT	C6	DIS2Y MAX	0.0000	-143.40	14.29	40.87	1.34	80.27	26.31
			1.9500	-135.13	14.29	40.87	1.34	0.58	-1.52
			3.9000	-126.86	14.29	40.87	1.34	2.49	-7.02
CBT	C6	DIS2Y MIN	0.0000	-169.84	1.37	-16.46	-1.35	-61.72	-1.70
			1.9500	-161.57	1.37	-16.46	-1.35	-29.62	-4.40
			3.9000	-153.30	1.37	-16.46	-1.35	-79.13	-29.44
CBT	C6	DIS3X MAX	0.0000	-94.68	20.75	17.36	0.71	29.41	42.34
			1.9500	-88.48	20.75	17.36	0.71	-4.43	1.87
			3.9000	-82.28	20.75	17.36	0.71	-11.56	14.31
CBT	C6	DIS3X MIN	0.0000	-117.04	-10.43	-1.57	-0.71	-17.70	-26.37
			1.9500	-110.83	-10.43	-1.57	-0.71	-14.65	-6.04
			3.9000	-104.63	-10.43	-1.57	-0.71	-38.30	-38.60
CBT	C6	DIS3Y MAX	0.0000	-92.64	11.62	36.56	1.34	76.85	21.99
			1.9500	-86.44	11.62	36.56	1.34	5.56	-0.64
			3.9000	-80.23	11.62	36.56	1.34	15.88	-0.94
CBT	C6	DIS3Y MIN	0.0000	-119.08	-1.30	-20.77	-1.35	-65.14	-6.03
			1.9500	-112.88	-1.30	-20.77	-1.35	-24.64	-3.53
			3.9000	-106.68	-1.30	-20.77	-1.35	-65.74	-23.36

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.580	34.06	0.08	0.03
CBT	C1	C30X50C	Bottom	0.522	34.06	0.08	0.03
CBT	C2	C30X60F	Top	0.568			
CBT	C2	C30X60F	Bottom	0.338	46.45	0.14	0.03
CBT	C3	C30X50C	Top	0.406	34.06	0.07	0.04
CBT	C3	C30X50C	Bottom	0.451	34.06	0.07	0.04
CBT	C4	C30X50C	Top	0.555	34.06	0.07	0.04
CBT	C4	C30X50C	Bottom	0.423	34.06	0.07	0.04
CBT	C5	C30X60F	Top	0.271	46.45	0.12	0.02
CBT	C5	C30X60F	Bottom	0.318	46.45	0.12	0.02
CBT	C6	C30X50C	Top	0.393	34.06	0.07	0.04
CBT	C6	C30X50C	Bottom	0.381	34.06	0.07	0.04

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.729	0.812	0.456	0.702
CBT	C2	C30X60F	0.958	0.845	0.415	0.654
CBT	C3	C30X50C	0.692	0.732	0.425	0.618
CBT	C4	C30X50C	0.671	0.520	0.413	0.439
CBT	C5	C30X60F	0.897	0.263	0.613	0.294
CBT	C6	C30X50C	0.671	0.434	0.406	0.358

8.1.6.2. Zona Alta, Suelo Tipo CD

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-247.41	7.14	-15.35	0.84	-18.15	27.76
			1.9500	-239.14	7.14	-15.35	0.84	11.85	13.84
			3.9000	-230.87	7.14	-15.35	0.84	74.54	73.51
CBT	C1	DIS2X MIN							
			0.0000	-268.44	-35.87	-37.59	-0.85	-72.09	-66.37
			1.9500	-260.17	-35.87	-37.59	-0.85	1.13	3.57
			3.9000	-251.90	-35.87	-37.59	-0.85	41.66	-0.09
CBT	C1	DIS2Y MAX							
			0.0000	-243.69	-7.30	2.02	1.60	25.59	-3.97
			1.9500	-235.42	-7.30	2.02	1.60	21.68	10.31
			3.9000	-227.15	-7.30	2.02	1.60	98.48	48.91
CBT	C1	DIS2Y MIN							
			0.0000	-272.16	-21.42	-54.95	-1.60	-115.83	-34.64
			1.9500	-263.89	-21.42	-54.95	-1.60	-8.70	7.09
			3.9000	-255.62	-21.42	-54.95	-1.60	17.72	24.51
CBT	C1	DIS3X MAX							
			0.0000	-154.44	12.71	-4.26	0.84	0.08	35.16
			1.9500	-148.24	12.71	-4.26	0.84	8.47	10.39
			3.9000	-142.03	12.71	-4.26	0.84	49.55	59.21
CBT	C1	DIS3X MIN	0.0000	-175.46	-30.30	-26.50	-0.85	-53.86	-58.96
			1.9500	-169.26	-30.30	-26.50	-0.85	-2.25	0.12
			3.9000	-163.06	-30.30	-26.50	-0.85	16.67	-14.39
CBT	C1	OIS3Y MAX							
			0.0000	-150.72	-1.74	13.10	1.60	43.82	3.44
			1.9500	-144.51	-1.74	13.10	1.60	18.30	6.86
			3.9000	-138.31	-1.74	13.10	1.60	73.49	34.61
CBT	C1	DIS3Y MIN							
			0.0000	-179.18	-15.86	-43.87	-1.60	-97.60	-27.24
			1.9500	-172.98	-15.86	-43.87	-1.60	-12.08	3.64
			3.9000	-166.78	-15.86	-43.87	-1.60	-7.27	10.20
CBT	C2	DIS2X MAX							
			0.0000	-281.91	36.46	19.19	1.11	29.22	73.02
			1.9500	-271.98	36.46	19.19	1.11	-8.19	1.93
			3.9000	-262.06	36.46	19.19	1.11	-20.39	44.25
CBT	C2	DIS2X MIN							
			0.0000	-290.36	-25.29	-3.70	-1.11	-34.81	-54.36
			1.9500	-280.44	-25.29	-3.70	-1.11	-27.60	-5.05
			3.9000	-270.51	-25.29	-3.70	-1.11	-45.60	-69.16
CBT	C2	DIS2Y MAX							
			0.0000	-272.13	15.53	45.66	2.10	103.29	29.84
			1.9500	-262.20	15.53	45.66	2.10	14.26	-0.44
			3.9000	-252.28	15.53	45.66	2.10	8.77	5.81
CBT	C2	DIS2Y MIN	0.0000	-300.14	-4.36	-30.17	-2.11	-108.89	-11.19
			1.9500	-290.22	-4.36	-30.17	-2.11	-50.06	-2.69
			3.9000	-280.29	-4.36	-30.17	-2.11	-74.77	-30.73
CBT	C2	DIS3X MAX							
			0.0000	-182.01	33.96	18.03	1.11	32.17	68.83
			1.9500	-174.57	33.96	18.03	1.11	-3.00	2.62
			3.9000	-167.12	33.96	18.03	1.11	-12.95	49.81
CBT	C2	DIS3X MIN	0.0000	-190.46	-27.78	-4.85	-1.11	-31.87	-58.54
			1.9500	-183.02	-27.78	-4.85	-1.11	-22.41	-4.36
			3.9000	-175.58	-27.78	-4.85	-1.11	-38.16	-63.60
CBT	C2	DIS3Y MAX							
			0.0000	-172.23	13.03	44.50	2.10	106.24	25.66
			1.9500	-164.79	13.03	44.50	2.10	19.46	0.25
			3.9000	-157.34	13.03	44.50	2.10	16.21	11.38
CBT	C2	DIS3Y MIN							
			0.0000	-200.24	-6.86	-31.32	-2.11	-105.94	-15.37
			1.9500	-192.80	-6.86	-31.32	-2.11	-44.87	-2.00
			3.9000	-185.36	-6.86	-31.32	-2.11	-67.32	-25.16
CBT	C3	DIS2X MAX							
			0.0000	-190.92	30.30	-3.49	0.84	-0.67	60.73
			1.9500	-182.65	30.30	-3.49	0.84	6.20	1.65
			3.9000	-174.38	30.30	-3.49	0.84	47.78	16.14
CBT	C3	DIS2X MIN							
			0.0000	-212.79	-12.69	-27.21	-0.85	-58.38	-33.37
			1.9500	-204.52	-12.69	-27.21	-0.85	-5.39	-8.62
			3.9000	-196.25	-12.69	-27.21	-0.85	12.90	-57.44

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX	0.0000	-185.75	15.95	18.81	1.60	55.04	29.14
			1.9500	-177.48	15.95	18.81	1.60	18.37	-1.90
			3.9000	-169.21	15.95	18.81	1.60	79.01	-8.22
CBT	C3	DIS2Y MIN	0.0000	-217.96	1.66	-49.51	-1.60	-114.09	-1.78
			1.9500	-209.69	1.66	-49.51	-1.60	-17.56	-5.07
			3.9000	-201.42	1.66	-49.51	-1.60	-18.33	-33.08
CBT	C3	DIS3X MAX	0.0000	-124.78	27.22	1.94	0.84	9.62	55.83
			1.9500	-118.58	27.22	1.94	0.84	5.91	2.75
			3.9000	-112.37	27.22	1.94	0.84	36.91	23.24
CBT	C3	DIS3X MIN	0.0000	-146.65	-15.78	-21.78	-0.85	-48.09	-38.28
			1.9500	-140.45	-15.78	-21.78	-0.85	-5.68	-7.52
			3.9000	-134.25	-15.78	-21.78	-0.85	2.03	-50.33
CBT	C3	DIS3Y MAX	0.0000	-119.61	12.87	24.24	1.60	65.33	24.23
			1.9500	-113.41	12.87	24.24	1.60	18.08	-0.80
			3.9000	-107.21	12.87	24.24	1.60	68.14	-1.12
CBT	C3	DIS3Y MIN	0.0000	-151.82	-1.42	-44.08	-1.60	-103.80	-6.69
			1.9500	-145.61	-1.42	-44.08	-1.60	-17.85	-3.97
			3.9000	-139.41	-1.42	-44.08	-1.60	-29.20	-25.97
CBT	C4	DIS2X MAX	0.0000	-200.36	5.25	33.77	0.84	51.03	23.07
			1.9500	-192.09	5.25	33.77	0.84	-14.80	12.83
			3.9000	-183.82	5.25	33.77	0.84	-51.38	65.36
CBT	C4	DIS2X MIN	0.0000	-227.19	-31.76	12.93	-0.85	-0.98	-58.49
			1.9500	-218.92	-31.76	12.93	-0.85	-26.20	3.43
			3.9000	-210.65	-31.76	12.93	-0.85	-80.67	2.58
CBT	C4	DIS2Y MAX	0.0000	-199.70	-5.67	51.87	1.60	95.80	-1.21
			1.9500	-191.43	-5.67	51.87	1.60	-5.34	9.89
			3.9000	-183.16	-5.67	51.87	1.60	-25.56	47.03
CBT	C4	DIS2Y MIN	0.0000	-227.84	-20.83	-5.18	-1.60	-45.75	-34.22
			1.9500	-219.57	-20.83	-5.18	-1.60	-35.66	6.37
			3.9000	-211.30	-20.83	-5.18	-1.60	-106.50	20.91
CBT	C4	DIS3X MAX	0.0000	-122.20	10.32	23.79	0.84	39.60	29.77
			1.9500	-115.99	10.32	23.79	0.84	-6.77	9.64
			3.9000	-109.79	10.32	23.79	0.84	-23.89	52.28
CBT	C4	DIS3X MIN	0.0000	-149.03	-26.69	2.95	-0.85	-12.41	-51.80
			1.9500	-142.82	-26.69	2.95	-0.85	-18.17	0.24
			3.9000	-136.62	-26.69	2.95	-0.85	-53.18	-10.50
CBT	C4	DIS3Y MAX	0.0000	-121.54	-0.60	41.89	1.60	84.37	5.49
			1.9500	-115.34	-0.60	41.89	1.60	2.69	6.69
			3.9000	-109.14	-0.60	41.89	1.60	1.94	33.95
CBT	C4	DIS3Y MIN	0.0000	-149.68	-15.76	-15.16	-1.60	-57.18	-27.52
			1.9500	-143.48	-15.76	-15.16	-1.60	-27.63	3.18
			3.9000	-137.27	-15.76	-15.16	-1.60	-79.00	7.83
CBT	C5	DIS2X MAX	0.0000	-211.10	32.78	9.89	1.11	16.23	65.38
			1.9500	-201.18	32.78	9.89	1.11	-3.05	1.46
			3.9000	-191.25	32.78	9.89	1.11	2.50	38.51
CBT	C5	DIS2X MIN	0.0000	-219.70	-21.98	-12.84	-1.11	-47.60	-47.23
			1.9500	-209.77	-21.98	-12.84	-1.11	-22.55	-4.36
			3.9000	-199.85	-21.98	-12.84	-1.11	-22.33	-62.45
CBT	C5	DIS2Y MAX	0.0000	-201.15	16.26	36.18	2.10	90.05	31.41
			1.9500	-191.23	16.26	36.18	2.10	19.50	-0.30
			3.9000	-181.31	16.26	36.18	2.10	31.22	8.08
CBT	C5	DIS2Y MIN	0.0000	-229.64	-5.47	-39.14	-2.11	-121.42	-13.27
			1.9500	-219.72	-5.47	-39.14	-2.11	-45.10	-2.60
			3.9000	-209.80	-5.47	-39.14	-2.11	-51.06	-32.02
CBT	C5	DIS3X MAX	0.0000	-136.37	30.39	8.82	1.11	19.30	61.35
			1.9500	-128.92	30.39	8.82	1.11	2.09	2.09
			3.9000	-121.48	30.39	8.82	1.11	9.72	43.79

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-144.96	-24.37	-13.91	-1.11	-44.53	-51.27
			1.9500	-137.52	-24.37	-13.91	-1.11	-17.40	-3.74
			3.9000	-130.08	-24.37	-13.91	-1.11	-15.11	-57.17
CBT	C5	DIS3Y MAX	0.0000	-126.42	13.88	35.12	2.10	93.12	27.38
			1.9500	-118.98	13.88	35.12	2.10	24.65	0.32
			3.9000	-111.53	13.88	35.12	2.10	38.45	13.36
CBT	C5	DIS3Y MIN	0.0000	-154.91	-7.86	-40.21	-2.11	-118.36	-17.30
			1.9500	-147.47	-7.86	-40.21	-2.11	-39.95	-1.97
			3.9000	-140.02	-7.86	-40.21	-2.11	-43.83	-26.74
CBT	C6	DIS2X MAX	0.0000	-143.35	26.35	23.47	0.84	37.31	53.11
			1.9500	-135.08	26.35	23.47	0.84	-8.44	1.73
			3.9000	-126.81	26.35	23.47	0.84	-22.41	13.18
CBT	C6	DIS2X MIN	0.0000	-169.90	-10.69	0.94	-0.85	-18.76	-28.49
			1.9500	-161.63	-10.69	0.94	-0.85	-20.60	-7.66
			3.9000	-153.36	-10.69	0.94	-0.85	-54.23	-49.65
CBT	C6	DIS2Y MAX	0.0000	-140.88	15.51	46.33	1.60	93.79	28.96
			1.9500	-132.61	15.51	46.33	1.60	3.45	-1.25
			3.9000	-124.34	15.51	46.33	1.60	10.27	-4.91
CBT	C6	DIS2Y MIN	0.0000	-172.36	0.15	-21.93	-1.60	-75.25	-4.35
			1.9500	-164.09	0.15	-21.93	-1.60	-32.50	-4.68
			3.9000	-155.82	0.15	-21.93	-1.60	-86.90	-31.56
CBT	C6	DIS3X MAX	0.0000	-92.58	23.68	19.16	0.84	33.89	48.78
			1.9500	-86.38	23.68	19.16	0.84	-3.46	2.61
			3.9000	-80.18	23.68	19.16	0.84	-9.02	19.27
CBT	C6	DIS3X MIN	0.0000	-119.14	-13.36	-3.37	-0.85	-22.18	-32.82
			1.9500	-112.93	-13.36	-3.37	-0.85	-15.62	-6.78
			3.9000	-106.73	-13.36	-3.37	-0.85	-40.84	-43.56
CBT	C6	DIS3Y MAX	0.0000	-90.12	12.85	42.02	1.60	90.38	24.63
			1.9500	-83.92	12.85	42.02	1.60	8.44	-0.37
			3.9000	-77.72	12.85	42.02	1.60	23.65	1.18
CBT	C6	DIS3Y MIN	0.0000	-121.60	-2.52	-26.23	-1.60	-78.67	-8.67
			1.9500	-115.39	-2.52	-26.23	-1.60	-27.51	-3.80
			3.9000	-109.19	-2.52	-26.23	-1.60	-73.52	-25.47

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.620	34.06	0.08	0.04
CBT	C1	C30X50C	Bottom	0.574	34.06	0.08	0.04
CBT	C2	C30X60F	Top	0.895	46.45	0.15	0.03
CBT	C2	C30X60F	Bottom	0.384	46.45	0.15	0.03
CBT	C3	C30X50C	Top	0.446	34.06	0.07	0.04
CBT	C3	C30X50C	Bottom	0.508	34.06	0.07	0.04
CBT	C4	C30X50C	Top	0.590	34.06	0.07	0.05
CBT	C4	C30X50C	Bottom	0.472	34.06	0.07	0.05
CBT	C5	C30X60F	Top	0.309	46.45	0.13	0.03
CBT	C5	C30X60F	Bottom	0.363	46.45	0.13	0.03
CBT	C6	C30X50C	Top	0.429	34.06	0.07	0.04
CBT	C6	C30X50C	Bottom	0.439	34.06	0.07	0.04

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.777	0.846	0.487	0.734
CBT	C2	C30X60F	0.895	0.958	0.542	0.758
CBT	C3	C30X50C	0.697	0.772	0.427	0.654
CBT	C4	C30X50C	0.681	0.553	0.419	0.468
CBT	C5	C30X60F	0.939	0.287	0.642	0.323
CBT	C6	C30X50C	0.686	0.474	0.415	0.391

8.1.6.3. Zona Alta, Suelo Tipo E

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-248.59	4.88	-16.76	0.74	-21.61	22.80
			1.9500	-240.32	4.88	-16.76	0.74	11.13	13.29
			3.9000	-232.05	4.88	-16.76	0.74	72.49	69.64
CBT	C1	DIS2X MIN							
			0.0000	-267.26	-33.60	-36.18	-0.75	-68.64	-61.41
			1.9500	-258.99	-33.60	-36.18	-0.75	1.85	4.11
			3.9000	-250.72	-33.60	-36.18	-0.75	43.71	3.78
CBT	C1	DIS2Y MAX							
			0.0000	-245.76	-8.08	-2.01	1.38	15.58	-5.65
			1.9500	-237.49	-8.08	-2.01	1.38	19.50	10.14
			3.9000	-229.22	-8.08	-2.01	1.38	92.81	47.57
CBT	C1	DIS2Y MIN							
			0.0000	-270.09	-20.65	-50.93	-1.39	-105.82	-32.96
			1.9500	-261.82	-20.65	-50.93	-1.39	-6.52	7.27
			3.9000	-253.55	-20.65	-50.93	-1.39	23.39	25.85
CBT	C1	DIS3X MAX							
			0.0000	-155.62	10.44	-5.67	0.74	-3.37	30.21
			1.9500	-149.41	10.44	-5.67	0.74	7.75	9.85
			3.9000	-143.21	10.44	-5.67	0.74	47.50	55.33
CBT	C1	DIS3X MIN	0.0000	-174.28	-28.04	-25.09	-0.75	-50.41	-54.01
			1.9500	-168.08	-28.04	-25.09	-0.75	-1.53	0.66
			3.9000	-161.88	-28.04	-25.09	-0.75	18.72	-10.52
CBT	C1	OIS3Y MAX							
			0.0000	-152.79	-2.51	9.08	1.38	33.81	1.75
			1.9500	-146.58	-2.51	9.08	1.38	16.12	6.69
			3.9000	-140.38	-2.51	9.08	1.38	67.82	33.27
CBT	C1	DIS3Y MIN							
			0.0000	-177.11	-15.08	-39.85	-1.38	-87.59	-25.55
			1.9500	-170.91	-15.08	-39.85	-1.38	-9.90	3.82
			3.9000	-164.71	-15.08	-39.85	-1.38	-1.60	11.55
CBT	C2	OIS2X MAX							
			0.0000	-282.58	33.21	17.37	0.98	24.14	66.31
			1.9500	-272.65	33.21	17.37	0.98	-9.73	1.56
			3.9000	-262.73	33.21	17.37	0.98	-22.39	38.28
CBT	C2	DIS2X MIN							
			0.0000	-289.69	-22.04	-1.88	-0.98	-29.73	-47.66
			1.9500	-279.77	-22.04	-1.88	-0.98	-26.06	-4.69
			3.9000	-269.84	-22.04	-1.88	-0.98	-43.60	-63.19
CBT	C2	DIS2Y MAX							
			0.0000	-274.36	14.44	39.62	1.82	86.40	27.59
			1.9500	-264.43	14.44	39.62	1.82	9.14	-0.57
			3.9000	-254.51	14.44	39.62	1.82	2.12	3.81
CBT	C2	DIS2Y MIN	0.0000	-297.91	-3.27	-24.13	-1.82	-92.00	-8.94
			1.9500	-287.99	-3.27	-24.13	-1.82	-44.94	-2.56
			3.9000	-278.06	-3.27	-24.13	-1.82	-68.12	-28.72
CBT	C2	DIS3X MAX							
			0.0000	-182.68	30.71	16.22	0.98	27.09	62.13
			1.9500	-175.24	30.71	16.22	0.98	-4.54	2.25
			3.9000	-167.79	30.71	16.22	0.98	-14.95	43.85
CBT	C2	DIS3X MIN	0.0000	-189.79	-24.53	-3.03	-0.98	-26.79	-51.84
			1.9500	-182.35	-24.53	-3.03	-0.98	-20.87	-4.00
			3.9000	-174.91	-24.53	-3.03	-0.98	-36.16	-57.63
CBT	C2	OIS3Y MAX							
			0.0000	-174.46	11.94	38.47	1.82	89.35	23.41
			1.9500	-167.02	11.94	38.47	1.82	14.34	0.12
			3.9000	-159.57	11.94	38.47	1.82	9.56	9.37
CBT	C2	DIS3Y MIN							
			0.0000	-198.01	-5.77	-25.28	-1.82	-89.05	-13.12
			1.9500	-190.57	-5.77	-25.28	-1.82	-39.75	-1.87
			3.9000	-183.13	-5.77	-25.28	-1.82	-60.67	-23.16
CBT	C3	DIS2X MAX							
			0.0000	-192.19	28.04	-5.27	0.74	-5.04	55.78
			1.9500	-183.92	28.04	-5.27	0.74	5.29	1.11
			3.9000	-175.65	28.04	-5.27	0.74	45.22	12.26
CBT	C3	DIS2X MIN							
			0.0000	-211.52	-10.43	-25.43	-0.75	-54.01	-28.42
			1.9500	-203.25	-10.43	-25.43	-0.75	-4.48	-8.08
			3.9000	-194.98	-10.43	-25.43	-0.75	15.46	-53.57

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX							
			0.0000	-188.37	15.15	13.19	1.38	41.12	27.42
			1.9500	-180.10	15.15	13.19	1.38	15.41	-2.07
			3.9000	-171.83	15.15	13.19	1.38	71.00	-9.63
CBT	C3	DIS2Y MIN							
			0.0000	-215.34	2.46	-43.89	-1.39	-100.17	-0.06
			1.9500	-207.07	2.46	-43.89	-1.39	-14.60	-4.90
			3.9000	-198.80	2.46	-43.89	-1.39	-10.33	-31.67
CBT	C3	DIS3X MAX							
			0.0000	-126.05	24.96	0.16	0.74	5.25	50.87
			1.9500	-119.85	24.96	0.16	0.74	5.00	2.21
			3.9000	-113.65	24.96	0.16	0.74	34.35	19.37
CBT	C3	DIS3X MIN							
			0.0000	-145.38	-13.51	-20.01	-0.75	-43.72	-33.33
			1.9500	-139.18	-13.51	-20.01	-0.75	-4.77	-6.98
			3.9000	-132.97	-13.51	-20.01	-0.75	4.59	-46.46
CBT	C3	DIS3Y MAX							
			0.0000	-122.23	12.07	18.61	1.38	51.41	22.51
			1.9500	-116.03	12.07	18.61	1.38	15.12	-0.97
			3.9000	-109.82	12.07	18.61	1.38	60.13	-2.53
CBT	C3	DIS3Y MIN							
			0.0000	-149.20	-0.62	-38.46	-1.38	-89.88	-4.97
			1.9500	-143.00	-0.62	-38.46	-1.38	-14.89	-3.80
			3.9000	-136.80	-0.62	-38.46	-1.38	-21.20	-24.56
CBT	C4	DIS2X MAX							
			0.0000	-201.83	3.30	32.41	0.74	47.65	18.77
			1.9500	-193.56	3.30	32.41	0.74	-15.54	12.33
			3.9000	-185.28	3.30	32.41	0.74	-53.29	62.05
CBT	C4	DIS2X MIN							
			0.0000	-225.72	-29.80	14.28	-0.75	2.40	-54.19
			1.9500	-217.45	-29.80	14.28	-0.75	-25.46	3.93
			3.9000	-209.18	-29.80	14.28	-0.75	-78.76	5.90
CBT	C4	DIS2Y MAX							
			0.0000	-201.78	-6.57	47.83	1.38	85.76	-3.15
			1.9500	-193.51	-6.57	47.83	1.38	-7.51	9.68
			3.9000	-185.24	-6.57	47.83	1.38	-31.27	45.49
CBT	C4	DIS2Y MIN							
			0.0000	-225.77	-19.94	-1.14	-1.39	-35.71	-32.27
			1.9500	-217.50	-19.94	-1.14	-1.39	-33.50	6.58
			3.9000	-209.23	-19.94	-1.14	-1.39	-100.79	22.45
CBT	C4	DIS3X MAX							
			0.0000	-123.66	8.37	22.43	0.74	36.22	25.46
			1.9500	-117.46	8.37	22.43	0.74	-7.51	9.14
			3.9000	-111.26	8.37	22.43	0.74	-25.80	48.97
CBT	C4	DIS3X MIN							
			0.0000	-147.56	-24.73	4.30	-0.75	-9.03	-47.49
			1.9500	-141.36	-24.73	4.30	-0.75	-17.43	0.73
			3.9000	-135.15	-24.73	4.30	-0.75	-51.27	-7.19
CBT	C4	DIS3Y MAX							
			0.0000	-123.62	-1.50	37.85	1.38	74.33	3.54
			1.9500	-117.41	-1.50	37.85	1.38	0.53	6.49
			3.9000	-111.21	-1.50	37.85	1.38	-3.77	32.41
CBT	C4	DIS3Y MIN							
			0.0000	-147.61	-14.87	-11.12	-1.38	-47.14	-25.58
			1.9500	-141.40	-14.87	-11.12	-1.38	-25.46	3.39
			3.9000	-135.20	-14.87	-11.12	-1.38	-73.30	9.37
CBT	C5	DIS2X MAX							
			0.0000	-211.78	29.89	8.08	0.98	11.16	59.43
			1.9500	-201.86	29.89	8.08	0.98	-4.60	1.16
			3.9000	-191.93	29.89	8.08	0.98	0.53	33.18
CBT	C5	DIS2X MIN							
			0.0000	-219.02	-19.09	-11.04	-0.98	-42.53	-41.29
			1.9500	-209.09	-19.09	-11.04	-0.98	-21.00	-4.06
			3.9000	-199.17	-19.09	-11.04	-0.98	-20.36	-57.12
CBT	C5	DIS2Y MAX							
			0.0000	-203.42	14.98	30.19	1.82	73.22	28.78
			1.9500	-193.50	14.98	30.19	1.82	14.36	-0.44
			3.9000	-183.57	14.98	30.19	1.82	24.67	5.71
CBT	C5	DIS2Y MIN							
			0.0000	-227.38	-4.19	-33.14	-1.82	-104.59	-10.63
			1.9500	-217.45	-4.19	-33.14	-1.82	-39.96	-2.46
			3.9000	-207.53	-4.19	-33.14	-1.82	-44.51	-29.65
CBT	C5	DIS3X MAX							
			0.0000	-137.05	27.50	7.02	0.98	14.23	55.40
			1.9500	-129.60	27.50	7.02	0.98	0.55	1.78
			3.9000	-122.16	27.50	7.02	0.98	7.75	38.46

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-144.28	-21.48	-12.11	-0.98	-39.47	-45.32
			1.9500	-136.84	-21.48	-12.11	-0.98	-15.86	-3.43
			3.9000	-129.40	-21.48	-12.11	-0.98	-13.14	-51.84
CBT	C5	DIS3Y MAX	0.0000	-128.69	12.59	29.12	1.82	76.29	24.75
			1.9500	-121.24	12.59	29.12	1.82	19.50	0.19
			3.9000	-113.80	12.59	29.12	1.82	31.90	10.99
CBT	C5	DIS3Y MIN	0.0000	-152.64	-6.58	-34.21	-1.82	-101.52	-14.66
			1.9500	-145.20	-6.58	-34.21	-1.82	-34.81	-1.84
			3.9000	-137.76	-6.58	-34.21	-1.82	-37.28	-24.37
CBT	C6	DIS2X MAX	0.0000	-144.83	24.39	21.72	0.74	32.98	48.80
			1.9500	-136.56	24.39	21.72	0.74	-9.37	1.24
			3.9000	-128.29	24.39	21.72	0.74	-24.89	9.86
CBT	C6	DIS2X MIN	0.0000	-168.41	-8.73	2.68	-0.75	-14.43	-24.18
			1.9500	-160.14	-8.73	2.68	-0.75	-19.68	-7.16
			3.9000	-151.87	-8.73	2.68	-0.75	-51.75	-46.33
CBT	C6	DIS2Y MAX	0.0000	-143.41	14.59	40.71	1.38	79.88	26.97
			1.9500	-135.14	14.59	40.71	1.38	0.49	-1.44
			3.9000	-126.87	14.59	40.71	1.38	2.27	-6.53
CBT	C6	DIS2Y MIN	0.0000	-169.84	1.07	-16.31	-1.39	-61.33	-2.35
			1.9500	-161.57	1.07	-16.31	-1.39	-29.54	-4.48
			3.9000	-153.30	1.07	-16.31	-1.39	-78.91	-29.93
CBT	C6	DIS3X MAX	0.0000	-94.07	21.72	17.41	0.74	29.56	44.47
			1.9500	-87.87	21.72	17.41	0.74	-4.38	2.12
			3.9000	-81.67	21.72	17.41	0.74	-11.50	15.95
CBT	C6	DIS3X MIN	0.0000	-117.65	-11.40	-1.63	-0.75	-17.85	-28.51
			1.9500	-111.45	-11.40	-1.63	-0.75	-14.69	-6.28
			3.9000	-105.24	-11.40	-1.63	-0.75	-38.36	-40.24
CBT	C6	DIS3Y MAX	0.0000	-92.65	11.92	36.40	1.38	76.46	22.64
			1.9500	-86.44	11.92	36.40	1.38	5.48	-0.56
			3.9000	-80.24	11.92	36.40	1.38	15.66	-0.45
CBT	C6	DIS3Y MIN	0.0000	-119.08	-1.59	-20.62	-1.38	-64.75	-6.68
			1.9500	-112.87	-1.59	-20.62	-1.38	-24.55	-3.60
			3.9000	-106.67	-1.59	-20.62	-1.38	-65.52	-23.85

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.592	34.06	0.08	0.03
CBT	C1	C30X50C	Bottom	0.537	34.06	0.08	0.03
CBT	C2	C30X60F	Top	0.659	46.45	0.15	0.04
CBT	C2	C30X60F	Bottom	0.350	46.45	0.14	0.03
CBT	C3	C30X50C	Top	0.417	34.06	0.07	0.04
CBT	C3	C30X50C	Bottom	0.457	34.06	0.07	0.04
CBT	C4	C30X50C	Top	0.566	34.06	0.07	0.04
CBT	C4	C30X50C	Bottom	0.430	34.06	0.07	0.04
CBT	C5	C30X60F	Top	0.282	46.45	0.12	0.02
CBT	C5	C30X60F	Bottom	0.328	46.45	0.12	0.02
CBT	C6	C30X50C	Top	0.396	34.06	0.07	0.04
CBT	C6	C30X50C	Bottom	0.383	34.06	0.07	0.04

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.744	0.816	0.466	0.706
CBT	C2	C30X60F	0.859	0.956	0.452	0.759
CBT	C3	C30X50C	0.692	0.732	0.425	0.617
CBT	C4	C30X50C	0.672	0.524	0.413	0.442
CBT	C5	C30X60F	0.911	0.263	0.623	0.294
CBT	C6	C30X50C	0.681	0.433	0.412	0.357

8.1.6.4. Zona intermedia, Suelo Tipo AB

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-252.94	-4.74	-21.62	0.32	-33.28	1.77
			1.9500	-244.67	-4.74	-21.62	0.32	8.90	11.03
			3.9000	-236.40	-4.74	-21.62	0.32	65.43	52.86
CBT	C1	DIS2X MIN							
			0.0000	-262.87	-23.81	-31.47	-0.35	-57.34	-39.99
			1.9500	-254.60	-23.81	-31.47	-0.35	4.01	6.43
			3.9000	-246.33	-23.81	-31.47	-0.35	51.00	20.27
CBT	C1	DIS2Y MAX							
			0.0000	-250.91	-11.03	-12.26	0.79	-9.86	-12.08
			1.9500	-242.64	-11.03	-12.26	0.79	14.05	9.46
			3.9000	-234.37	-11.03	-12.26	0.79	78.49	42.20
CBT	C1	DIS2Y MIN							
			0.0000	-264.90	-17.52	-40.83	-0.82	-80.76	-26.14
			1.9500	-256.63	-17.52	-40.83	-0.82	-1.14	8.00
			3.9000	-248.36	-17.52	-40.83	-0.82	37.95	30.94
CBT	C1	DIS3X MAX							
			0.0000	-160.00	0.78	-10.56	0.32	-15.11	9.09
			1.9500	-153.80	0.78	-10.56	0.32	5.50	7.56
			3.9000	-147.59	0.78	-10.56	0.32	40.47	38.62
CBT	C1	DIS3X MIN	0.0000	-169.94	-18.28	-20.42	-0.34	-39.17	-32.68
			1.9500	-163.74	-18.28	-20.42	-0.34	0.61	2.97
			3.9000	-157.53	-18.28	-20.42	-0.34	26.04	6.03
CBT	C1	DIS3Y MAX							
			0.0000	-157.97	-5.50	-1.20	0.80	8.31	-4.76
			1.9500	-151.77	-5.50	-1.20	0.80	10.65	6.00
			3.9000	-145.57	-5.50	-1.20	0.80	53.53	27.96
CBT	C1	DIS3Y MIN							
			0.0000	-171.97	-11.99	-29.77	-0.81	-62.59	-18.82
			1.9500	-165.76	-11.99	-29.77	-0.81	-4.54	4.54
			3.9000	-159.56	-11.99	-29.77	-0.81	12.98	16.70
CBT	C2	DIS2X MAX							
			0.0000	-284.75	19.47	12.52	0.42	11.20	37.96
			1.9500	-274.82	19.47	12.52	0.42	-13.22	-0.01
			3.9000	-264.90	19.47	12.52	0.42	-26.41	12.53
CBT	C2	DIS2X MIN							
			0.0000	-288.38	-8.01	1.96	-0.46	-18.78	-18.72
			1.9500	-278.46	-8.01	1.96	-0.46	-22.60	-3.10
			3.9000	-268.54	-8.01	1.96	-0.46	-37.64	-37.98
CBT	C2	DIS2Y MAX							
			0.0000	-280.52	10.27	24.78	1.04	45.99	18.98
			1.9500	-270.60	10.27	24.78	1.04	-2.34	-1.04
			3.9000	-260.68	10.27	24.78	1.04	-13.38	-4.38
CBT	C2	DIS2Y MIN	0.0000	-292.61	1.19	-10.30	-1.08	-53.57	0.25
			1.9500	-282.68	1.19	-10.30	-1.08	-33.48	-2.06
			3.9000	-272.76	1.19	-10.30	-1.08	-50.67	-21.07
CBT	C2	DIS3X MAX							
			0.0000	-184.62	16.91	11.56	0.43	14.43	33.65
			1.9500	-177.18	16.91	11.56	0.43	-8.12	0.68
			3.9000	-169.73	16.91	11.56	0.43	-19.44	18.21
CBT	C2	DIS3X MIN	0.0000	-188.26	-10.58	1.00	-0.45	-15.55	-23.04
			1.9500	-180.82	-10.58	1.00	-0.45	-17.50	-2.41
			3.9000	-173.37	-10.58	1.00	-0.45	-30.67	-32.30
CBT	C2	DIS3Y MAX							
			0.0000	-180.40	7.71	23.82	1.05	49.22	14.67
			1.9500	-172.95	7.71	23.82	1.05	2.76	-0.36
			3.9000	-165.51	7.71	23.82	1.05	-6.41	1.31
CBT	C2	DIS3Y MIN							
			0.0000	-192.48	-1.38	-11.26	-1.07	-50.34	-4.06
			1.9500	-185.04	-1.38	-11.26	-1.07	-28.38	-1.38
			3.9000	-177.59	-1.38	-11.26	-1.07	-43.70	-15.39
CBT	C3	DIS2X MAX							
			0.0000	-196.91	18.42	-10.43	0.32	-17.48	34.75
			1.9500	-188.64	18.42	-10.43	0.32	2.88	-1.16
			3.9000	-180.37	18.42	-10.43	0.32	38.28	-4.50
CBT	C3	DIS2X MIN							
			0.0000	-207.13	-0.64	-20.79	-0.35	-42.81	-7.01
			1.9500	-198.86	-0.64	-20.79	-0.35	-2.31	-5.76
			3.9000	-190.59	-0.64	-20.79	-0.35	23.16	-37.07

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX							
			0.0000	-194.53	12.16	0.25	0.79	9.14	20.94
			1.9500	-186.26	12.16	0.25	0.79	8.66	-2.74
			3.9000	-177.99	12.16	0.25	0.79	53.29	-15.09
CBT	C3	DIS2Y MIN							
			0.0000	-209.51	5.61	-31.47	-0.82	-69.43	6.80
			1.9500	-201.24	5.61	-31.47	-0.82	-8.08	-4.18
			3.9000	-192.97	5.61	-31.47	-0.82	8.15	-26.49
CBT	C3	DIS3X MAX	0.0000	-130.73	15.30	-4.94	0.32	-7.06	29.76
			1.9500	-124.52	15.30	-4.94	0.32	2.61	-0.07
			3.9000	-118.32	15.30	-4.94	0.32	27.32	2.67
CBT	C3	OIS3X MIN							
			0.0000	-140.94	-3.76	-15.31	-0.34	-32.40	-12.00
			1.9500	-134.74	-3.76	-15.31	-0.34	-2.58	-4.67
			3.9000	-128.54	-3.76	-15.31	-0.34	12.20	-29.91
CBT	C3	OIS3Y MAX							
			0.0000	-128.35	9.04	5.74	0.80	19.56	15.95
			1.9500	-122.14	9.04	5.74	0.80	8.38	-1.65
			3.9000	-115.94	9.04	5.74	0.80	42.33	-7.92
CBT	C3	OIS3Y MIN							
			0.0000	-143.33	2.50	-25.99	-0.81	-59.02	1.81
			1.9500	-137.12	2.50	-25.99	-0.81	-8.35	-3.09
			3.9000	-130.92	2.50	-25.99	-0.81	-2.81	-19.32
CBT	C4	DIS2X MAX							
			0.0000	-208.24	-4.84	28.01	0.32	36.62	1.02
			1.9500	-199.97	-4.84	28.01	0.32	-18.00	10.46
			3.9000	-191.70	-4.84	28.01	0.32	-59.29	48.21
CBT	C4	DIS2X MIN							
			0.0000	-219.53	-21.64	18.57	-0.35	13.12	-36.19
			1.9500	-211.26	-21.64	18.57	-0.35	-23.09	6.01
			3.9000	-202.99	-21.64	18.57	-0.35	-72.65	19.89
CBT	C4	DIS2Y MAX	0.0000	-207.08	-9.69	37.67	0.79	60.46	-9.83
			1.9500	-198.81	-9.69	37.67	0.79	-13.01	9.08
			3.9000	-190.54	-9.69	37.67	0.79	-45.46	40.15
CBT	C4	DIS2Y MIN							
			0.0000	-220.68	-16.79	8.91	-0.82	-10.72	-25.34
			1.9500	-212.41	-16.79	8.91	-0.82	-28.09	7.39
			3.9000	-204.14	-16.79	8.91	-0.82	-86.48	27.95
CBT	C4	DIS3X MAX							
			0.0000	-130.01	0.22	17.99	0.32	25.09	7.64
			1.9500	-123.81	0.22	17.99	0.32	-9.98	7.22
			3.9000	-117.61	0.22	17.99	0.32	-31.71	35.12
CBT	C4	DIS3X MIN							
			0.0000	-141.30	-16.58	8.54	-0.34	1.59	-29.56
			1.9500	-135.10	-16.58	8.54	-0.34	-15.07	2.77
			3.9000	-128.89	-16.58	8.54	-0.34	-45.06	6.80
CBT	C4	DIS3Y MAX							
			0.0000	-128.85	-4.63	27.65	0.80	48.93	-3.21
			1.9500	-122.65	-4.63	27.65	0.80	-4.98	5.85
			3.9000	-116.45	-4.63	27.65	0.80	-17.88	27.06
CBT	C4	DIS3Y MIN							
			0.0000	-142.46	-11.73	-1.12	-0.81	-22.24	-18.71
			1.9500	-136.25	-11.73	-1.12	-0.81	-20.06	4.15
			3.9000	-130.05	-11.73	-1.12	-0.81	-58.89	14.86
CBT	C5	DIS2X MAX	0.0000	-209.23	15.97	3.59	0.32	1.41	30.65
			1.9500	-200.96	15.97	3.59	0.32	-5.59	-0.49
			3.9000	-192.69	15.97	3.59	0.32	-1.71	9.71
CBT	C5	DIS2X MIN							
			0.0000	-212.98	-6.09	-4.31	-0.35	-18.52	-14.05
			1.9500	-204.71	-6.09	-4.31	-0.35	-10.12	-2.17
			3.9000	-196.44	-6.09	-4.31	-0.35	-12.60	-31.63
CBT	C5	DIS2Y MAX	0.0000	-204.88	9.43	12.76	0.79	24.54	17.39
			1.9500	-196.61	9.43	12.76	0.79	-0.34	-0.99
			3.9000	-188.34	9.43	12.76	0.79	10.92	-2.54
CBT	C5	DIS2Y MIN							
			0.0000	-217.32	0.45	-13.48	-0.82	-41.65	-0.80
			1.9500	-209.05	0.45	-13.48	-0.82	-15.36	-1.67
			3.9000	-200.78	0.45	-13.48	-0.82	-25.23	-19.38
CBT	C5	DIS3X MAX							
			0.0000	-135.69	13.78	2.32	0.32	2.27	26.96
			1.9500	-129.49	13.78	2.32	0.32	-2.26	0.08
			3.9000	-123.29	13.78	2.32	0.32	4.11	14.54

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN							
			0.0000	-139.44	-8.28	-5.58	-0.34	-17.67	-17.74
			1.9500	-133.24	-8.28	-5.58	-0.34	-6.78	-1.60
			3.9000	-127.03	-8.28	-5.58	-0.34	-6.78	-26.79
CBT	C5	DIS3Y MAX							
			0.0000	-131.35	7.24	11.49	0.80	25.40	13.71
			1.9500	-125.15	7.24	11.49	0.80	2.99	-0.42
			3.9000	-118.94	7.24	11.49	0.80	16.74	2.29
CBT	C5	DIS3Y MIN	0.0000	-143.78	-1.74	-14.75	-0.81	-40.80	-4.48
			1.9500	-137.58	-1.74	-14.75	-0.81	-12.03	-1.09
			3.9000	-131.38	-1.74	-14.75	-0.81	-19.42	-14.54
CBT	C6	DIS2X MAX	0.0000	-150.90	16.37	16.99	0.32	21.13	31.22
			1.9500	-142.63	16.37	16.99	0.32	-11.99	-0.70
			3.9000	-134.36	16.37	16.99	0.32	-30.92	-4.29
CBT	C6	DIS2X MIN							
			0.0000	-162.10	-0.44	6.97	-0.35	-3.73	-6.00
			1.9500	-153.83	-0.44	6.97	-0.35	-17.33	-5.15
			3.9000	-145.56	-0.44	6.97	-0.35	-45.12	-32.62
CBT	C6	DIS2Y MAX							
			0.0000	-149.19	11.54	27.92	0.79	48.10	20.40
			1.9500	-140.92	11.54	27.92	0.79	-6.34	-2.09
			3.9000						
CBT	C6	DIS2Y MIN		-132.65	11.54	27.92	0.79	-15.26	-12.28
			0.0000	-163.82	4.38	-3.96	-0.82	-30.70	4.81
			1.9500	-155.55	4.38	-3.96	-0.82	-22.98	-3.76
			3.9000	-147.28	4.38	-3.96	-0.82	-60.78	-24.63
CBT	C6	DIS3X MAX							
			0.0000	-100.18	13.65	12.70	0.32	17.80	26.77
			1.9500	-93.97	13.65	12.70	0.32	-6.97	0.16
			3.9000	-87.77	13.65	12.70	0.32	-17.55	1.87
CBT	C6	DIS3X MIN	0.0000	-111.37	-3.16	2.69	-0.34	-7.06	-10.45
			1.9500	-105.17	-3.16	2.69	-0.34	-12.32	-4.29
			3.9000	-98.97	-3.16	2.69	-0.34	-31.75	-26.46
CBT	C6	DIS3Y MAX	0.0000	-98.46	8.82	23.63	0.80	44.77	15.95
			1.9500	-92.26	8.82	23.63	0.80	-1.32	-1.23
			3.9000	-86.06	8.82	23.63	0.80	-1.89	-6.12
CBT	C6	DIS3Y MIN							
			0.0000	-113.09	1.67	-8.24	-0.81	-34.03	0.37
			1.9500	-106.89	1.67	-8.24	-0.81	-17.96	-2.90
			3.9000	-100.69	1.67	-8.24	-0.81	-47.41	-18.47

Concrete Column Design - P-M -M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.481	34.06	0.05	1.051E-03
CBT	C1	C30X50C	Bottom	0.400	34.06	0.05	1.051E-03
CBT	C2	C30X60F	Top	0.250	46.45	0.09	0.02
CBT	C2	C30X60F	Bottom	0.227	46.45	0.09	0.02
CBT	C3	C30X50B	Top	0.391	20.00	0.05	0.03
CBT	C3	C30X50B	Bottom	0.398	20.00	0.05	0.03
CBT	C4	C30X50B	Top	0.609	20.00	0.05	0.02
CBT	C4	C30X50B	Bottom	0.389	20.00	0.05	0.02
CBT	C5	C30X50C	Top	0.225	34.06	0.08	0.01
CBT	C5	C30X50C	Bottom	0.238	34.06	0.08	0.01
CBT	C6	C30X50A	Top	0.447	15.48	0.04	0.02
CBT	C6	C30X50A	Bottom	0.350	15.48	0.04	0.02

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.639	0.688	0.320	0.475
CBT	C2	C30X60F	0.797	0.452	0.446	0.416
CBT	C3	C30X50B	0.909	0.876	0.287	0.394
CBT	C4	C30X50B	0.984	0.654	0.312	0.294
CBT	C5	C30X50C	0.909	0.380	0.449	0.252
CBT	C6	C30X50A	0.971	0.709	0.240	0.244

8.1.6.5. Zona intermedia, Suelo Tipo CD

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX	0.0000	-249.90	1.21	-18.83	0.51	-26.50	14.82
			1.9500	-241.63	1.21	-18.83	0.51	10.27	12.46
			3.9000	-233.36	1.21	-18.83	0.51	69.54	63.04
CBT	C1	DIS2X MIN	0.0000	-265.91	-29.76	-34.26	-0.54	-64.12	-53.04
			1.9500	-257.64	-29.76	-34.26	-0.54	2.64	5.00
			3.9000	-249.37	-29.76	-34.26	-0.54	46.90	10.09
CBT	C1	DIS2Y MAX	0.0000	-247.07	-9.06	-4.46	1.23	9.48	-7.80
			1.9500	-238.80	-9.06	-4.46	1.23	18.20	9.91
			3.9000	-230.53	-9.06	-4.46	1.23	89.56	45.60
CBT	C1	DIS2Y MIN	0.0000	-268.74	-19.49	-48.63	-1.26	-100.10	-30.42
			1.9500	-260.47	-19.49	-48.63	-1.26	-5.29	7.55
			3.9000	-252.20	-19.49	-48.63	-1.26	26.88	27.53
CBT	C1	DIS3X MAX	0.0000	-156.96	6.74	-7.77	0.52	-8.34	22.14
			1.9500	-150.76	6.74	-7.77	0.52	6.87	9.00
			3.9000	-144.55	6.74	-7.77	0.52	44.57	48.80
CBT	C1	DIS3X MIN	0.0000	-172.98	-24.24	-23.20	-0.53	-45.95	-45.73
			1.9500	-166.77	-24.24	-23.20	-0.53	-0.76	1.54
			3.9000	-160.57	-24.24	-23.20	-0.53	21.93	-4.15
CBT	C1	DIS3Y MAX	0.0000	-154.13	-3.53	6.59	1.24	27.65	-0.48
			1.9500	-147.93	-3.53	6.59	1.24	14.80	6.44
			3.9000	-141.73	-3.53	6.59	1.24	64.59	31.36
CBT	C1	DIS3Y MIN	0.0000	-175.80	-13.96	-37.57	-1.25	-81.93	-23.11
			1.9500	-169.60	-13.96	-37.57	-1.25	-8.69	4.09
			3.9000	-163.40	-13.96	-37.57	-1.25	1.92	13.29
CBT	C2	DIS2X MAX	0.0000	-283.75	28.06	15.41	0.67	19.38	55.67
			1.9500	-273.83	28.06	15.41	0.67	-10.66	0.95
			3.9000	-263.90	28.06	15.41	0.67	-23.35	28.31
CBT	C2	DIS2X MIN	0.0000	-289.38	-16.60	-0.93	-0.71	-26.97	-36.43
			1.9500	-279.45	-16.60	-0.93	-0.71	-25.16	-4.06
			3.9000	-269.53	-16.60	-0.93	-0.71	-40.70	-53.76
CBT	C2	DIS2Y MAX	0.0000	-277.23	13.05	34.35	1.62	73.14	24.71
			1.9500	-267.30	13.05	34.35	1.62	6.15	-0.73
			3.9000	-257.38	13.05	34.35	1.62	-3.22	0.73
CBT	C2	DIS2Y MIN	0.0000	-295.90	-1.59	-19.87	-1.65	-80.72	-5.48
			1.9500	-285.98	-1.59	-19.87	-1.65	-41.97	-2.38
			3.9000	-276.05	-1.59	-19.87	-1.65	-60.83	-26.17
CBT	C2	DIS3X MAX	0.0000	-183.63	25.50	14.45	0.68	22.62	51.36
			1.9500	-176.18	25.50	14.45	0.68	-5.56	1.64
			3.9000	-168.74	25.50	14.45	0.68	-16.38	33.99
CBT	C2	DIS3X MIN	0.0000	-189.25	-19.16	-1.89	-0.70	-23.73	-40.74
			1.9500	-181.81	-19.16	-1.89	-0.70	-20.06	-3.38
			3.9000	-174.37	-19.16	-1.89	-0.70	-33.74	-48.08
CBT	C2	DIS3Y MAX	0.0000	-177.10	10.49	33.39	1.63	76.37	20.40
			1.9500	-169.66	10.49	33.39	1.63	11.25	-0.05
			3.9000	-162.22	10.49	33.39	1.63	3.75	6.41
CBT	C2	DIS3Y MIN	0.0000	-195.78	-4.15	-20.83	-1.65	-77.49	-9.79
			1.9500	-188.33	-4.15	-20.83	-1.65	-36.87	-1.69
			3.9000	-180.89	-4.15	-20.83	-1.65	-53.87	-20.49
CBT	C3	DIS2X MAX	0.0000	-193.79	24.37	-7.53	0.51	-10.43	47.80
			1.9500	-185.52	24.37	-7.53	0.51	4.31	0.28
			3.9000	-177.25	24.37	-7.53	0.51	42.53	5.68
CBT	C3	DIS2X MIN	0.0000	-210.25	-6.60	-23.68	-0.54	-49.86	-20.06
			1.9500	-201.98	-6.60	-23.68	-0.54	-3.74	-7.19
			3.9000	-193.71	-6.60	-23.68	-0.54	18.92	-47.25

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX	0.0000	-190.42	14.14	8.91	1.23	30.58	25.24
			1.9500	-182.15	14.14	8.91	1.23	13.22	-2.30
			3.9000	-173.88	14.14	8.91	1.23	65.61	-11.64
CBT	C3	DIS2Y MIN	0.0000	-213.61	3.63	-40.12	-1.26	-90.87	2.50
			1.9500	-205.34	3.63	-40.12	-1.26	-12.64	-4.62
			3.9000	-197.07	3.63	-40.12	-1.26	-4.17	-29.93
CBT	C3	DIS3X MAX	0.0000	-127.61	21.25	-2.05	0.52	-0.01	42.81
			1.9500	-121.41	21.25	-2.05	0.52	4.04	1.36
			3.9000	-115.20	21.25	-2.05	0.52	31.56	12.85
CBT	C3	DIS3X MIN	0.0000	-144.06	-9.72	-18.20	-0.53	-39.45	-25.05
			1.9500	-137.86	-9.72	-18.20	-0.53	-4.01	-6.10
			3.9000	-131.66	-9.72	-18.20	-0.53	7.96	-40.08
CBT	C3	DIS3Y MAX	0.0000	-124.24	11.03	14.39	1.24	40.99	20.25
			1.9500	-118.04	11.03	14.39	1.24	12.95	-1.21
			3.9000	-111.83	11.03	14.39	1.24	54.65	-4.48
CBT	C3	DIS3Y MIN	0.0000	-147.43	0.51	-34.64	-1.25	-80.45	-2.49
			1.9500	-141.23	0.51	-34.64	-1.25	-12.92	-3.53
			3.9000	-135.03	0.51	-34.64	-1.25	-15.13	-22.76
CBT	C4	DIS2X MAX	0.0000	-204.76	0.40	30.66	0.51	43.19	12.64
			1.9500	-196.49	0.40	30.66	0.51	-16.57	11.85
			3.9000	-188.22	0.40	30.66	0.51	-55.57	57.05
CBT	C4	DIS2X MIN	0.0000	-223.00	-26.89	15.93	-0.54	6.55	-47.81
			1.9500	-214.73	-26.89	15.93	-0.54	-24.53	4.62
			3.9000	-206.46	-26.89	15.93	-0.54	-76.37	11.06
CBT	C4	DIS2Y MAX	0.0000	-203.34	-7.61	45.52	1.23	79.87	-5.29
			1.9500	-195.07	-7.61	45.52	1.23	-8.89	9.58
			3.9000	-186.80	-7.61	45.52	1.23	-34.27	43.71
CBT	C4	DIS2Y MIN	0.0000	-224.42	-18.87	1.06	-1.26	-30.13	-29.89
			1.9500	-216.15	-18.87	1.06	-1.26	-32.21	6.88
			3.9000	-207.88	-18.87	1.06	-1.26	-97.67	24.39
CBT	C4	DIS3X MAX	0.0000	-126.54	5.46	20.63	0.52	31.66	19.26
			1.9500	-120.34	5.46	20.63	0.52	-8.54	8.61
			3.9000	-114.13	5.46	20.63	0.52	-27.98	43.95
CBT	C4	DIS3X MIN	0.0000	-144.77	-21.83	5.90	-0.53	-4.98	-41.18
			1.9500	-138.57	-21.83	5.90	-0.53	-16.50	1.38
			3.9000	-132.37	-21.83	5.90	-0.53	-48.79	-2.04
CBT	C4	DIS3Y MAX	0.0000	-125.11	-2.55	35.49	1.24	68.34	1.34
			1.9500	-118.91	-2.55	35.49	1.24	-0.86	6.35
			3.9000	-112.71	-2.55	35.49	1.24	-6.69	30.62
CBT	C4	DIS3Y MIN	0.0000	-146.20	-13.81	-8.97	-1.25	-41.66	-23.26
			1.9500	-139.99	-13.81	-8.97	-1.25	-24.18	3.65
			3.9000	-133.79	-13.81	-8.97	-1.25	-70.08	11.30
CBT	C5	OIS2X MAX	0.0000	-208.21	22.86	5.75	0.51	6.86	44.60
			1.9500	-199.94	22.86	5.75	0.51	-4.36	0.03
			3.9000	-191.67	22.86	5.75	0.51	1.26	22.61
CBT	C5	OIS2X MIN	0.0000	-214.00	-12.98	-6.47	-0.54	-23.96	-28.01
			1.9500	-205.73	-12.98	-6.47	-0.54	-11.35	-2.70
			3.9000	-197.46	-12.98	-6.47	-0.54	-15.57	-44.54
CBT	C5	DIS2Y MAX	0.0000	-201.49	12.07	19.92	1.23	42.60	22.75
			1.9500	-193.22	12.07	19.92	1.23	3.75	-0.79
			3.9000	-184.95	12.07	19.92	1.23	20.78	2.41
CBT	C5	DIS2Y MIN	0.0000	-220.71	-2.20	-20.64	-1.26	-59.70	-6.15
			1.9500	-212.44	-2.20	-20.64	-1.26	-19.46	-1.87
			3.9000	-204.17	-2.20	-20.64	-1.26	-35.09	-24.33
CBT	C5	DIS3X MAX	0.0000	-134.67	20.67	4.48	0.52	7.71	40.92
			1.9500	-128.47	20.67	4.48	0.52	-1.02	0.61
			3.9000	-122.27	20.67	4.48	0.52	7.08	27.45

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-140.46	-15.16	-7.74	-0.53	-23.11	-31.69
			1.9500	-134.26	-15.16	-7.74	-0.53	-8.02	-2.12
			3.9000	-128.06	-15.16	-7.74	-0.53	-9.75	-39.70
CBT	C5	DIS3Y MAX	0.0000	-127.96	9.89	18.65	1.24	43.45	19.06
			1.9500	-121.75	9.89	18.65	1.24	7.09	-0.22
			3.9000	-115.55	9.89	18.65	1.24	26.60	7.25
CBT	C5	DIS3Y MIN	0.0000	-147.18	-4.38	-21.91	-1.25	-58.85	-9.84
			1.9500	-140.97	-4.38	-21.91	-1.25	-16.13	-1.29
			3.9000	-134.77	-4.38	-21.91	-1.25	-29.28	-19.50
CBT	C6	DIS2X MAX	0.0000	-147.47	21.62	19.76	0.51	28.01	42.84
			1.9500	-139.20	21.62	19.76	0.51	-10.50	0.69
			3.9000	-130.93	21.62	19.76	0.51	-27.00	4.56
CBT	C6	DIS2X MIN	0.0000	-165.54	-5.69	4.20	-0.54	-10.61	-17.62
			1.9500	-157.27	-5.69	4.20	-0.54	-18.82	-6.54
			3.9000	-149.00	-5.69	4.20	-0.54	-49.04	-41.47
CBT	C6	DIS2Y MAX	0.0000	-145.17	13.64	36.61	1.23	69.59	24.97
			1.9500	-136.90	13.64	36.61	1.23	-1.80	-1.59
			3.9000	-128.63	13.64	36.61	1.23	-2.85	-8.68
CBT	C6	DIS2Y MIN	0.0000	-167.83	2.29	-12.65	-1.26	-52.19	0.24
			1.9500	-159.56	2.29	-12.65	-1.26	-27.52	-4.26
			3.9000	-151.29	2.29	-12.65	-1.26	-73.19	-28.23
CBT	C6	DIS3X MAX	0.0000	-96.74	18.90	15.47	0.52	24.68	38.39
			1.9500	-90.54	18.90	15.47	0.52	-5.48	1.54
			3.9000	-84.34	18.90	15.47	0.52	-13.63	10.72
CBT	C6	DIS3X MIN	0.0000	-114.81	-8.41	-0.08	-0.53	-13.94	-22.07
			1.9500	-108.61	-8.41	-0.08	-0.53	-13.80	-5.68
			3.9000	-102.41	-8.41	-0.08	-0.53	-35.67	-35.31
CBT	C6	DIS3Y MAX	0.0000	-94.44	10.92	32.33	1.24	66.26	20.52
			1.9500	-88.24	10.92	32.33	1.24	3.22	-0.74
			3.9000	-82.04	10.92	32.33	1.24	10.52	-2.52
CBT	C6	DIS3Y MIN	0.0000	-117.11	-0.43	-16.93	-1.25	-55.52	-4.20
			1.9500	-110.91	-0.43	-16.93	-1.25	-22.51	-3.40
			3.9000	-104.70	-0.43	-16.93	-1.25	-59.82	-22.07

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.546	34.06	0.06	0.03
CBT	C1	C30X50C	Bottom	0.483	34.06	0.06	0.03
CBT	C2	C30X60F	Top	0.316	46.45	0.10	0.02
CBT	C2	C30X60F	Bottom	0.307	46.45	0.10	0.02
CBT	C3	C30X50C	Top	0.374	34.06	0.05	0.04
CBT	C3	C30X50C	Bottom	0.412	34.06	0.05	0.04
CBT	C4	C30X50B	Top	0.691	20.00	0.05	0.03
CBT	C4	C30X50B	Bottom	0.502	20.00	0.05	0.03
CBT	C5	C30X50C	Top	0.292	34.06	0.08	0.02
CBT	C5	C30X50C	Bottom	0.318	34.06	0.08	0.02
CBT	C6	C30X50B	Top	0.470	20.00	0.05	0.03
CBT	C6	C30X50B	Bottom	0.430	20.00	0.05	0.03

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.653	0.743	0.327	0.516
CBT	C2	C30X60F	0.869	0.473	0.487	0.436
CBT	C3	C30X50C	0.650	0.647	0.320	0.437
CBT	C4	C30X50B	0.994	0.737	0.314	0.333
CBT	C5	C30X50C	0.987	0.395	0.489	0.262
CBT	C6	C30X50B	0.947	0.591	0.290	0.255

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.653	0.743	0.327	0.516
CBT	C2	C30X60F	0.869	0.473	0.487	0.436
CBT	C3	C30X50C	0.650	0.647	0.320	0.437
CBT	C4	C30X50B	0.994	0.737	0.314	0.333
CBT	C5	C30X50C	0.987	0.395	0.489	0.262
CBT	C6	C30X50B	0.947	0.591	0.290	0.255

8.1.6.6. Zona intermedia, Suelo Tipo E

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX	0.0000	-245.60	9.55	-14.73	0.79	-16.51	33.09
			1.9500	-237.33	9.55	-14.73	0.79	12.29	14.47
			3.9000	-229.06	9.55	-14.73	0.79	75.56	77.29
CBT	C1	DIS2X MIN	0.0000	-270.22	-38.10	-38.37	-0.82	-74.11	-71.32
			1.9500	-261.95	-38.10	-38.37	-0.82	0.62	2.99
			3.9000	-253.68	-38.10	-38.37	-0.82	40.87	-4.16
CBT	C1	DIS2Y MAX	0.0000	-241.33	-6.26	7.23	1.89	38.49	-1.72
			1.9500	-233.06	-6.26	7.23	1.89	24.42	10.54
			3.9000	-224.79	-6.26	7.23	1.89	106.15	50.45
CBT	C1	DIS2Y MIN	0.0000	-274.48	-22.29	-60.32	-1.92	-129.10	-36.50
			1.9500	-266.21	-22.29	-60.32	-1.92	-11.51	6.92
			3.9000	-257.94	-22.29	-60.32	-1.92	10.29	22.68
CBT	C1	DIS3X MAX	0.0000	-152.66	15.08	-3.67	0.80	1.66	40.41
			1.9500	-146.46	15.08	-3.67	0.80	8.89	11.01
			3.9000	-140.25	15.08	-3.67	0.80	50.60	63.05
CBT	C1	DIS3X MIN	0.0000	-177.28	-32.58	-27.31	-0.81	-55.95	-64.00
			1.9500	-171.08	-32.58	-27.31	-0.81	-2.78	-0.47
			3.9000	-164.87	-32.58	-27.31	-0.81	15.91	-18.40
CBT	C1	DIS3Y MAX	0.0000	-148.39	-0.73	18.28	1.89	56.65	5.59
			1.9500	-142.19	-0.73	18.28	1.89	21.02	7.08
			3.9000	-135.99	-0.73	18.28	1.89	81.18	36.21
CBT	C1	DIS3Y MIN	0.0000	-181.55	-16.76	-49.26	-1.91	-110.94	-29.18
			1.9500	-175.34	-16.76	-49.26	-1.91	-14.91	3.46
			3.9000	-169.14	-16.76	-49.26	-1.91	-14.67	8.44
CBT	C2	DIS2X MAX	0.0000	-282.26	40.08	19.73	1.04	31.66	80.46
			1.9500	-272.34	40.08	19.73	1.04	-6.82	2.30
			3.9000	-262.41	40.08	19.73	1.04	-18.75	50.41
CBT	C2	DIS2X MIN	0.0000	-290.87	-28.62	-5.25	-1.08	-39.24	-61.23
			1.9500	-280.94	-28.62	-5.25	-1.08	-28.99	-5.41
			3.9000	-271.02	-28.62	-5.25	-1.08	-45.30	-75.85
CBT	C2	DIS2Y MAX	0.0000	-272.29	16.98	48.71	2.48	113.87	32.82
			1.9500	-262.36	16.98	48.71	2.48	18.89	-0.29
			3.9000	-252.44	16.98	48.71	2.48	12.04	7.95
CBT	C2	DIS2Y MIN	0.0000	-300.84	-5.52	-34.23	-2.52	-121.45	-13.58
			1.9500	-290.92	-5.52	-34.23	-2.52	-54.71	-2.82
			3.9000	-281.00	-5.52	-34.23	-2.52	-76.09	-33.40
CBT	C2	DIS3X MAX	0.0000	-182.14	37.52	18.77	1.05	34.89	76.15
			1.9500	-174.69	37.52	18.77	1.05	-1.72	2.99
			3.9000	-167.25	37.52	18.77	1.05	-11.78	56.09
CBT	C2	DIS3X MIN	0.0000	-190.74	-31.19	-6.21	-1.07	-36.01	-65.54
			1.9500	-183.30	-31.19	-6.21	-1.07	-23.89	-4.73
			3.9000	-175.86	-31.19	-6.21	-1.07	-38.33	-70.17
CBT	C2	DIS3Y MAX	0.0000	-172.16	14.42	47.75	2.49	117.10	28.51
			1.9500	-164.72	14.42	47.75	2.49	23.99	0.40
			3.9000	-157.27	14.42	47.75	2.49	19.01	13.63
CBT	C2	DIS3Y MIN	0.0000	-200.72	-8.08	-35.19	-2.51	-118.22	-17.89
			1.9500	-193.28	-8.08	-35.19	-2.51	-49.61	-2.13
			3.9000	-185.83	-8.08	-35.19	-2.51	-69.12	-27.71
CBT	C3	DIS2X MAX	0.0000	-189.37	32.71	-3.25	0.79	0.04	66.07
			1.9500	-181.10	32.71	-3.25	0.79	6.44	2.29
			3.9000	-172.83	32.71	-3.25	0.79	48.80	19.93
CBT	C3	DIS2X MIN	0.0000	-214.66	-14.94	-27.97	-0.82	-60.33	-38.33
			1.9500	-206.39	-14.94	-27.97	-0.82	-5.87	-9.20
			3.9000	-198.12	-14.94	-27.97	-0.82	12.64	-61.50

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX	0.0000	-184.28	16.96	21.88	1.89	62.73	31.34
			1.9500	-176.01	16.96	21.88	1.89	20.07	-1.67
			3.9000	-167.74	16.96	21.88	1.89	84.08	-6.74
CBT	C3	DIS2Y MIN	0.0000	-219.76	0.81	-53.10	-1.92	-123.02	-3.60
			1.9500	-211.49	0.81	-53.10	-1.92	-19.49	-5.25
			3.9000	-203.22	0.81	-53.10	-1.92	-22.64	-34.83
CBT	C3	DIS3X MAX	0.0000	-123.19	29.59	2.24	0.80	10.46	61.08
			1.9500	-116.99	29.59	2.24	0.80	6.17	3.37
			3.9000	-110.79	29.59	2.24	0.80	37.84	27.10
CBT	C3	OIS3X MIN	0.0000	-148.48	-18.06	-22.49	-0.81	-49.91	-43.32
			1.9500	-142.28	-18.06	-22.49	-0.81	-6.14	-8.12
			3.9000	-136.07	-18.06	-22.49	-0.81	1.68	-54.33
CBT	C3	DIS3Y MAX	0.0000	-118.10	13.85	27.37	1.89	73.14	26.35
			1.9500	-111.89	13.85	27.37	1.89	19.79	-0.58
			3.9000	-105.69	13.85	27.37	1.89	73.12	0.43
CBT	C3	DIS3Y MIN	0.0000	-153.57	-2.31	-47.62	-1.91	-112.60	-8.59
			1.9500	-147.37	-2.31	-47.62	-1.91	-19.76	-4.16
			3.9000	-141.17	-2.31	-47.62	-1.91	-33.60	-27.66
CBT	C4	DIS2X MAX	0.0000	-199.86	7.75	34.57	0.79	52.92	28.91
			1.9500	-191.59	7.75	34.57	0.79	-14.46	13.79
			3.9000	-183.32	7.75	34.57	0.79	-50.04	69.43
CBT	C4	DIS2X MIN	0.0000	-227.90	-34.23	12.02	-0.82	-3.18	-64.08
			1.9500	-219.63	-34.23	12.02	-0.82	-26.64	2.67
			3.9000	-211.36	-34.23	12.02	-0.82	-81.89	-1.32
CBT	C4	DIS2Y MAX	0.0000	-197.76	-4.60	57.29	1.89	108.99	1.29
			1.9500	-189.49	-4.60	57.29	1.89	-2.72	10.31
			3.9000	-181.22	-4.60	57.29	1.89	-17.49	48.87
CBT	C4	DIS2Y MIN	0.0000	-230.01	-21.88	-10.71	-1.92	-59.25	-36.46
			1.9500	-221.74	-21.88	-10.71	-1.92	-38.38	6.16
			3.9000	-213.47	-21.88	-10.71	-1.92	-114.45	19.23
CBT	C4	DIS3X MAX	0.0000	-121.64	12.81	24.54	0.80	41.40	35.53
			1.9500	-115.44	12.81	24.54	0.80	-6.43	10.56
			3.9000	-109.23	12.81	24.54	0.80	-22.46	56.33
CBT	C4	DIS3X MIN	0.0000	-149.67	-29.18	1.99	-0.81	-14.71	-57.45
			1.9500	-143.47	-29.18	1.99	-0.81	-18.61	-0.56
			3.9000	-137.27	-29.18	1.99	-0.81	-54.31	-14.42
CBT	C4	DIS3Y MAX	0.0000	-119.53	0.45	47.26	1.89	97.46	7.91
			1.9500	-113.33	0.45	47.26	1.89	5.31	7.07
			3.9000	-107.12	0.45	47.26	1.89	10.09	35.78
CBT	C4	DIS3Y MIN	0.0000	-151.78	-16.82	-20.74	-1.91	-70.78	-29.83
			1.9500	-145.58	-16.82	-20.74	-1.91	-30.35	2.93
			3.9000	-139.38	-16.82	-20.74	-1.91	-86.86	6.14
CBT	C5	DIS2X MAX	0.0000	-206.68	32.50	8.99	0.79	15.02	64.15
			1.9500	-198.40	32.50	8.99	0.79	-2.51	0.77
			3.9000	-190.13	32.50	8.99	0.79	5.72	40.69
CBT	C5	OIS2X MIN	0.0000	-215.53	-22.63	-9.70	-0.82	-32.12	-47.55
			1.9500	-207.26	-22.63	-9.70	-0.82	-13.20	-3.43
			3.9000	-198.99	-22.63	-9.70	-0.82	-20.03	-62.61
CBT	C5	DIS2Y MAX	0.0000	-196.41	15.88	30.66	1.89	69.68	30.47
			1.9500	-188.14	15.88	30.66	1.89	9.90	-0.51
			3.9000	-179.87	15.88	30.66	1.89	35.57	9.56
CBT	C5	OIS2Y MIN	0.0000	-225.80	-6.01	-31.37	-1.92	-86.78	-13.87
			1.9500	-217.53	-6.01	-31.37	-1.92	-25.61	-2.16
			3.9000	-209.26	-6.01	-31.37	-1.92	-49.88	-31.48
CBT	C5	DIS3X MAX	0.0000	-133.14	30.32	7.71	0.80	15.87	60.46
			1.9500	-126.94	30.32	7.71	0.80	0.83	1.34
			3.9000	-120.73	30.32	7.71	0.80	11.53	45.53

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-141.99	-24.81	-10.97	-0.81	-31.27	-51.24
			1.9500	-135.79	-24.81	-10.97	-0.81	-9.87	-2.86
			3.9000	-129.59	-24.81	-10.97	-0.81	-14.21	-57.77
CBT	C5	DIS3Y MAX	0.0000	-122.87	13.70	29.38	1.89	70.53	26.78
			1.9500	-116.67	13.70	29.38	1.89	13.23	0.07
			3.9000	-110.46	13.70	29.38	1.89	41.39	14.40
CBT	C5	DIS3Y MIN	0.0000	-152.26	-8.19	-32.65	-1.91	-85.93	-17.56
			1.9500	-146.06	-8.19	-32.65	-1.91	-22.27	-1.58
			3.9000	-139.86	-8.19	-32.65	-1.91	-44.07	-26.65
CBT	C6	DIS2X MAX	0.0000	-142.61	28.97	23.88	0.79	38.25	59.11
			1.9500	-134.34	28.97	23.88	0.79	-8.29	2.63
			3.9000	-126.07	28.97	23.88	0.79	-21.16	16.94
CBT	C6	DIS2X MIN	0.0000	-170.39	-13.04	0.08	-0.82	-20.85	-33.90
			1.9500	-162.12	-13.04	0.08	-0.82	-21.03	-8.48
			3.9000	-153.85	-13.04	0.08	-0.82	-54.89	-53.85
CBT	C6	DIS2Y MAX	0.0000	-139.17	16.67	49.65	1.89	101.83	31.57
			1.9500	-130.89	16.67	49.65	1.89	5.01	-0.88
			3.9000	-122.62	16.67	49.65	1.89	15.77	-3.46
CBT	C6	DIS2Y MIN	0.0000	-173.84	-0.74	-25.69	-1.92	-84.43	-6.36
			1.9500	-165.57	-0.74	-25.69	-1.92	-34.33	-4.97
			3.9000	-157.30	-0.74	-25.69	-1.92	-91.81	-33.45
CBT	C6	DIS3X MAX	0.0000	-91.89	26.25	19.60	0.80	34.92	54.67
			1.9500	-85.69	26.25	19.60	0.80	-3.27	3.49
			3.9000	-79.48	26.25	19.60	0.80	-7.79	23.10
CBT	C6	DIS3X MIN	0.0000	-119.66	-15.76	-4.20	-0.81	-24.18	-38.34
			1.9500	-113.46	-15.76	-4.20	-0.81	-16.01	-7.62
			3.9000	-107.26	-15.76	-4.20	-0.81	-41.52	-47.69
CBT	C6	DIS3Y MAX	0.0000	-88.44	13.95	45.37	1.89	98.50	27.13
			1.9500	-82.24	13.95	45.37	1.89	10.03	-0.02
			3.9000	-76.03	13.95	45.37	1.89	29.14	2.70
CBT	C6	DIS3Y MIN	0.0000	-123.11	-3.46	-29.97	-1.91	-87.76	-10.81
			1.9500	-116.91	-3.46	-29.97	-1.91	-29.32	-4.11
			3.9000	-110.71	-3.46	-29.97	-1.91	-78.44	-27.29

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.645	34.06	0.06	0.04
CBT	C1	C30X50C	Bottom	0.608	34.06	0.06	0.04
CBT	C2	C30X60F	Top	0.411	46.45	0.11	0.03
CBT	C2	C30X60F	Bottom	0.425	46.45	0.11	0.03
CBT	C3	C30X50C	Top	0.472	34.06	0.05	0.05
CBT	C3	C30X50C	Bottom	0.548	34.06	0.05	0.05
CBT	C4	C30X50C	Top	0.617	34.06	0.06	0.05
CBT	C4	C30X50C	Bottom	0.527	34.06	0.06	0.05
CBT	C5	C30X50F	Top	0.383	38.71	0.09	0.03
CBT	C5	C30X50F	Bottom	0.419	38.71	0.09	0.03
CBT	C6	C30X50C	Top	0.454	34.06	0.05	0.04
CBT	C6	C30X50C	Bottom	0.478	34.06	0.05	0.04

Concrete Column Joint Design - Beam to Column D/C Ratios & Joint Shear Check

Story Level	Column Line	Section Name	(6/5)Beam-Column Ratio Major	(6/5)Beam-Column Ratio Minor	Joint Shear Ratio Major	Joint Shear Ratio Minor
CBT	C1	C30X50C	0.770	0.827	0.387	0.579
CBT	C2	C30X60F	0.969	0.528	0.546	0.492
CBT	C3	C30X50C	0.662	0.739	0.325	0.504
CBT	C4	C30X50C	0.681	0.575	0.336	0.392
CBT	C5	C30X50F	0.989	0.385	0.544	0.295
CBT	C6	C30X50C	0.653	0.480	0.316	0.318

8.1.6.7. Zona baja, Suelo Tipo AB

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-251.90	-0.92	-18.82	0.52	-26.80	10.47
			1.9500	-243.63	-0.92	-18.82	0.52	9.94	12.27
			3.9000	-235.36	-0.92	-18.82	0.52	69.33	59.74
CBT	C1	DIS2X MIN							
			0.0000	-265.03	-27.81	-34.30	-0.53	-64.47	-48.71
			1.9500	-256.76	-27.81	-34.30	-0.53	2.38	5.51
			3.9000	-248.49	-27.81	-34.30	-0.53	46.58	14.07
CBT	C1	DIS2Y MAX							
			0.0000	-248.05	-9.79	-4.56	1.17	8.73	-9.18
			1.9500	-239.78	-9.79	-4.56	1.17	17.64	9.96
			3.9000	-231.51	-9.79	-4.56	1.17	89.39	44.81
CBT	C1	DIS2Y MIN							
			0.0000	-268.87	-18.94	-48.56	-1.18	-100.00	-29.06
			1.9500	-260.60	-18.94	-48.56	-1.18	-5.32	7.82
			3.9000	-252.33	-18.94	-48.56	-1.18	26.53	29.00
CBT	C1	DIS3X MAX							
			0.0000	-158.75	4.62	-7.69	0.52	-8.37	17.76
			1.9500	-152.55	4.62	-7.69	0.52	6.65	8.75
			3.9000	-146.35	4.62	-7.69	0.52	44.33	45.41
CBT	C1	DIS3X MIN	0.0000	-171.88	-22.27	-23.17	-0.52	-46.04	-41.42
			1.9500	-165.68	-22.27	-23.17	-0.52	-0.90	1.99
			3.9000	-159.48	-22.27	-23.17	-0.52	21.58	-0.26
CBT	C1	DIS3Y MAX							
			0.0000	-154.91	-4.25	6.57	1.17	27.16	-1.89
			1.9500	-148.70	-4.25	6.57	1.17	14.36	6.44
			3.9000	-142.50	-4.25	6.57	1.17	64.39	30.48
CBT	C1	DIS3Y MIN							
			0.0000	-175.73	-13.40	-37.42	-1.18	-81.57	-21.77
			1.9500	-169.53	-13.40	-37.42	-1.18	-8.60	4.30
			3.9000	-163.32	-13.40	-37.42	-1.18	1.53	14.67
CBT	C2	DIS2X MAX							
			0.0000	-280.09	22.44	13.42	0.52	16.97	43.73
			1.9500	-271.82	22.44	13.42	0.52	-9.19	-0.02
			3.9000	-263.55	22.44	13.42	0.52	-20.52	20.47
CBT	C2	DIS2X MIN							
			0.0000	-284.98	-11.95	2.37	-0.53	-11.26	-26.13
			1.9500	-276.71	-11.95	2.37	-0.53	-15.89	-2.83
			3.9000	-268.44	-11.95	2.37	-0.53	-35.36	-43.77
CBT	C2	DIS2Y MAX							
			0.0000	-274.44	10.90	26.18	1.17	49.59	20.29
			1.9500	-266.17	10.90	26.18	1.17	-1.46	-0.96
			3.9000	-257.90	10.90	26.18	1.17	-3.37	-1.08
CBT	C2	DIS2Y MIN	0.0000	-290.63	-0.41	-10.39	-1.18	-43.88	-2.70
			1.9500	-282.36	-0.41	-10.39	-1.18	-23.62	-1.89
			3.9000	-274.09	-0.41	-10.39	-1.18	-52.51	-22.22
CBT	C2	DIS3X MAX							
			0.0000	-181.05	20.09	12.07	0.52	17.84	39.78
			1.9500	-174.85	20.09	12.07	0.52	-5.70	0.61
			3.9000	-168.65	20.09	12.07	0.52	-14.41	25.67
CBT	C2	DIS3X MIN	0.0000	-185.94	-14.29	1.03	-0.52	-10.39	-30.07
			1.9500	-179.74	-14.29	1.03	-0.52	-12.40	-2.20
			3.9000	-173.54	-14.29	1.03	-0.52	-29.25	-38.57
CBT	C2	DIS3Y MAX							
			0.0000	-175.41	8.56	24.84	1.17	50.46	16.35
			1.9500	-169.20	8.56	24.84	1.17	2.03	-0.33
			3.9000	-163.00	8.56	24.84	1.17	2.74	4.12
CBT	C2	DIS3Y MIN							
			0.0000	-191.59	-2.76	-11.73	-1.18	-43.01	-6.64
			1.9500	-185.39	-2.76	-11.73	-1.18	-20.13	-1.26
			3.9000	-179.19	-2.76	-11.73	-1.18	-46.40	-17.02
CBT	C3	DIS2X MAX							
			0.0000	-195.68	22.58	-8.07	0.52	-12.10	43.93
			1.9500	-187.41	22.58	-8.07	0.52	3.68	-0.10
			3.9000	-179.14	22.58	-8.07	0.52	41.01	1.52
CBT	C3	OIS2X MIN							
			0.0000	-209.01	-4.30	-22.81	-0.53	-47.97	-15.23
			1.9500	-200.74	-4.30	-22.81	-0.53	-3.53	-6.86
			3.9000	-192.47	-4.30	-22.81	-0.53	19.36	-44.13

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX							
			0.0000	-192.13	13.73	6.35	1.17	23.83	24.31
			1.9500	-183.86	13.73	6.35	1.17	11.45	-2.42
			3.9000	-175.59	13.73	6.35	1.17	61.33	-13.37
CBT	C3	DIS2Y MIN							
			0.0000	-212.55	4.56	-37.24	-1.18	-83.90	4.39
			1.9500	-204.28	4.56	-37.24	-1.18	-11.29	-4.54
			3.9000	-196.01	4.56	-37.24	-1.18	-0.96	-29.24
CBT	C3	DIS3X MAX							
			0.0000	-129.39	19.37	-2.60	0.52	-1.61	38.76
			1.9500	-123.19	19.37	-2.60	0.52	3.49	0.99
			3.9000	-116.99	19.37	-2.60	0.52	30.14	8.86
CBT	C3	DIS3X MIN							
			0.0000	-142.72	-7.50	-17.33	-0.52	-37.48	-20.41
			1.9500	-136.52	-7.50	-17.33	-0.52	-3.73	-5.77
			3.9000	-130.31	-7.50	-17.33	-0.52	8.48	-36.79
CBT	C3	DIS3Y MAX							
			0.0000	-125.84	10.52	11.83	1.17	34.32	19.14
			1.9500	-119.64	10.52	11.83	1.17	11.25	-1.33
			3.9000	-113.44	10.52	11.83	1.17	50.46	-6.03
CBT	C3	OIS3Y MIN							
			0.0000	-146.27	1.35	-31.76	-1.18	-73.41	-0.78
			1.9500	-140.06	1.35	-31.76	-1.18	-11.49	-3.45
			3.9000	-133.86	1.35	-31.76	-1.18	-11.83	-21.90
CBT	C4	OIS2X MAX							
			0.0000	-205.43	-1.42	30.33	0.52	42.42	8.62
			1.9500	-197.16	-1.42	30.33	0.52	-16.71	11.40
			3.9000	-188.89	-1.42	30.33	0.52	-55.04	53.69
CBT	C4	DIS2X MIN							
			0.0000	-221.84	-24.90	15.60	-0.53	5.79	-43.41
			1.9500	-213.57	-24.90	15.60	-0.53	-24.64	5.14
			3.9000	-205.30	-24.90	15.60	-0.53	-75.87	14.17
CBT	C4	OIS2Y MAX							
			0.0000	-203.55	-7.98	44.90	1.17	78.39	-6.11
			1.9500	-195.28	-7.98	44.90	1.17	-9.17	9.48
			3.9000	-187.01	-7.98	44.90	1.17	-34.17	42.85
CBT	C4	DIS2Y MIN							
			0.0000	-223.72	-18.34	1.02	-1.18	-30.18	-28.67
			1.9500	-215.45	-18.34	1.02	-1.18	-32.18	7.06
			3.9000	-207.18	-18.34	1.02	-1.18	-96.74	25.00
CBT	C4	OIS3X MAX							
			0.0000	-127.32	3.60	20.46	0.52	31.27	15.16
			1.9500	-121.11	3.60	20.46	0.52	-8.61	8.15
			3.9000	-114.91	3.60	20.46	0.52	-27.69	40.65
CBT	C4	DIS3X MIN							
			0.0000	-143.72	-19.88	5.73	-0.52	-5.36	-36.87
			1.9500	-137.52	-19.88	5.73	-0.52	-16.54	1.89
			3.9000	-131.32	-19.88	5.73	-0.52	-48.52	1.13
CBT	C4	DIS3Y MAX							
			0.0000	-125.44	-2.96	35.03	1.17	67.24	0.42
			1.9500	-119.23	-2.96	35.03	1.17	-1.07	6.23
			3.9000	-113.03	-2.96	35.03	1.17	-6.82	29.82
CBT	C4	OIS3Y MIN							
			0.0000	-145.61	-13.32	-8.85	-1.18	-41.33	-22.13
			1.9500	-139.40	-13.32	-8.85	-1.18	-24.08	3.81
			3.9000	-133.20	-13.32	-8.85	-1.18	-69.39	11.97
CBT	C5	DIS2X MAX							
			0.0000	-208.36	20.55	4.83	0.52	4.88	39.90
			1.9500	-200.09	20.55	4.83	0.52	-4.54	-0.16
			3.9000	-191.82	20.55	4.83	0.52	0.84	17.78
CBT	C5	DIS2X MIN							
			0.0000	-213.29	-10.39	-6.20	-0.53	-23.33	-22.76
			1.9500	-205.02	-10.39	-6.20	-0.53	-11.24	-2.49
			3.9000	-196.75	-10.39	-6.20	-0.53	-13.97	-40.22
CBT	C5	DIS2Y MAX							
			0.0000	-202.67	11.58	17.58	1.17	37.48	21.75
			1.9500	-194.40	11.58	17.58	1.17	3.20	-0.84
			3.9000	-186.13	11.58	17.58	1.17	17.94	0.98
CBT	C5	DIS2Y MIN							
			0.0000	-218.98	-1.43	-18.94	-1.18	-55.92	-4.61
			1.9500	-210.71	-1.43	-18.94	-1.18	-18.99	-1.81
			3.9000	-202.44	-1.43	-18.94	-1.18	-31.07	-23.43
CBT	C5	DIS3X MAX							
			0.0000	-134.84	18.30	3.64	0.52	5.96	36.10
			1.9500	-128.64	18.30	3.64	0.52	-1.13	0.41
			3.9000	-122.44	18.30	3.64	0.52	6.58	22.73

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-139.77	-12.64	-7.39	-0.52	-22.25	-26.57
			1.9500	-133.56	-12.64	-7.39	-0.52	-7.83	-1.92
			3.9000	-127.36	-12.64	-7.39	-0.52	-8.23	-35.27
CBT	C5	DIS3Y MAX	0.0000	-129.15	9.34	16.38	1.17	38.56	17.94
			1.9500	-122.95	9.34	16.38	1.17	6.61	-0.26
			3.9000	-116.75	9.34	16.38	1.17	23.68	5.93
CBT	C5	DIS3Y MIN	0.0000	-145.46	-3.68	-20.13	-1.18	-54.84	-8.41
			1.9500	-139.26	-3.68	-20.13	-1.18	-15.58	-1.24
			3.9000	-133.05	-3.68	-20.13	-1.18	-25.33	-18.47
CBT	C6	DIS2X MAX	0.0000	-148.42	19.81	18.84	0.52	25.82	38.85
			1.9500	-140.15	19.81	18.84	0.52	-10.92	0.23
			3.9000	-131.88	19.81	18.84	0.52	-27.83	1.14
CBT	C6	DIS2X MIN	0.0000	-164.47	-3.68	4.81	-0.53	-9.10	-13.19
			1.9500	-156.20	-3.68	4.81	-0.53	-18.47	-6.03
			3.9000	-147.93	-3.68	4.81	-0.53	-47.68	-38.40
CBT	C6	DIS2Y MAX	0.0000	-146.29	13.23	33.55	1.17	62.13	24.08
			1.9500	-138.02	13.23	33.55	1.17	-3.29	-1.68
			3.9000						
CBT	C6	DIS2Y MIN	0.0000	-129.75	13.23	33.55	1.17	-6.79	-9.75
			1.9500	-166.59	2.91	-9.90	-1.18	-45.41	1.58
			3.9000	-158.32	2.91	-9.90	-1.18	-26.10	-4.12
				-150.05	2.91	-9.90	-1.18	-68.72	-27.51
CBT	C6	DIS3X MAX	0.0000	-97.72	17.04	14.64	0.52	22.67	34.31
			1.9500	-91.52	17.04	14.64	0.52	-5.87	1.07
			3.9000	-85.31	17.04	14.64	0.52	-34.58	7.38
CBT	C6	DIS3X MIN	0.0000	-213.77	-6.44	0.60	-0.52	-12.24	-17.74
			1.9500	-107.57	-6.44	0.60	-0.52	-13.42	-5.18
			3.9000	-101.36	-6.44	0.60	-0.52	-34.44	-32.16
CBT	C6	DIS3Y MAX	0.0000	-95.60	10.46	29.35	1.17	58.98	19.54
			1.9500	-89.39	10.46	29.35	1.17	1.76	-0.83
			3.9000	-83.19	10.46	29.35	1.17	6.46	-3.51
CBT	C6	DIS3Y MIN	0.0000	-115.89	0.14	-14.10	-1.18	-48.55	-2.97
			1.9500	-109.69	0.14	-14.10	-1.18	-21.05	-3.27
			3.9000	-103.49	0.14	-14.10	-1.18	-55.47	-21.27

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50A	Top	0.768	15.48	0.00	0.00
CBT	C1	C30X50A	Bottom	0.655	15.48	0.00	0.00
CBT	C2	C30X50A	Top	0.473	15.48	0.00	0.00
CBT	C2	C30X50A	Bottom	0.410	15.48	0.00	0.00
CBT	C3	C30X50A	Top	0.510	15.48	0.00	0.00
CBT	C3	C30X50A	Bottom	0.546	15.48	0.00	0.00
CBT	C4	C30X50A	Top	0.758	15.48	0.00	0.00
CBT	C4	C30X50A	Bottom	0.552	15.48	0.00	0.00
CBT	C5	C30X50A	Top	0.369	15.48	0.00	0.00
CBT	C5	C30X50A	Bottom	0.398	15.48	0.00	0.00
CBT	C6	C30X50A	Top	0.508	15.48	0.00	0.00
CBT	C6	C30X50A	Bottom	0.447	15.48	0.00	0.00

8.1.6.8. Zona baja, Suelo Tipo CD

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-248.34	6.41	-14.67	0.80	-16.70	26.61
			1.9500	-240.07	6.41	-14.67	0.80	11.96	14.11
			3.9000	-231.80	6.41	-14.67	0.80	75.45	72.20
CBT	C1	DIS2X MIN							
			0.0000	-268.59	-35.14	-38.46	-0.81	-74.58	-64.85
			1.9500	-260.32	-35.14	-38.46	-0.81	0.36	3.67
			3.9000	-252.05	-35.14	-38.46	-0.81	40.47	1.61
CBT	C1	DIS2Y MAX							
			0.0000						
			1.9500						
			3.9000						
CBT	C1	DIS2Y MIN							
			0.0000						
			1.9500						
			3.9000						
CBT	C1	DIS3X MAX							
			0.0000						
			1.9500						
			3.9000	-142.79	11.95	-3.53	0.80	50.44	57.87
CBT	C1	DIS3X MIN	0.0000	-175.44	-29.60	-27.32	-0.81	-56.14	-57.56
			1.9500	-169.24	-29.60	-27.32	-0.81	-2.92	0.15
			3.9000	-163.04	-29.60	-27.32	-0.81	15.47	-12.72
CBT	C1	DIS3Y MAX							
			0.0000	-149.35	-1.77	18.31	1.80	56.16	3.50
			1.9500	-143.15	-1.77	18.31	1.80	20.48	7.02
			3.9000	-136.94	-1.77	18.31	1.80	81.15	34.77
CBT	C1	DIS3Y MIN							
			0.0000	-181.28	-15.88	-49.16	-1.80	-110.57	-27.17
			1.9500	-175.08	-15.88	-49.16	-1.80	-14.73	3.72
			3.9000	-168.88	-15.88	-49.16	-1.80	-15.24	10.38
CBT	C2	DIS2X MAX							
			0.0000	-278.79	31.81	16.36	0.80	24.50	62.78
			1.9500	-270.52	31.81	16.36	0.80	-7.41	0.74
			3.9000	-262.25	31.81	16.36	0.80	-16.56	37.99
CBT	C2	DIS2X MIN							
			0.0000	-286.28	-21.33	-0.57	-0.81	-18.79	-45.18
			1.9500	-278.01	-21.33	-0.57	-0.81	-17.67	-3.60
			3.9000	-269.74	-21.33	-0.57	-0.81	-39.32	-61.29
CBT	C2	DIS2Y MAX							
			0.0000	-270.12	13.98	35.93	1.80	74.52	26.54
			1.9500	-261.85	13.98	35.93	1.80	4.45	-0.71
			3.9000	-253.58	13.98	35.93	1.80	9.74	4.66
CBT	C2	DIS2Y MIN	0.0000	-294.95	-3.49	-20.14	-1.80	-68.80	-8.94
			1.9500	-286.68	-3.49	-20.14	-1.80	-29.53	-2.14
			3.9000	-278.41	-3.49	-20.14	-1.80	-65.61	-27.96
CBT	C2	DIS3X MAX							
			0.0000	-179.75	29.47	15.02	0.80	25.37	58.84
			1.9500	-173.55	29.47	15.02	0.80	-3.92	1.37
			3.9000	-167.35	29.47	15.02	0.80	-10.45	43.19
CBT	C2	DIS3X MIN	0.0000	-187.25	-23.67	-1.92	-0.81	-17.92	-49.12
			1.9500	-181.05	-23.67	-1.92	-0.81	-14.18	-2.97
			3.9000	-174.84	-23.67	-1.92	-0.81	-33.21	-56.09
CBT	C2	DIS3Y MAX							
			0.0000	-171.09	11.63	34.59	1.80	75.39	22.60
			1.9500	-164.89	11.63	34.59	1.80	7.94	-0.08
			3.9000	-158.68	11.63	34.59	1.80	15.85	9.87
CBT	C2	DIS3Y MIN							
			0.0000	-195.91	-5.83	-21.48	-1.80	-67.93	-12.89
			1.9500	-189.71	-5.83	-21.48	-1.80	-26.04	-1.51
			3.9000	-183.51	-5.83	-21.48	-1.80	-59.50	-22.76
CBT	C3	DIS2X MAX							
			0.0000	-192.06	29.91	-4.12	0.80	-2.49	60.07
			1.9500	-183.79	29.91	-4.12	0.80	5.61	1.75
			3.9000	-175.52	29.91	-4.12	0.80	46.82	13.97
CBT	C3	DIS2X MIN							
			0.0000	-212.62	-11.62	-26.76	-0.81	-57.58	-31.37
			1.9500	-204.35	-11.62	-26.76	-0.81	-5.46	-8.70
			3.9000	-196.08	-11.62	-26.76	-0.81	13.55	-56.58

INGENIERIA ESTRUCTURAL S.A.S
Evaluamos el Pasado · Analizamos el Presente · Diseñamos el Futuro

C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX	0.0000	-186.68	16.21	17.98	1.80	52.56	29.71
			1.9500	-178.41	16.21	17.98	1.80	17.51	-1.84
			3.9000	-170.14	16.21	17.98	1.80	77.94	-9.07
CBT	C3	DIS2Y MIN	0.0000	-218.00	2.07	-48.86	-1.80	-112.63	-1.02
			1.9500	-209.73	2.07	-48.86	-1.80	-17.36	-5.12
			3.9000	-201.46	2.07	-48.86	-1.80	-17.57	-33.54
CBT	C3	DIS3X MAX	0.0000	-125.77	26.70	1.35	0.80	8.00	54.89
			1.9500	-119.57	26.70	1.35	0.80	5.42	2.83
			3.9000	-113.37	26.70	1.35	0.80	35.95	21.31
CBT	C3	DIS3X MIN	0.0000	-146.34	-14.83	-21.28	-0.81	-47.09	-36.54
			1.9500	-140.13	-14.83	-21.28	-0.81	-5.66	-7.62
			3.9000	-133.93	-14.83	-21.28	-0.81	2.67	-49.24
CBT	C3	DIS3Y MAX	0.0000	-120.39	13.01	23.46	1.80	63.04	24.54
			1.9500	-114.19	13.01	23.46	1.80	17.32	-0.76
			3.9000	-107.99	13.01	23.46	1.80	67.07	-1.73
CBT	C3	DIS3Y MIN	0.0000	-151.72	-1.14	-43.38	-1.80	-102.14	-6.19
			1.9500	-145.51	-1.14	-43.38	-1.80	-17.55	-4.03
			3.9000	-139.31	-1.14	-43.38	-1.80	-28.44	-26.20
CBT	C4	DIS2X MAX	0.0000	-200.97	4.98	34.28	0.80	52.24	22.81
			1.9500	-192.70	4.98	34.28	0.80	-14.59	13.11
			3.9000	-184.43	4.98	34.28	0.80	-49.46	64.46
CBT	C4	DIS2X MIN	0.0000	-226.30	-31.30	11.65	-0.81	-4.03	-57.60
			1.9500	-218.03	-31.30	11.65	-0.81	-26.76	3.43
			3.9000	-209.76	-31.30	11.65	-0.81	-81.45	3.39
CBT	C4	DIS2Y MAX	0.0000	-198.17	-5.19	56.61	1.80	107.35	-0.03
			1.9500	-189.90	-5.19	56.61	1.80	-3.03	10.13
			3.9000	-181.63	-5.19	56.61	1.80	-17.49	47.66
CBT	C4	DIS2Y MIN	0.0000	-229.11	-21.13	-10.68	-1.80	-59.14	-34.75
			1.9500	-220.84	-21.13	-10.68	-1.80	-38.32	6.41
			3.9000	-212.57	-21.13	-10.68	-1.80	-113.42	20.20
CBT	C4	DIS3X MAX	0.0000	-122.85	10.00	24.40	0.80	41.09	29.35
			1.9500	-116.65	10.00	24.40	0.80	-6.49	9.86
			3.9000	-110.45	10.00	24.40	0.80	-22.11	51.43
CBT	C4	DIS3X MIN	0.0000	-148.19	-26.28	1.78	-0.81	-15.18	-51.06
			1.9500	-141.98	-26.28	1.78	-0.81	-18.66	0.18
			3.9000	-135.78	-26.28	1.78	-0.81	-54.10	-9.64
CBT	C4	DIS3Y MAX	0.0000	-120.05	-0.17	46.73	1.80	96.20	6.50
			1.9500	-113.85	-0.17	46.73	1.80	5.07	6.88
			3.9000	-107.65	-0.17	46.73	1.80	9.86	34.62
CBT	C4	DIS3Y MIN	0.0000	-150.99	-16.11	-20.55	-1.80	-70.29	-28.22
			1.9500	-144.79	-16.11	-20.55	-1.80	-30.22	3.16
			3.9000	-138.59	-16.11	-20.55	-1.80	-86.07	7.16
CBT	C5	DIS2X MAX	0.0000	-207.05	28.98	7.78	0.80	12.41	56.99
			1.9500	-198.78	28.98	7.78	0.80	-2.75	0.47
			3.9000	-190.51	28.98	7.78	0.80	4.79	33.59
CBT	C5	DIS2X MIN	0.0000	-214.60	-18.83	-9.14	-0.81	-30.85	-39.85
			1.9500	-206.33	-18.83	-9.14	-0.81	-13.03	-3.13
			3.9000	-198.06	-18.83	-9.14	-0.81	-17.92	-56.04
CBT	C5	DIS2Y MAX	0.0000	-198.32	15.09	27.31	1.80	62.39	28.86
			1.9500	-190.05	15.09	27.31	1.80	9.12	-0.58
			3.9000	-181.78	15.09	27.31	1.80	31.01	7.56
CBT	C5	DIS2Y MIN	0.0000	-223.33	-4.94	-28.68	-1.80	-80.83	-11.72
			1.9500	-215.06	-4.94	-28.68	-1.80	-24.91	-2.08
			3.9000	-206.79	-4.94	-28.68	-1.80	-44.14	-30.01
C8T	C5	DIS3X MAX	0.0000	-133.53	26.74	6.58	0.80	13.49	53.18
			1.9500	-127.33	26.74	6.58	0.80	0.66	1.05
			3.9000	-121.12	26.74	6.58	0.80	10.53	38.55

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-141.08	-21.08	-10.33	-0.81	-29.77	-43.66
			1.9500	-134.88	-21.08	-10.33	-0.81	-9.62	-2.55
			3.9000	-128.68	-21.08	-10.33	-0.81	-12.17	-51.09
CBT	C5	DIS3Y MAX	0.0000	-124.80	12.85	26.12	1.80	63.46	25.05
			1.9500	-118.60	12.85	26.12	1.80	12.53	0.00
			3.9000	-112.40	12.85	26.12	1.80	36.75	12.52
CBT	C5	DIS3Y MIN	0.0000	-149.81	-7.19	-29.87	-1.80	-79.75	-15.52
			1.9500	-143.60	-7.19	-29.87	-1.80	-21.50	-1.50
			3.9000	-137.40	-7.19	-29.87	-1.80	-38.40	-25.05
CBT	C6	DIS2X MAX	0.0000	-144.05	26.21	22.60	0.80	35.16	53.04
			1.9500	-135.78	26.21	22.60	0.80	-8.90	1.93
			3.9000	-127.51	26.21	22.60	0.80	-22.52	11.92
CBT	C6	DIS2X MIN	0.0000	-168.83	-10.08	1.05	-0.81	-18.44	-27.39
			1.9500	-160.56	-10.08	1.05	-0.81	-20.50	-7.73
			3.9000	-152.29	-10.08	1.05	-0.81	-52.99	-49.18
CBT	C6	DIS2Y MAX	0.0000	-140.88	16.01	45.14	1.80	90.80	30.15
			1.9500	-132.61	16.01	45.14	1.80	2.79	-1.02
			3.9000	-124.34	16.01	45.14	1.80	9.72	-4.97
CBT	C6	DIS2Y MIN	0.0000	-172.01	0.12	-21.49	-1.80	-74.08	-4.49
			1.9500	-163.74	0.12	-21.49	-1.80	-32.19	-4.78
			3.9000	-155.47	0.12	-21.49	-1.80	-85.23	-32.29
CBT	C6	DIS3X MAX	0.0000	-93.35	23.45	18.40	0.80	32.01	48.50
			1.9500	-87.15	23.45	18.40	0.80	-3.85	2.78
			3.9000	-80.95	23.45	18.40	0.80	-9.27	18.16
CBT	C6	DIS3X MIN	0.0000	-118.13	-12.84	-3.15	-0.81	-21.58	-31.93
			1.9500	-111.93	-12.84	-3.15	-0.81	-15.45	-6.89
			3.9000	-105.73	-12.84	-3.15	-0.81	-39.74	-42.94
CBT	C6	DIS3Y MAX	0.0000	-90.18	13.24	40.93	1.80	87.66	25.60
			1.9500	-83.97	13.24	40.93	1.80	7.84	-0.18
			3.9000	-77.77	13.24	40.93	1.80	22.97	1.27
CBT	C6	DIS3Y MIN	0.0000	-121.31	-2.64	-25.69	-1.80	-77.23	-9.03
			1.9500	-115.11	-2.64	-25.69	-1.80	-27.14	-3.93
			3.9000	-108.91	-2.64	-25.69	-1.80	-71.99	-26.06

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Rebar Area	Shear33 Rebar Area
CBT	C1	C30X50A	Top	0.903	15.48	0.00	0.00
CBT	C1	C30X50A	Bottom	0.861	15.48	0.00	0.00
CBT	C2	C30X50A	Top	0.652	15.48	0.00	0.00
CBT	C2	C30X50A	Bottom	0.657	15.48	0.00	0.00
CBT	C3	C30X50A	Top	0.660	15.48	0.00	0.00
CBT	C3	C30X50A	Bottom	0.772	15.48	0.00	0.00
CBT	C4	C30X50A	Top	0.888	15.48	0.00	0.00
CBT	C4	C30X50A	Bottom	0.748	15.48	0.00	0.00
CBT	C5	C30X50A	Top	0.589	15.48	0.00	0.00
CBT	C5	C30X50A	Bottom	0.630	15.48	0.00	0.00
CBT	C6	C30X50A	Top	0.651	15.48	0.00	0.00
CBT	C6	C30X50A	Bottom	0.669	15.48	0.00	0.00

8.1.6.9. Zona baja, Suelo Tipo E

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C O L U M N F O R C E S

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C1	DIS2X MAX							
			0.0000	-240.65	22.29	-5.79	1.41	4.88	61.57
			1.9500	-232.38	22.29	-5.79	1.41	16.27	18.11
			3.9000	-224.11	22.29	-5.79	1.41	88.52	99.19
CBT	C1	DIS2X MIN							
			0.0000	-276.28	-51.03	-47.33	-1.41	-96.16	-99.82
			1.9500	-268.01	-51.03	-47.33	-1.41	-3.95	-0.32
			3.9000	-259.74	-51.03	-47.33	-1.41	27.40	-25.37
CBT	C1	DIS2Y MAX							
			0.0000	-230.68	-1.96	32.10	3.13	99.35	7.86
			1.9500	-222.41	-1.96	32.10	3.13	36.77	11.80
			3.9000	-214.14	-1.96	32.10	3.13	141.78	58.35
CBT	C1	DIS2Y MIN							
			0.0000	-286.24	-26.78	-85.23	-3.14	-190.63	-46.11
			1.9500	-277.97	-26.78	-85.23	-3.14	-24.45	5.98
			3.9000	-269.70	-26.78	-85.23	-3.14	-25.87	15.47
CBT	C1	DIS3X MAX							
			0.0000	-147.50	27.84	5.35	1.41	23.31	68.86
			1.9500	-141.30	27.84	5.35	1.41	12.99	14.58
			3.9000	-135.10	27.84	5.35	1.41	63.51	84.85
CBT	C1	DIS3X MIN	0.0000	-183.13	-45.48	-36.20	-1.41	-77.72	-92.53
			1.9500	-176.93	-45.48	-36.20	-1.41	-7.24	-3.84
			3.9000	-170.73	-45.48	-36.20	-1.41	2.40	-39.70
CBT	C1	DIS3Y MAX							
			0.0000	-137.54	3.59	43.24	3.13	117.78	15.15
			1.9500	-131.33	3.59	43.24	3.13	33.49	8.28
			3.9000	-125.13	3.59	43.24	3.13	116.78	44.01
CBT	C1	DIS3Y MIN							
			0.0000	-193.10	-21.23	-74.09	-3.14	-172.19	-38.82
			1.9500	-186.90	-21.23	-74.09	-3.14	-27.74	2.46
			3.9000	-180.69	-21.23	-74.09	-3.14	-50.87	1.13
CBT	C2	DIS2X MAX							
			0.0000	-276.01	52.13	22.63	1.41	40.51	104.05
			1.9500	-267.74	52.13	22.63	1.41	-3.61	2.40
			3.9000	-259.47	52.13	22.63	1.41	-8.14	75.95
CBT	C2	DIS2X MIN							
			0.0000	-289.06	-41.64	-6.83	-1.41	-34.79	-86.46
			1.9500	-280.79	-41.64	-6.83	-1.41	-21.47	-5.26
			3.9000	-272.52	-41.64	-6.83	-1.41	-47.73	-99.25
CBT	C2	DIS2Y MAX							
			0.0000	-260.95	20.62	56.65	3.13	127.49	40.03
			1.9500	-252.68	20.62	56.65	3.13	17.01	-0.17
			3.9000	-244.41	20.62	56.65	3.13	37.58	17.07
CBT	C2	DIS2Y MIN	0.0000	-304.12	-10.13	-40.86	-3.14	-121.77	-22.43
			1.9500	-295.85	-10.13	-40.86	-3.14	-42.09	-2.68
			3.9000	-287.58	-10.13	-40.86	-3.14	-93.46	-40.37
CBT	C2	DIS3X MAX							
			0.0000	-176.98	49.78	21.28	1.41	41.38	100.11
			1.9500	-170.78	49.78	21.28	1.41	-0.12	3.03
			3.9000	-164.57	49.78	21.28	1.41	-2.03	81.15
CBT	C2	DIS3X MIN	0.0000	-190.02	-43.99	-8.18	-1.41	-33.93	-90.40
			1.9500	-183.82	-43.99	-8.18	-1.41	-17.98	-4.63
			3.9000	-177.62	-43.99	-8.18	-1.41	-41.62	-94.05
CBT	C2	DIS3Y MAX							
			0.0000	-161.91	18.27	55.31	3.13	128.36	36.09
			1.9500	-155.71	18.27	55.31	3.13	20.50	0.46
			3.9000	-149.51	18.27	55.31	3.13	43.69	22.27
CBT	C2	DIS3Y MIN							
			0.0000	-205.08	-12.47	-42.20	-3.14	-120.90	-26.38
			1.9500	-198.88	-12.47	-42.20	-3.14	-38.60	-2.05
			3.9000	-192.68	-12.47	-42.20	-3.14	-87.35	-35.17
CBT	C3	DIS2X MAX							
			0.0000	-184.25	45.79	4.31	1.41	18.01	95.02
			1.9500	-175.98	45.79	4.31	1.41	9.72	5.74
			3.9000	-167.71	45.79	4.31	1.41	59.23	40.94
CBT	C3	DIS2X MIN							
			0.0000	-220.43	-27.50	-35.19	-1.41	-78.07	-66.33
			1.9500	-212.16	-27.50	-35.19	-1.41	-9.57	-12.70
			3.9000	-203.89	-27.50	-35.19	-1.41	1.14	-83.55

COLUMN FORCES

STORY	COLUMN	LOAD	LOC	P	V2	V3	T	M2	M3
CBT	C3	DIS2Y MAX	0.0000	-175.09	21.58	42.68	3.13	113.61	41.38
			1.9500	-166.82	21.58	42.68	3.13	30.40	-0.59
			3.9000	-158.55	21.58	42.68	3.13	113.24	0.21
CBT	C3	DIS2Y MIN	0.0000	-229.59	-3.30	-73.56	-3.14	-173.68	-12.69
			1.9500	-221.32	-3.30	-73.56	-3.14	-30.25	-6.36
			3.9000	-213.05	-3.30	-73.56	-3.14	-52.87	-42.82
CBT	C3	DIS3X MAX	0.0000	-117.96	42.58	9.78	1.41	28.49	89.85
			1.9500	-111.76	42.58	9.78	1.41	9.53	6.83
			3.9000	-105.56	42.58	9.78	1.41	48.36	48.28
CBT	C3	DIS3X MIN	0.0000	-154.15	-30.71	-29.71	-1.41	-67.59	-71.50
			1.9500	-147.94	-30.71	-29.71	-1.41	-9.76	-11.61
			3.9000	-141.74	-30.71	-29.71	-1.41	-9.73	-76.21
CBT	C3	DIS3Y MAX	0.0000	-108.81	18.38	48.16	3.13	124.09	36.21
			1.9500	-102.60	18.38	48.16	3.13	30.20	0.49
			3.9000	-96.40	18.38	48.16	3.13	102.37	7.55
CBT	C3	DIS3Y MIN	0.0000	-163.30	-6.51	-68.09	-3.14	-163.19	-17.86
			1.9500	-157.10	-6.51	-68.09	-3.14	-30.44	-5.28
			3.9000	-150.90	-6.51	-68.09	-3.14	-63.74	-35.48
CBT	C4	DIS2X MAX	0.0000	-191.33	18.85	42.70	1.41	73.19	53.55
			1.9500	-183.06	18.85	42.70	1.41	-10.05	16.80
			3.9000	-174.79	18.85	42.70	1.41	-37.56	87.81
CBT	C4	DIS2X MIN	0.0000	-235.95	-45.16	3.23	-1.41	-24.98	-88.33
			1.9500	-227.68	-45.16	3.23	-1.41	-31.30	-0.27
			3.9000	-219.41	-45.16	3.23	-1.41	-93.35	-19.95
CBT	C4	DIS2Y MAX	0.0000	-186.71	0.79	81.47	3.13	168.88	13.01
			1.9500	-178.44	0.79	81.47	3.13	10.01	11.54
			3.9000	-170.17	0.79	81.47	3.13	17.97	57.97
CBT	C4	DIS2Y MIN	0.0000	-240.56	-27.11	-35.55	-3.14	-120.67	-47.80
			1.9500	-232.29	-27.11	-35.55	-3.14	-51.36	5.00
			3.9000	-224.02	-27.11	-35.55	-3.14	-148.88	9.89
CBT	C4	DIS3X MAX	0.0000	-113.21	23.86	32.83	1.41	62.04	60.09
			1.9500	-107.01	23.86	32.83	1.41	-1.95	13.56
			3.9000	-100.80	23.86	32.83	1.41	-10.21	74.77
CBT	C4	DIS3X MIN	0.0000	-157.83	-40.15	-6.64	-1.41	-36.13	-81.80
			1.9500	-151.63	-40.15	-6.64	-1.41	-23.20	-3.52
			3.9000	-145.43	-40.15	-6.64	-1.41	-66.00	-32.99
CBT	C4	DIS3Y MAX	0.0000	-108.60	5.81	71.60	3.13	157.73	19.55
			1.9500	-102.39	5.81	71.60	3.13	18.11	8.29
			3.9000	-96.19	5.81	71.60	3.13	45.32	44.93
CBT	C4	DIS3Y MIN	0.0000	-162.45	-22.09	-45.42	-3.14	-131.82	-41.26
			1.9500	-156.24	-22.09	-45.42	-3.14	-43.27	1.75
			3.9000	-150.04	-22.09	-45.42	-3.14	-121.53	-3.14
CBT	C5	DIS2X MAX	0.0000	-204.26	47.26	14.03	1.41	28.40	94.01
			1.9500	-195.99	47.26	14.03	1.41	1.05	1.85
			3.9000	-187.72	47.26	14.03	1.41	13.18	67.86
CBT	C5	DIS2X MIN	0.0000	-217.39	-37.11	-15.39	-1.41	-46.84	-76.86
			1.9500	-209.12	-37.11	-15.39	-1.41	-16.83	-4.50
			3.9000	-200.85	-37.11	-15.39	-1.41	-26.31	-90.30
CBT	C5	DIS2Y MAX	0.0000	-189.08	22.63	48.01	3.13	115.31	44.12
			1.9500	-180.81	22.63	48.01	3.13	21.70	-0.01
			3.9000	-172.54	22.63	48.01	3.13	58.79	21.69
CBT	C5	DIS2Y MIN	0.0000	-232.57	-12.48	-49.37	-3.14	-133.75	-26.98
			1.9500	-224.30	-12.48	-49.37	-3.14	-37.48	-2.64
			3.9000	-216.03	-12.48	-49.37	-3.14	-71.91	-44.14
CBT	C5	DIS3X MAX	0.0000	-130.74	45.01	12.83	1.41	29.48	90.20
			1.9500	-124.53	45.01	12.83	1.41	4.46	2.42
			3.9000	-118.33	45.01	12.83	1.41	18.92	72.81

COLUMN FORCES

STORY	COLUMN	LDAD	LOC	P	V2	V3	T	M2	M3
CBT	C5	DIS3X MIN	0.0000	-143.87	-39.35	-16.59	-1.41	-45.77	-80.67
			1.9500	-137.67	-39.35	-16.59	-1.41	-13.42	-3.93
			3.9000	-131.47	-39.35	-16.59	-1.41	-20.57	-85.35
CBT	C5	DIS3Y MAX							
			0.0000	-115.56	20.38	46.81	3.13	116.39	40.31
			1.9500	-109.36	20.38	46.81	3.13	25.11	0.56
			3.9000	-103.16	20.38	46.81	3.13	64.53	26.64
CBT	C5	DIS3Y MIN							
			0.0000	-159.05	-14.73	-50.56	-3.14	-132.67	-30.78
			1.9500	-152.84	-14.73	-50.56	-3.14	-34.07	-2.07
			3.9000	-146.64	-14.73	-50.56	-3.14	-66.17	-39.18
CBT	C6	DIS2X MAX							
			0.0000	-134.62	40.08	30.60	1.41	55.07	83.79
			1.9500	-126.35	40.08	30.60	1.41	-4.58	5.63
			3.9000	-118.08	40.08	30.60	1.41	-11.21	35.28
CBT	C6	DIS2X MIN							
			0.0000	-178.26	-23.95	-6.95	-1.41	-38.34	-58.13
			1.9500	-169.99	-23.95	-6.95	-1.41	-24.81	-11.43
			3.9000	-161.72	-23.95	-6.95	-1.41	-64.30	-72.53
CBT	C6	DIS2Y MAX							
			0.0000	-129.35	21.97	69.76	3.13	151.74	43.16
			1.9500	-121.08	21.97	69.76	3.13	15.72	0.40
			3.9000	-112.81	21.97	69.76	3.13	44.82	5.29
CBT	C6	DIS2Y MIN	0.0000	-183.54	-5.84	-46.11	-3.14	-135.02	-17.51
			1.9500	-175.27	-5.84	-46.11	-3.14	-45.12	-6.20
			3.9000	-167.00	-5.84	-46.11	-3.14	-120.33	-42.55
CBT	C6	DIS3X MAX							
			0.0000	-83.92	37.32	26.40	1.41	51.92	79.24
			1.9500	-77.72	37.32	26.40	1.41	0.47	6.48
			3.9000	-71.52	37.32	26.40	1.41	2.04	41.51
CBT	C6	DIS3X MIN							
			0.0000	-127.57	-26.71	-11.16	-1.41	-41.49	-62.67
			1.9500	-121.36	-26.71	-11.16	-1.41	-19.76	-10.58
			3.9000	-115.16	-26.71	-11.16	-1.41	-51.06	-66.30
CBT	C6	DIS3Y MAX							
			0.0000	-78.65	19.21	65.56	3.13	148.59	38.62
			1.9500	-72.45	19.21	65.56	3.13	20.77	1.24
			3.9000	-66.25	19.21	65.56	3.13	58.07	11.52
CBT	C6	DIS3Y MIN							
			0.0000	-132.84	-8.60	-50.31	-3.14	-138.16	-22.05
			1.9500	-126.64	-8.60	-50.31	-3.14	-40.06	-5.35
			3.9000	-120.43	-8.60	-50.31	-3.14	-107.08	-36.31

Concrete Column Design - P-M-M Interaction & Shear Design

Story Level	Column Line	Section Name	Column End	PMM Ratio or Rebar %	Flexural Rebar Area	Shear22 Retiar Area	Shear33 Rebar Area
CBT	C1	C30X50C	Top	0.809	34.06	0.00	0.00
CBT	C1	C30X50C	Bottom	0.848	34.06	0.00	0.00
CBT	C2	C30X50C	Top	0.700	34.06	0.00	0.00
CBT	C2	C30X50C	Bottom	0.714	34.06	0.00	0.00
CBT	C3	C30X50C	Top	0.627	34.06	0.00	0.00
CBT	C3	C30X50C	Bottom	0.763	34.06	0.00	0.00
CBT	C4	C30X50C	Top	0.767	34.06	0.00	0.00
CBT	C4	C30X50C	Bottom	0.781	34.06	0.00	0.00
CBT	C5	C30X50B	Top	0.889	20.00	0.00	0.00
CBT	C5	C30X50B	Bottom	0.959	20.00	0.00	0.00
CBT	C6	C30X50B	Top	0.792	20.00	0.00	0.00
CBT	C6	C30X50B	Bottom	0.960	20.00	0.00	0.00

8.1.7. Análisis Sísmico

8.1.8. Zona alta

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S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
PP	DEAD	N/A	1.0000		
DL	DEAD	N/A	0.0000		
LR	LIVE	N/A	0.0000		
G	SNOW	N/A	0.0000		

R E S P O N S E S P E C T R U M C A S E S

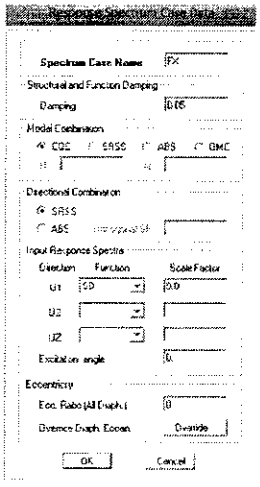
RESP SPEC CASE : FX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SD	9.8000
U2	----	N/A
UZ	----	N/A



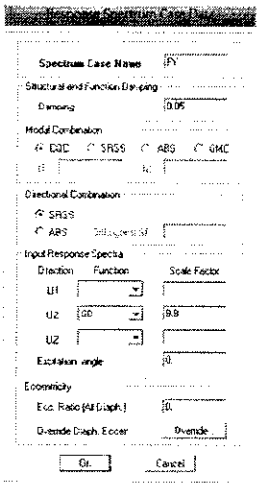
RESP SPEC CASE: FY

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	SD	9.8000
UZ	----	N/A



M A S S S O U R C E D A T A

MASS FROM	LATERAL MASS ONLY	LUMP MASS AT STORIES
Masses & Loayes		Yes

M A S S S O U R C E L O A O S

LOAD	MULTIPLIER
DL	1.0000

D I A P H R A G M M A S S D A T A

STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
CBT	D1	8.751E+01	8.751E+01	5.733E+03	9.74	3.70

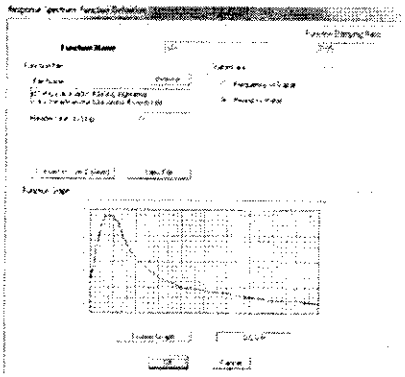
A S S E M B L E D P O I N T M A S S E S

STORY	POINT	UX	UY	UZ	RX	RY	RZ
CBT	All	1.228E+02	1.228E+02	0.000E+00	0.000E+00	0.000E+00	5.733E+03
BASE	All	6.972E+00	6.972E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Totals	All	1.298E+02	1.298E+02	0.000E+00	0.000E+00	0.000E+00	5.733E+03

R E S P O N S E S P E C T R U M F U N C T I O N - F R O M F I L E

FUNCTION NAME: SD

PERIOD	ACCEL
0.0000	0.1000
0.1000	0.1800
0.2000	0.2600
0.3000	0.3000
0.4000	0.3000
0.5000	0.3000
0.6000	0.2800
0.7000	0.2400
0.8000	0.2100
0.9000	0.1900
1.0000	0.1700
1.5000	0.1100
2.0000	0.0800
2.5000	0.0700
3.0000	0.0600
3.5000	0.0500
4.0000	0.0400
4.5000	0.0400
5.0000	0.0300



M O D E S H A P E S

STORY	DIAPHRAGM	MODE	UX	UY	UZ	RX	RY	RZ
CBT	D1	Mode 1	-8.9608E-02	6.3139E-04	0.00000	0.00000	0.00000	-1.0180E-03
CBT	D1	Mode 2	-9.8169E-03	-4.3061E-02	0.00000	0.00000	0.00000	9.9636E-03
CBT	D1	Mode 3	-4.6473E-03	7.9274E-02	0.00000	0.00000	0.00000	5.5359E-03

M O D A L P E R I O D S A N D F R E Q U E N C I E S

MODE NUMBER	PERIOD (TIME)	FREQUENCY (CYCLES/TIME)	CIRCULAR FREQ (RADIANS/TIME)
Mode 1	0.36138	2.76717	17.38663
Mode 2	0.27374	3.65312	22.95320
Mode 3	0.26042	3.83992	24.12691

M O D A L P A R T I C I P A T I O N F A C T O R S

MODE	UX	UY	UZ	RX	RY	RZ
Mode 1	11.0389	-0.0863	0.0000	0.3797	48.5713	8.0997
Mode 2	0.9039	5.3759	0.0000	-23.6538	3.9770	-76.1423
Mode 3	0.4031	-9.6917	0.0000	42.6436	1.7734	-42.0898

M O D A L P A R T I C I P A T I N G M A S S R A T I O S

MODE NUMBER	X-TRANS %MASS <SUM>	Y-TRANS %MASS <SUM>	Z-TRANS %MASS <SUM>	RX-RDTN %MASS <SUM>	RY-RDTN %MASS <SUM>	RZ-RDTN %MASS <SUM>
Mode 1	99.20 < 99>	0.01 < 0>	0.00 < 0>	0.01 < 0>	99.20 < 99>	0.86 < 1>
Mode 2	0.67 <100>	23.53 < 24>	0.00 < 0>	23.53 < 24>	0.67 <100>	75.94 < 77>
Mode 3	0.13 <100>	76.47 <100>	0.00 < 0>	76.47 <100>	0.13 <100>	23.20 <100>

M O D A L L O A D P A R T I C I P A T I O N R A T I O S
(STATIC AND DYNAMIC RATIOS ARE IN PERCENT)

TYPE	LOAD	ACCEL	STORY	LINK	DOF	STATIC	DYNAMIC
Load	PP					0.0000	0.0000
Load	DL					0.0000	0.0000
Load	LR					0.0000	0.0000
Load	G					0.0000	0.0000
Accel		UX				100.0000	100.0000
Accel		UY				100.0000	100.0000
Accel		UZ				0.0000	0.0000

MODAL LOAD PARTICIPATION RATIOS
(STATIC AND DYNAMIC RATIDS ARE IN PERCENT)

TYPE	LOAD	ACCEL	STORY	LINK	DOF	STATIC	DYNAMIC
Accel		RX				100.0000	100.0000
Accel		RY				100.0000	100.0000
Accel		RZ				109.4674	100.0000

RESPONSE SPECTRUM ACCELERATIONS
(IN RESPDNSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	PERIOD	DAMP-RATIO	SPEC-FACTOR	U1	U2	U3
FX	Mode 1	0.361380	0.050000	1.000000	2.940000	0.000000	0.000000
FX	Mode 2	0.273739	0.050000	1.000000	2.837057	0.000000	0.000000
FX	Mode 3	0.260422	0.050000	1.000000	2.784855	0.000000	0.000000
FY	Mode 1	0.361380	0.050000	1.000000	0.000000	2.940000	0.000000
FY	Mode 2	0.273739	0.050000	1.000000	0.000000	2.837057	0.000000
FY	Mode 3	0.260422	0.050000	1.000000	0.000000	2.784855	0.000000

RESPONSE SPECTRUM MODAL AMPLITUDES
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	PERIOD	U1	U2	U3
FX	Mode 1	0.361380	-0.107360	0.000000	0.000000
FX	Mode 2	0.273739	-0.004867	0.000000	0.000000
FX	Mode 3	0.260422	-0.001928	0.000000	0.000000
FY	Mode 1	0.361380	0.000000	0.000839	0.000000
FY	Mode 2	0.273739	0.000000	-0.028949	0.000000
FY	Mode 3	0.260422	0.000000	0.046366	0.000000

RESPONSE SPECTRUM BASE REACTIDNS
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	DIR	F1	F2	F3	M1	M2	M3
FX	Mode 1	U1	358.26	-2.80	0.00	12.32	1576.35	-1200.37
FX	Mode 2	U1	2.32	13.79	0.00	-60.66	10.20	76.71
FX	Mode 3	U1	0.45	-10.88	0.00	47.87	1.99	-118.59
FX	All	All	358.57	8.51	0.00	37.46	1577.71	1203.83
FY	Mode 1	U2	-2.80	0.02	0.00	-0.10	-12.32	9.38
FY	Mode 2	U2	13.79	81.99	0.00	-360.76	60.66	456.27
FY	Mode 3	U2	-10.88	261.58	0.00	-1150.96	-47.87	2851.68
FY	All	All	8.51	330.89	0.00	1455.91	37.46	3229.40

CENTERS OF CUMULATIVE MASS & CENTERS DF RIGIDITY

STORY LEVEL	DIAPHRAGM NAME	/----------CENTER OF MASS----------//--CENTER DF RIGIDITY--/ MASS	ORDINATE-X	ORDINATE-Y	DRDINATE-X	DRDINATE-Y
CBT	D1	8.751E+01	9.74	3.70	10.00	3.99

STDRY FORCES

STORY	LOAD	LOCATION	P	VX	VY	T	MX	MY
CBT	DIS2X Max	Top	1.618E+03	1.568E+02	6.514E+01	8.133E+02	5.556E+03	-1.561E+04
		Bottom	1.782E+03	1.568E+02	6.514E+01	8.133E+02	6.500E+03	-1.656E+04
CBT	DIS2X Min	Top	1.618E+03	-1.568E+02	-6.514E+01	-8.133E+02	5.556E+03	-1.561E+04
		Bottom	1.782E+03	-1.568E+02	-6.514E+01	-8.133E+02	5.926E+03	-1.794E+04
CBT	DIS2Y Max	Top	1.618E+03	4.736E+01	2.168E+02	2.235E+03	5.556E+03	-1.561E+04
		Bottom	1.782E+03	4.736E+01	2.168E+02	2.235E+03	7.167E+03	-1.704E+04
CBT	DIS2Y Min	Top	1.618E+03	-4.736E+01	-2.168E+02	-2.235E+03	5.556E+03	-1.561E+04
		Bottom	1.782E+03	-4.736E+01	-2.168E+02	-2.235E+03	5.259E+03	-1.746E+04
CBT	DIS3X Max	Top	1.045E+03	1.568E+02	6.514E+01	8.133E+02	3.581E+03	-1.009E+04
		Bottom	1.168E+03	1.568E+02	6.514E+01	8.133E+02	4.360E+03	-1.063E+04
CBT	DIS3X Min	Top	1.045E+03	-1.568E+02	-6.514E+01	-8.133E+02	3.581E+03	-1.009E+04
		Bottom	1.168E+03	-1.568E+02	-6.514E+01	-8.133E+02	3.787E+03	-1.201E+04
CBT	DIS3Y Max	Top	1.045E+03	4.736E+01	2.168E+02	2.235E+03	3.581E+03	-1.009E+04
		Bottom	1.168E+03	4.736E+01	2.168E+02	2.235E+03	5.027E+03	-1.111E+04
CBT	DIS3Y Min	Top	1.045E+03	-4.736E+01	-2.168E+02	-2.235E+03	3.581E+03	-1.009E+04
		Bottom	1.168E+03	-4.736E+01	-2.168E+02	-2.235E+03	3.120E+03	-1.153E+04

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P O I N T D I S P L A C E M E N T S

STORY	POINT	LOAD	UX	UY	UZ	RX	RY	RZ
CBT	8	FX	10.0082	1.2374	0.0213	0.0002	0.0013	0.0001
CBT	8	FY	0.4916	5.0475	0.0218	0.0010	0.0001	0.0002
CBT	8	DRV2X Max	10.0691	0.8191	-0.0792	0.0002	0.0015	0.0001
CBT	8	DRV2X Min	-9.9474	-1.6557	-0.1219	-0.0002	-0.0010	-0.0001
CBT	8	DRV2Y Max	0.5524	4.6292	-0.0788	0.0010	0.0003	0.0002
CBT	8	DRV2Y Min	-0.4307	-5.4658	-0.1223	-0.0011	0.0002	-0.0002
CBT	18	FX	9.1886	1.2374	0.0282	0.0003	0.0012	0.0001
CBT	18	FY	0.9173	5.0475	0.0212	0.0010	0.0001	0.0002
CBT	18	DRV2X Max	9.2372	0.8191	-0.0490	0.0006	0.0014	0.0001
CBT	18	DRV2X Min	-9.1400	-1.6557	-0.1055	0.0001	-0.0010	-0.0001
CBT	18	DRV2Y Max	0.9659	4.6292	-0.0560	0.0014	0.0003	0.0002
CBT	18	DRV2Y Min	-0.8687	-5.4658	-0.0984	-0.0007	0.0001	-0.0002
CBT	12	FX	10.0082	1.0791	0.0256	0.0002	0.0012	0.0001
CBT	12	FY	0.4916	5.0192	0.0215	0.0010	0.0000	0.0002
CBT	12	DRV2X Max	10.0691	0.6908	-0.0699	0.0001	0.0010	0.0001
CBT	12	DRV2X Min	-9.9474	-1.4673	-0.1211	-0.0002	-0.0013	-0.0001
CBT	12	DRV2Y Max	0.5524	4.6309	-0.0739	0.0010	-0.0001	0.0002
CBT	12	DRV2Y Min	-0.4307	-5.4074	-0.1170	-0.0011	-0.0002	-0.0002
CBT	22	FX	9.1886	1.0791	0.0315	0.0002	0.0011	0.0001
CBT	22	FY	0.9173	5.0192	0.0213	0.0010	0.0001	0.0002
CBT	22	DRV2X Max	9.2372	0.6908	-0.0429	0.0006	0.0010	0.0001
CBT	22	DRV2X Min	-9.1400	-1.4673	-0.1060	0.0001	-0.0012	-0.0001
CBT	22	DRV2Y Max	0.9659	4.6309	-0.0531	0.0013	0.0000	0.0002
CBT	22	DRV2Y Min	-0.8687	-5.4074	-0.0957	-0.0007	-0.0002	-0.0002
BASE	8	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	Nivel	hz. Piso m	Deriva Max mm	U1 mm	U2 mm	Deriva mm	Verificación con A.6.4 de NSR10
			ANALISIS EN X. Combinacion: DRV2X = 0.6Ldl + Fx				
COL EJE B-1	Point	8					
	CBT	4.40	17.60	10.07	0.82	10.10	Cumple. Ok
	BASE			0.00	0.00		
COL EJE B-6	Point	12					
	CBT	4.40	17.60	10.07	0.69	10.09	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-1	Point	18					
	CBT	4.40	17.60	9.24	0.82	9.27	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-6	Point	22					
	CBT	4.40	17.60	9.24	0.69	9.26	Cumple. Ok
	BASE			0.00	0.00		
			ANALISIS EN Y. Combinacion: DRV2Y = 0.6Ldl + Fy				
COL EJE B-1	Point	8					
	CBT	4.40	17.60	0.55	4.63	4.66	Cumple, Ok
	BASE			0.00	0.00		
COL EJE B-6	Point	12					
	CBT	4.40	17.60	0.55	4.63	4.66	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-1	Point	18					
	CBT	4.40	17.60	0.97	4.63	4.73	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-6	Point	22					
	CBT	4.40	17.60	0.97	4.63	4.73	Cumple, Ok
	BASE			0.00	0.00		

8.1.9. Zona Intermedia

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S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
PP	DEAD	N/A	1.0000		
DL	DEAD	N/A	0.0000		
LR	LIVE	N/A	0.0000		
G	SNOW	N/A	0.0000		

R E S P O N S E S P E C T R U M C A S E S

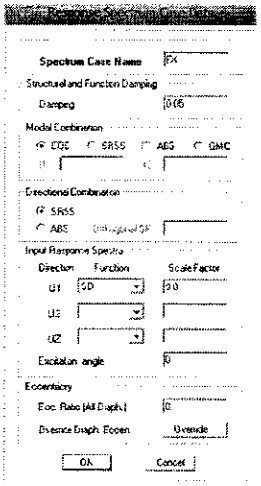
RESP SPEC CASE: FX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SD	9.8000
U2	----	N/A
UZ	----	N/A



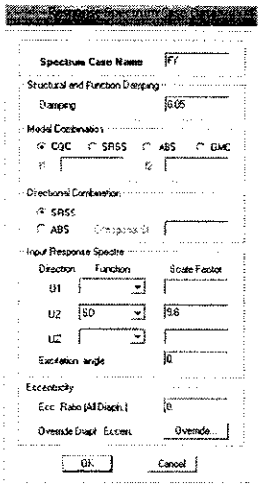
RESP SPEC CASE: FY

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	SD	9.8000
UZ	----	N/A



M A S S S O U R C E D A T A

MASS FROM	LATERAL MASS ONLY	LUMP MASS AT STORIES
Masses & Loa	Yes	Yes

M A S S S O U R C E L O A D S

LOAD	MULTIPLIER
DL	1.0000

D I A P H R A G M M A S S D A T A

STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
CBT	D1	8.702E+01	8.702E+01	5.720E+03	9.74	3.70

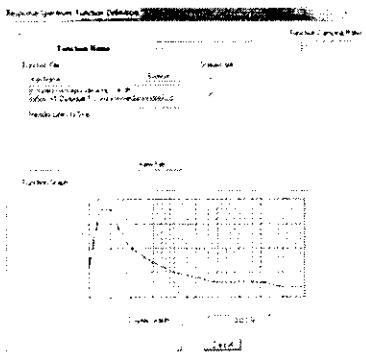
A S S E M B L E D P O I N T M A S S E S

STORY	PDINT	UX	UY	UZ	RX	RY	RZ
CBT	All	1.223E+02	1.223E+02	0.000E+00	0.000E+00	0.000E+00	5.720E+03
BASE	All	6.338E+00	6.338E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Totals	All	1.287E+02	1.287E+02	0.000E+00	0.000E+00	0.000E+00	5.720E+03

RESPONSE SPECTRUM FUNCTION - FROM FILE

FUNCTION NAME: SO

PERIOD	ACCEL
0.0000	0.0600
0.1000	0.1100
0.2000	0.1600
0.3000	0.1800
0.4000	0.1800
0.5000	0.1800
0.6000	0.1700
0.7000	0.1400
0.8000	0.1300
0.9000	0.1100
1.0000	0.1000
1.5000	0.0700
2.0000	0.0500
2.5000	0.0400
3.0000	0.0300
3.5000	0.0300
4.0000	0.0300
4.5000	0.0200
5.0000	0.0200



MODE SHAPES

STORY	DIAPHRAGM	MODE	UX	UY	UZ	RX	RY	RZ
CBT	D1	Mode 1	-8.9874E-02	5.8376E-04	0.00000	0.00000	0.00000	-9.2508E-04
CBT	D1	Mode 2	-4.3168E-03	-8.3788E-02	0.00000	0.00000	0.00000	4.1854E-03
CBT	D1	Mode 3	9.1806E-03	-3.3930E-02	0.00000	0.00000	0.00000	-1.0621E-02

MODAL PERIODS AND FREQUENCIES

MODE NUMBER	PERIOD (TIME)	FREQUENCY (CYCLES/TIME)	CIRCULAR FREQ (RADIANS/TIME)
Mode 1	0.37666	2.65492	16.68135
Mode 2	0.28930	3.45658	21.71830
Mode 3	0.27435	3.64502	22.90234

MODAL PARTICIPATION FACTORS

MODE	UX	UY	UZ	RX	RY	RZ
Mode 1	11.0247	-0.0793	0.0000	0.3489	48.5085	7.3524
Mode 2	0.4016	10.2882	0.0000	-45.2679	1.7669	-32.0494
Mode 3	-0.8020	4.0614	0.0000	-17.8701	-3.5287	80.8769

MODAL PARTICIPATING MASS RATIOS

MODE NUMBER	X-TRANS %MASS <SUM>	Y-TRANS %MASS <SUM>	Z-TRANS %MASS <SUM>	RX-ROTN %MASS <SUM>	RY-ROTN %MASS <SUM>	RZ-ROTN %MASS <SUM>
Mode 1	99.34 < 99>	0.01 < 0>	0.00 < 0>	0.01 < 0>	99.34 < 99>	0.71 < 1>
Mode 2	0.13 < 99>	86.51 < 87>	0.00 < 0>	86.51 < 87>	0.13 < 99>	13.48 < 14>
Mode 3	0.53 <100>	13.48 <100>	0.00 < 0>	13.48 <100>	0.53 <100>	85.81 <100>

MODAL LOAD PARTICIPATION RATIOS
(STATIC AND DYNAMIC RATIOS ARE IN PERCENT)

TYPE	LOAD	ACCEL	STORY	LINK	DOF	STATIC	DYNAMIC
Load	PP					0.0000	0.0000
Load	OL					0.0000	0.0000
Load	LR					0.0000	0.0000
Load	G					0.0000	0.0000
Accel		UX				100.0000	100.0000
Accel		UY				100.0000	100.0000
Accel		UZ				0.0000	0.0000
Accel		RX				100.0000	100.0000
Accel		RY				100.0000	100.0000
Accel		RZ				108.9011	100.0000

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RESPONSE SPECTRUM ACCELERATIONS
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	PERIOD	DAMP-RATIO	SPEC-FACTOR	U1	U2	U3
FX	Mode 1	0.376659	0.050000	1.000000	1.764000	0.000000	0.000000
FX	Mode 2	0.289304	0.050000	1.000000	1.743035	0.000000	0.000000
FX	Mode 3	0.274347	0.050000	1.000000	1.713720	0.000000	0.000000
FY	Mode 1	0.376659	0.050000	1.000000	0.000000	1.764000	0.000000
FY	Mode 2	0.289304	0.050000	1.000000	0.000000	1.743035	0.000000
FY	Mode 3	0.274347	0.050000	1.000000	0.000000	1.713720	0.000000

RESPONSE SPECTRUM MODAL AMPLITUDES
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	PERIOD	U1	U2	U3
FX	Mode 1	0.376659	-0.069888	0.000000	0.000000
FX	Mode 2	0.289304	-0.001484	0.000000	0.000000
FX	Mode 3	0.274347	0.002620	0.000000	0.000000
FY	Mode 1	0.376659	0.000000	0.000503	0.000000
FY	Mode 2	0.289304	0.000000	-0.038018	0.000000
FY	Mode 3	0.274347	0.000000	-0.013270	0.000000

RESPONSE SPECTRUM BASE REACTIONS
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	DIR	F1	F2	F3	M1	M2	M3
FX	Mode 1	U1	214.40	-1.54	0.00	6.79	943.37	-719.95
FX	Mode 2	U1	0.28	7.20	0.00	-31.68	1.24	63.09
FX	Mode 3	U1	1.10	-5.58	0.00	24.56	4.85	-85.55
FX	All	All	214.54	4.63	0.00	20.39	943.97	721.72
FY	Mode 1	U2	-1.54	0.01	0.00	-0.05	-6.79	5.18
FY	Mode 2	U2	7.20	184.49	0.00	-811.77	31.68	1616.34
FY	Mode 3	U2	-5.58	28.27	0.00	-124.38	-24.56	433.22
FY	All	All	4.63	207.30	0.00	912.10	20.39	1973.54

CENTERS OF CUMULATIVE MASS & CENTERS OF RIGIDITY

STORY LEVEL	DIAPHRAGM NAME	MASS	CENTER OF MASS ORDINATE-X	CENTER OF MASS ORDINATE-Y	CENTER OF RIGIDITY ORDINATE-X	CENTER OF RIGIDITY ORDINATE-Y
CBT	D1	8.702E+01	9.74	3.70	9.97	3.99

STORY FORCES

STORY	LOAD	LOCATION	P	VX	VY	T	MX	MY
CBT	DIS2X Max	Top	1.618E+03	8.105E+01	3.396E+01	3.996E+02	5.556E+03	-1.561E+04
		Bottom	1.767E+03	8.105E+01	3.396E+01	3.996E+02	6.303E+03	-1.674E+04
CBT	DIS2X Min	Top	1.618E+03	-8.105E+01	-3.396E+01	-3.996E+02	5.556E+03	-1.561E+04
		Bottom	1.767E+03	-8.105E+01	-3.396E+01	-3.996E+02	6.004E+03	-1.746E+04
CBT	DIS2Y Max	Top	1.618E+03	2.445E+01	1.130E+02	1.061E+03	5.556E+03	-1.561E+04
		Bottom	1.767E+03	2.445E+01	1.130E+02	1.061E+03	6.651E+03	-1.699E+04
CBT	DIS2Y Min	Top	1.618E+03	-2.445E+01	-1.130E+02	-1.061E+03	5.556E+03	-1.561E+04
		Bottom	1.767E+03	-2.445E+01	-1.130E+02	-1.061E+03	5.656E+03	-1.721E+04
CBT	DIS3X Max	Top	1.045E+03	8.105E+01	3.396E+01	3.996E+02	3.581E+03	-1.009E+04
		Bottom	1.157E+03	8.105E+01	3.396E+01	3.996E+02	4.178E+03	-1.085E+04
CBT	DIS3X Min	Top	1.045E+03	-8.105E+01	-3.396E+01	-3.996E+02	3.581E+03	-1.009E+04
		Bottom	1.157E+03	-8.105E+01	-3.396E+01	-3.996E+02	3.879E+03	-1.156E+04
CBT	DIS3Y Max	Top	1.045E+03	2.445E+01	1.130E+02	1.061E+03	3.581E+03	-1.009E+04
		Bottom	1.157E+03	2.445E+01	1.130E+02	1.061E+03	4.526E+03	-1.110E+04
CBT	DIS3Y Min	Top	1.045E+03	-2.445E+01	-1.130E+02	-1.061E+03	3.581E+03	-1.009E+04
		Bottom	1.157E+03	-2.445E+01	-1.130E+02	-1.061E+03	3.531E+03	-1.132E+04

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P O I N T D I S P L A C E M E N T S

STORY	POINT	LOAD	UX	UY	UZ	RX	RY	RZ
CBT	8	FX	6.5116	0.7190	0.0134	0.0001	0.0008	0.0001
CBT	8	FY	0.2809	4.0578	0.0172	0.0008	0.0000	0.0001
CBT	8	DRV2X Max	6.5764	0.2670	-0.0873	0.0001	0.0011	0.0001
CBT	8	DRV2X Min	-6.4468	-1.1710	-0.1140	-0.0002	-0.0006	-0.0001
CBT	8	DRV2Y Max	0.3457	3.6058	-0.0834	0.0008	0.0003	0.0001
CBT	8	DRV2Y Min	-0.2161	-4.5098	-0.1179	-0.0008	0.0002	-0.0001
CBT	18	FX	6.0221	0.7190	0.0175	0.0002	0.0008	0.0001
CBT	18	FY	0.5341	4.0578	0.0168	0.0008	0.0001	0.0001
CBT	18	DRV2X Max	6.0755	0.2670	-0.0595	0.0005	0.0010	0.0001
CBT	18	DRV2X Min	-5.9687	-1.1710	-0.0945	0.0002	-0.0006	-0.0001
CBT	18	DRV2Y Max	0.5875	3.6058	-0.0602	0.0012	0.0003	0.0001
CBT	18	DRV2Y Min	-0.4807	-4.5098	-0.0938	-0.0005	0.0002	-0.0001
CBT	12	FX	6.5116	0.6536	0.0160	0.0001	0.0008	0.0001
CBT	12	FY	0.2809	3.2609	0.0143	0.0007	0.0000	0.0001
CBT	12	DRV2X Max	6.5764	0.2295	-0.0797	0.0001	0.0007	0.0001
CBT	12	DRV2X Min	-6.4468	-1.0777	-0.1117	-0.0001	-0.0009	-0.0001
CBT	12	DRV2Y Max	0.3457	2.8368	-0.0814	0.0006	-0.0001	0.0001
CBT	12	DRV2Y Min	-0.2161	-3.6850	-0.1100	-0.0007	-0.0002	-0.0001
CBT	22	FX	6.0221	0.6536	0.0196	0.0001	0.0008	0.0001
CBT	22	FY	0.5341	3.2609	0.0145	0.0007	0.0001	0.0001
CBT	22	DRV2X Max	6.0755	0.2295	-0.0546	0.0005	0.0006	0.0001
CBT	22	DRV2X Min	-5.9687	-1.0777	-0.0938	0.0002	-0.0009	-0.0001
CBT	22	DRV2Y Max	0.5875	2.8368	-0.0597	0.0010	-0.0001	0.0001
CBT	22	DRV2Y Min	-0.4807	-3.6850	-0.0887	-0.0003	-0.0002	-0.0001
BASE	8	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	Nivel	hx. Piso m	Deriva Max mm	U1 mm	U2 mm	Deriva mm	Verificación con A.6.4 de NSR10
			ANALISIS EN X. Combinacion: DRV2X = 0.6Ldl + Fx				
COL EJE B-1	Point	8					
	CBT	4.40	17.60	6.58	0.27	6.58	Cumple, Ok
	BASE			0.00	0.00		
COL EJE B-6	Point	12					
	CBT	4.40	17.60	6.58	0.23	6.58	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-1	Point	18					
	CBT	4.40	17.60	6.08	0.27	6.08	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-6	Point	22					
	CBT	4.40	17.60	6.08	0.23	6.08	Cumple, Ok
	BASE			0.00	0.00		
			ANALISIS EN Y. Combinacion: DRV2Y = 0.6Ldl + Fy				
COL EJE B-1	Point	8					
	CBT	4.40	17.60	0.35	3.61	3.62	Cumple, Ok
	BASE			0.00	0.00		
COL EJE B-6	Point	12					
	CBT	4.40	17.60	0.35	2.84	2.86	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-1	Point	18					
	CBT	4.40	17.60	0.59	3.61	3.65	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-6	Point	22					
	CBT	4.40	17.60	0.59	2.84	2.90	Cumple, Ok
	BASE			0.00	0.00		

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8.1.10. Zona Baja

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S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
PP	DEAD	N/A	1.0000		
DL	DEAD	N/A	0.0000		
LR	LIVE	N/A	0.0000		
G	SNOW	N/A	0.0000		

R E S P O N S E S P E C T R U M C A S E S

RESP SPEC CASE: FX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	SD	9.3100
U2	----	N/A
UZ	----	N/A

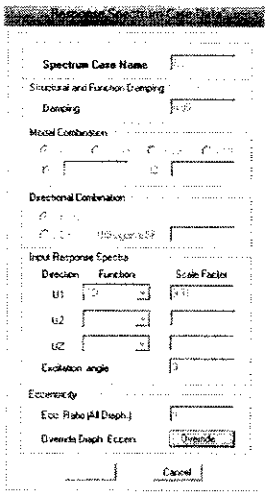
RESP SPEC CASE: FY

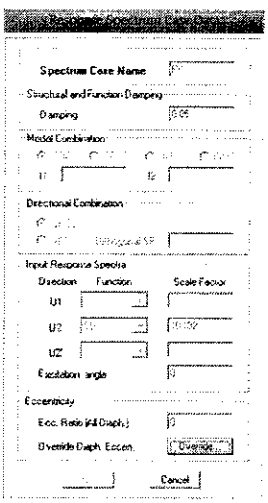
BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0000

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	SD	10.192
UZ	----	N/A





M A S S S O U R C E D A T A

MASS FROM	LATERAL MASS ONLY	LUMP MASS AT STORIES
Masses & LoaYes		Yes

M A S S S O U R C E L O A D S

LOAD	MULTIPLIER
DL	1.0000

D I A P H R A G M M A S S D A T A

STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
CBT	D1	8.702E+01	8.702E+01	5.720E+03	9.74	3.70

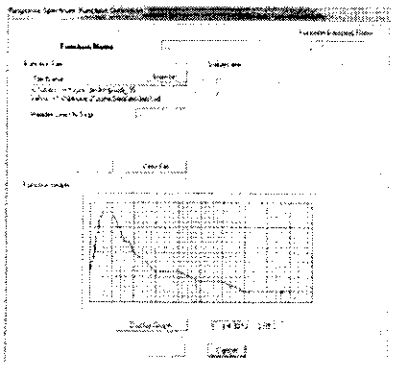
A S S E M B L E D P O I N T M A S S E S

STORY	POINT	UX	UY	UZ	RX	RY	RZ
CBT	All	1.223E+02	1.223E+02	0.000E+00	0.000E+00	0.000E+00	5.720E+03
BASE	All	6.338E+00	6.338E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Totals	All	1.287E+02	1.287E+02	0.000E+00	0.000E+00	0.000E+00	5.720E+03

RESPONSE SPECTRUM FUNCTION - FROM FILE

FUNCTION NAME: SD

PERIOD	ACCEL
0.0000	0.0300
0.1000	0.0500
0.2000	0.0800
0.3000	0.0900
0.4000	0.0900
0.5000	0.0900
0.6000	0.0800
0.7000	0.0700
0.8000	0.0600
0.9000	0.0600
1.0000	0.0500
1.5000	0.0300
2.0000	0.0300
2.5000	0.0200
3.0000	0.0200
3.5000	0.0100
4.0000	0.0100
4.5000	0.0100
5.0000	0.0100



MODE SHAPES

STORY	DIAPHRAGM	MODE	UX	UY	UZ	RX	RY	RZ
CBT	D1	Mode 1	-8.9874E-02	5.8376E-04	0.00000	0.00000	0.00000	-9.2508E-04
CBT	D1	Mode 2	-4.3168E-03	-8.3788E-02	0.00000	0.00000	0.00000	4.1854E-03
CBT	D1	Mode 3	9.1806E-03	-3.3930E-02	0.00000	0.00000	0.00000	-1.0621E-02

MODAL PERIODS AND FREQUENCIES

MODE NUMBER	PERIOD (TIME)	FREQUENCY (CYCLES/TIME)	CIRCULAR FREQ (RADIANS/TIME)
Mode 1	0.37666	2.65492	16.68135
Mode 2	0.28930	3.45658	21.71830
Mode 3	0.27435	3.64502	22.90234

MODAL PARTICIPATION FACTORS

MODE	UX	UY	UZ	RX	RY	RZ
Mode 1	11.0247	-0.0793	0.0000	0.3489	48.5085	7.3524
Mode 2	0.4016	10.2882	0.0000	-45.2679	1.7669	-32.0494
Mode 3	-0.8020	4.0614	0.0000	-17.8701	-3.5287	80.8769

MODAL PARTICIPATING MASS RATIOS

MODE NUMBER	X-TRANS %MASS <SUM>	Y-TRANS %MASS <SUM>	Z-TRANS %MASS <SUM>	RX-ROTN %MASS <SUM>	RY-ROTN %MASS <SUM>	RZ-ROTN %MASS <SUM>
Mode 1	99.34 < 99>	0.01 < 0>	0.00 < 0>	0.01 < 0>	99.34 < 99>	0.71 < 1>
Mode 2	0.13 < 99>	86.51 < 87>	0.00 < 0>	86.51 < 87>	0.13 < 99>	13.48 < 14>
Mode 3	0.53 <100>	13.48 <100>	0.00 < 0>	13.48 <100>	0.53 <100>	85.81 <100>

MODAL LOAD PARTICIPATION RATIOS
(STATIC AND DYNAMIC RATIOS ARE IN PERCENT)

TYPE	LOAD	ACCEL	STORY	LINK	DOF	STATIC	DYNAMIC
Load	PP					0.0000	0.0000
Load	DL					0.0000	0.0000
Load	LR					0.0000	0.0000
Load	G					0.0000	0.0000
Accel		UX				100.0000	100.0000
Accel		UY				100.0000	100.0000
Accel		UZ				0.0000	0.0000
Accel		RX				100.0000	100.0000
Accel		RY				100.0000	100.0000
Accel		RZ				108.9011	100.0000

RESPONSE SPECTRUM ACCELERATIONS
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	PERIOD	DAMP-RATIO	SPEC-FACTOR	U1	U2	U3
FX	Mode 1	0.376659	0.050000	1.000000	0.882000	0.000000	0.000000
FX	Mode 2	0.289304	0.050000	1.000000	0.871518	0.000000	0.000000
FX	Mode 3	0.274347	0.050000	1.000000	0.856860	0.000000	0.000000
FY	Mode 1	0.376659	0.050000	1.000000	0.000000	0.882000	0.000000
FY	Mode 2	0.289304	0.050000	1.000000	0.000000	0.871518	0.000000
FY	Mode 3	0.274347	0.050000	1.000000	0.000000	0.856860	0.000000

RESPONSE SPECTRUM MODAL AMPLITUDES
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	PERIOD	U1	U2	U3
FX	Mode 1	0.376659	-0.034944	0.000000	0.000000
FX	Mode 2	0.289304	-0.000742	0.000000	0.000000
FX	Mode 3	0.274347	0.001310	0.000000	0.000000
FY	Mode 1	0.376659	0.000000	0.000251	0.000000
FY	Mode 2	0.289304	0.000000	-0.019009	0.000000
FY	Mode 3	0.274347	0.000000	-0.006635	0.000000

RESPONSE SPECTRUM BASE REACTIONS
(IN RESPONSE SPECTRUM LOCAL COORDINATES)

SPEC	MODE	DIR	F1	F2	F3	M1	M2	M3
FX	Mode 1	U1	107.20	-0.77	0.00	3.39	471.68	-359.97
FX	Mode 2	U1	0.14	3.60	0.00	-15.84	0.62	31.54
FX	Mode 3	U1	0.55	-2.79	0.00	12.28	2.42	-42.77
FX	All	All	107.27	2.32	0.00	10.20	471.98	360.86
FY	Mode 1	U2	-0.77	0.01	0.00	-0.02	-3.39	2.59
FY	Mode 2	U2	3.60	92.25	0.00	-405.89	15.84	808.17
FY	Mode 3	U2	-2.79	14.13	0.00	-62.19	-12.28	216.61
FY	All	All	2.32	103.65	0.00	456.05	10.20	986.77

CENTERS OF CUMULATIVE MASS & CENTERS OF RIGIDITY

STORY LEVEL	DIAPHRAGM NAME	MASS	CENTER OF MASS ORDINATE-X	CENTER OF MASS ORDINATE-Y	CENTER OF RIGIDITY ORDINATE-X	CENTER OF RIGIDITY ORDINATE-Y
CBT	D1	8.702E+01	9.74	3.70	9.97	3.99

STORY FORCES

STORY	LOAD	LOCATION	P	VX	VY	T	MX	MY
CBT	DIS2X Max	Top	1.618E+03	1.114E+02	4.631E+01	5.465E+02	5.556E+03	-1.561E+04
		Bottom	1.767E+03	1.114E+02	4.631E+01	5.465E+02	6.357E+03	-1.661E+04
CBT	DIS2X Min	Top	1.618E+03	-1.114E+02	-4.631E+01	-5.465E+02	5.556E+03	-1.561E+04
		Bottom	1.767E+03	-1.114E+02	-4.631E+01	-5.465E+02	5.950E+03	-1.759E+04
CBT	DIS2Y Max	Top	1.618E+03	3.361E+01	1.541E+02	1.447E+03	5.556E+03	-1.561E+04
		Bottom	1.767E+03	3.361E+01	1.541E+02	1.447E+03	6.831E+03	-1.695E+04
CBT	DIS2Y Min	Top	1.618E+03	-3.361E+01	-1.541E+02	-1.447E+03	5.556E+03	-1.561E+04
		Bottom	1.767E+03	-3.361E+01	-1.541E+02	-1.447E+03	5.475E+03	-1.725E+04
CBT	DIS3X Max	Top	1.045E+03	1.114E+02	4.631E+01	5.465E+02	3.581E+03	-1.009E+04
		Bottom	1.157E+03	1.114E+02	4.631E+01	5.465E+02	4.232E+03	-1.072E+04
CBT	DIS3X Min	Top	1.045E+03	-1.114E+02	-4.631E+01	-5.465E+02	3.581E+03	-1.009E+04
		Bottom	1.157E+03	-1.114E+02	-4.631E+01	-5.465E+02	3.825E+03	-1.170E+04
CBT	DIS3Y Max	Top	1.045E+03	3.361E+01	1.541E+02	1.447E+03	3.581E+03	-1.009E+04
		Bottom	1.157E+03	3.361E+01	1.541E+02	1.447E+03	4.707E+03	-1.106E+04
CBT	DIS3Y Min	Top	1.045E+03	-3.361E+01	-1.541E+02	-1.447E+03	3.581E+03	-1.009E+04
		Bottom	1.157E+03	-3.361E+01	-1.541E+02	-1.447E+03	3.350E+03	-1.136E+04

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P O I N T D I S P L A C E M E N T S

STORY	POINT	LOAD	UX	UY	UZ	RX	RY	RZ
CBT	8	FX	3.2558	0.3595	0.0067	0.0001	0.0004	0.0000
CBT	8	FY	0.1404	2.0289	0.0086	0.0004	0.0000	0.0001
CBT	8	DRV2X Max	3.3206	-0.0925	-0.0940	0.0000	0.0007	0.0000
CBT	8	DRV2X Min	-3.1910	-0.8115	-0.1074	-0.0001	-0.0002	0.0000
CBT	8	DRV2Y Max	0.2052	1.5769	-0.0921	0.0004	0.0003	0.0001
CBT	8	DRV2Y Min	-0.0756	-2.4809	-0.1093	-0.0004	0.0002	0.0000
CBT	18	FX	3.0110	0.3595	0.0088	0.0001	0.0004	0.0000
CBT	18	FY	0.2670	2.0289	0.0084	0.0004	0.0000	0.0001
CBT	18	DRV2X Max	3.0645	-0.0925	-0.0682	0.0004	0.0006	0.0000
CBT	18	DRV2X Min	-2.9576	-0.8115	-0.0858	0.0003	-0.0002	0.0000
CBT	18	DRV2Y Max	0.3205	1.5769	-0.0686	0.0008	0.0002	0.0001
CBT	18	DRV2Y Min	-0.2136	-2.4809	-0.0854	-0.0001	0.0002	0.0000
CBT	12	FX	3.2558	0.3268	0.0080	0.0001	0.0004	0.0000
CBT	12	FY	0.1404	1.6305	0.0071	0.0003	0.0000	0.0001
CBT	12	DRV2X Max	3.3206	-0.0973	-0.0877	0.0000	0.0003	0.0000
CBT	12	DRV2X Min	-3.1910	-0.7509	-0.1037	-0.0001	-0.0005	0.0000
CBT	12	DRV2Y Max	0.2052	1.2063	-0.0886	0.0003	-0.0001	0.0001
CBT	12	DRV2Y Min	-0.0756	-2.0546	-0.1029	-0.0004	-0.0002	0.0000
CBT	22	FX	3.0110	0.3268	0.0098	0.0001	0.0004	0.0000
CBT	22	FY	0.2670	1.6305	0.0073	0.0003	0.0000	0.0001
CBT	22	DRV2X Max	3.0645	-0.0973	-0.0644	0.0004	0.0002	0.0000
CBT	22	DRV2X Min	-2.9576	-0.7509	-0.0840	0.0003	-0.0005	0.0000
CBT	22	DRV2Y Max	0.3205	1.2063	-0.0670	0.0007	-0.0001	0.0001
CBT	22	DRV2Y Min	-0.2136	-2.0546	-0.0815	0.0000	-0.0002	0.0000
BASE	8	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	8	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	18	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	12	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	FX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	FY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2X Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2X Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2Y Max	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BASE	22	DRV2Y Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	Nivel	hx. Piso m	Deriva Max mm	U1 mm	U2 mm	Deriva mm	Verificación con A.6.4 de NSR10
			ANALISIS EN X. Combinacion: DRV2X = 0.6Ldt + Fx				
COL EJE B-1	Point	8					
	CBT	4.40	17.60	3.32	-0.09	3.32	Cumple, Ok
	BASE			0.00	0.00		
COL EJE B-6	Point	12					
	CBT	4.40	17.60	3.32	-0.10	3.32	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-1	Point	18					
	CBT	4.40	17.60	3.06	-0.09	3.07	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-6	Point	22					
	CBT	4.40	17.60	3.06	-0.10	3.07	Cumple, Ok
	BASE			0.00	0.00		
			ANALISIS EN Y. Combinacion: DRV2Y = 0.6Ldt + Fy				
COL EJE B-1	Point	5					
	CBT	4.40	17.60	0.31	1.58	1.59	Cumple, Ok
	BASE			0.00	0.00		
COL EJE B-6	Point	12					
	CBT	4.40	17.60	0.21	1.21	1.22	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-1	Point	18					
	CBT	4.40	17.60	0.32	1.58	1.61	Cumple, Ok
	BASE			0.00	0.00		
COL EJE A-6	Point	22					
	CBT	4.40	17.60	0.32	1.21	1.25	Cumple, Ok
	BASE			0.00	0.00		

9. ANALISIS y DISEÑO CIMENTACION

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Table: Advanced Modeling Options

2DOnly	RigDiaTop	NoOffsets
No	No	Yes

Table: Automatic Slab Mesh Options

MeshOpt	Localize	Merge	MaxSize mm
Rectangular	Yes	Yes	500.00

Table: Beam Properties 01 - General

Beam	Type	Color
S35x45	Rectangular	Cyan

Table: Beam Properties 01 - General

Beam	Type	Color
SC30x40	Rectangular	12615680

Table: Beam Properties 02 - Rectangular Beam

Beam	MatProp	Depth mm	WidthTop mm	WidthBot mm
S35x45	f'c 24.5Mpa	450.00	350.00	350.00

Table: Beam Properties 02 - Rectangular Beam

Beam	MatProp	Depth mm	WidthTop mm	WidthBot mm
SC30x40	f'c 24.5 Mpa	400.00	300.00	300.00

Table: Beam Properties 06 - Design Data

Beam	MatRebarL	MatRebarS	FlngWOpt	CoverTop mm	CoverBot mm	NoDesign
S35x45	CSA-G30.18Gr400	CSA-G30.18Gr400	Analysis Property	50.00	50.00	No

Table: Beam Properties 06 - Design Data

Beam	MatRebarL	MatRebarS	FlngWOpt	CoverTop mm	CoverBot mm	NoDesign
SC30x40	CSA-G30.18Gr400	CSA-G30.18Gr400	Analysis Property	50.00	50.00	No

Table: Coordinate Systems

CoordSys	Type	OriginGx m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Cracking Analysis Reinforcement

ReinfOpt	MinReinfT	MinReinfC	UserModRup
FE Design	0.001800	0.000000	No

Table: Design Preferences 01 - Resistance Factors

PhiTen	PhiComp	PhiShear
0.900000	0.650000	0.750000

Table: Design Preferences 02 - Rebar Cover - Slabs

CoverTop mm	CoverBot mm	BarSize	InnerLayer	PTCGSTop mm	PTCGSBotExt mm	PTCGSBotInt mm	SlabType
50.00	50.00	#4	B	25.00	40.00	25.00	Two Way

Table: Design Preferences 03 - Rebar Cover - Beams

CoverTop mm	CoverBot mm	BarSizeF	BarSizeS	PTCGSTop mm	PTCGSBot mm
50.00	50.00	#5	#3	50.00	50.00

Table: Load Cases 01 - General

LoadCase	Type	DesignOpt	DesignType
PP	LinStatic	Auto	DEAD
DL	LinStatic	Auto	DEAD
LR	LinStatic	Auto	LIVE
G	LinStatic	Auto	SNOW
Ex	LinStatic	Auto	QUAKE
Ey	LinStatic	Auto	QUAKE

Table: Load Cases 02 - Static

LoadCase	InitialCond	AType
PP	Zero	Linear
DL	Zero	Linear
LR	Zero	Linear
G	Zero	Linear
Ex	Zero	Linear
Ey	Zero	Linear

Table: Load Cases 06 - Loads Applied

LoadCase	LoadPat	SF
PP	PP	1.000000
DL	DL	1.000000
LR	LR	1.000000
G	G	1.000000
Ex	Ex	1.000000
Ey	Ey	1.000000

Table: Load Patterns

LoadPat	Type	SelfWtMult
PP	DEAD	1.000000
DL	DEAD	0.000000
LR	LIVE	0.000000
G	SNOW	0.000000
Ex	QUAKE	0.000000
Ey	QUAKE	0.000000

Table: Load Combinations, Part 1 of 2

Combo	Load	SF	Type	DSStrength	DSServInit	DSServNorm	DSServLong	AutoDesign
D	PP	1.000000	Linear Add	No	No	No	No	NO
D	DL	1.000000						
srv1a	D	1.000000	Linear Add	No	No	No	No	No
srv1a	LR	1.000000						
srv1b	D	1.000000	Linear Add	No	No	No	No	No
srv1b	G	1.000000						
srv2x	D	1.000000	Linear Add	No	No	No	No	No
srv2x	Ex	0.700000						
srv2y	D	1.000000	Linear Add	ND	No	No	No	NO
srv2y	Ey	0.700000						
srv3Xa	Ex	0.525000						
srv3Xa	LR	0.750000						
srv3Xb	D	1.000000	Linear Add	No	No	No	No	No
srv3Xb	Ex	0.525000						
srv3Xb	G	0.750000						
srv4Ya	D	1.000000	Linear Add	No	No	No	No	No
srv4Ya	Ey	0.525000						
srv4Ya	LR	0.750000						
srv4Yb	D	1.000000	Linear Add	No	No	No	No	No
srv4Yb	Ey	0.525000						
srv4Yb	G	0.750000						
srv5X	D	0.600000	Linear Add	No	No	No	No	No
srv5X	Ex	0.700000						
srv5Y	D	0.600000	Linear Add	No	No	No	No	No
srv5Y	Ey	0.700000						
Envol.-SRv	srv1a	1.000000	Envelope	No	No	Yes	No	No
Envol.-SRv	srv1b	1.000000						
Envol.-SRv	srv2x	1.000000						
Envol.-SRv	srv2y	1.000000						

Table: Load Combinations, Part 1 of 2

Combo	Load	SF	Type	DSStrength	DSServInit	DSServNorm	DSServLong	AutoDesign
Envol.-SRV	srv3Xa	1.000000						
Envol.-SRV	srv3Xb	1.000000						
Envol.-SRV	srv4Ya	1.000000						
Envol.-SRV	srv4Yb	1.000000						
Envol.-SRV	srv5Y	1.000000						
dis1a	D	1.200000	Linear Add	No	No	No	No	No
dis1a	LR	1.600000						
dis1b	D	1.200000	Linear Add	No	No	No	No	No
dis1b	G	1.600000						
dis2X	D	1.200000	Linear Add	No	No	No	No	No
dis2X	Ex	1.000000						
dis2Y	D	1.200000	Linear Add	No	No	No	No	No
dis2Y	Ey	1.000000						
dis3X	D	0.900000	Linear Add	No	No	No	No	No
dis3X	Ex	1.000000						
dis3Y	D	0.900000	Linear Add	No	No	No	No	No
dis3Y	Ey	1.000000						
Envol.-DIS	dis1a	1.000000	Envelope	Yes	No	No	No	No
Envol.-DIS	dis1b	1.000000						
Envol.-DIS	dis2x	1.000000						
Envol.-DIS	dis2Y	1.000000						
Envol.-DIS	dis3X	1.000000						
Envol.-DIS	dis3Y	1.000000						

Table: Material Properties 03 - Concrete

Material	E N/mm2	U	A 1/C	UnitWt kN/m3	Fc N/mm2	LtWtConc
f'c 24.5Mpa	23263.80	0.200000	9.9000E-06	2.3563E+01	24.50	No

Table: Material Properties 04 - Rebar

Material	E N/mm2	UnitWt kN/m3	Fy N/mm2	Fu N/mm2
CSA-G30.18Gr400	200000.00	7.6973E+01	400.00	500.00

Table: Program Control, Part 2 of 2

StHtBelow m	ConcCode
0.00	ACI 318-08

Table: Reinforcing Bar Sizes

RebarID	Area cm2	Diameter mm
#2	0.32	6.35
#3	0.71	9.53
#4	1.29	12.70
#5	2.00	15.88
#6	2.84	19.05
#7	3.87	22.23
#8	5.10	25.40
#9	6.45	28.65
#10	8.19	32.26
#11	10.06	35.81
#14	14.52	43.00
#18	25.81	57.33

Table: Slab Properties 01 - General

Slab	Type	Color
ZPT	Footing	16744576

Table: Slab Properties 02 - Solid Slabs

Slab	Type	MatProp	Thickness mm	Ortho
ZPT	Footing	f'c 24.5Mpa	350.00	No

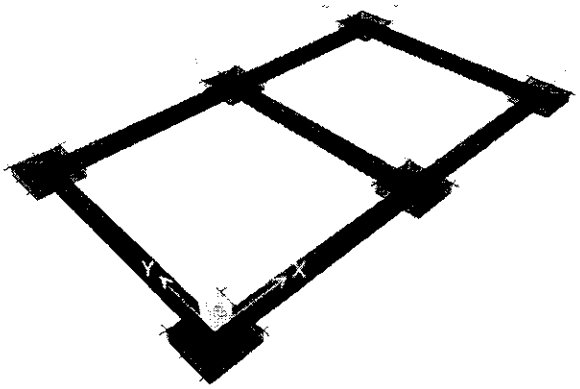
Table: Soil Properties

Soil	Subgrade kN/m3	Color
SOIL_AB	3.2000E+04	DarkYellow
SOIL_CD	1.6000E+04	4227200
SOIL_E	8.0000E+03	4227200

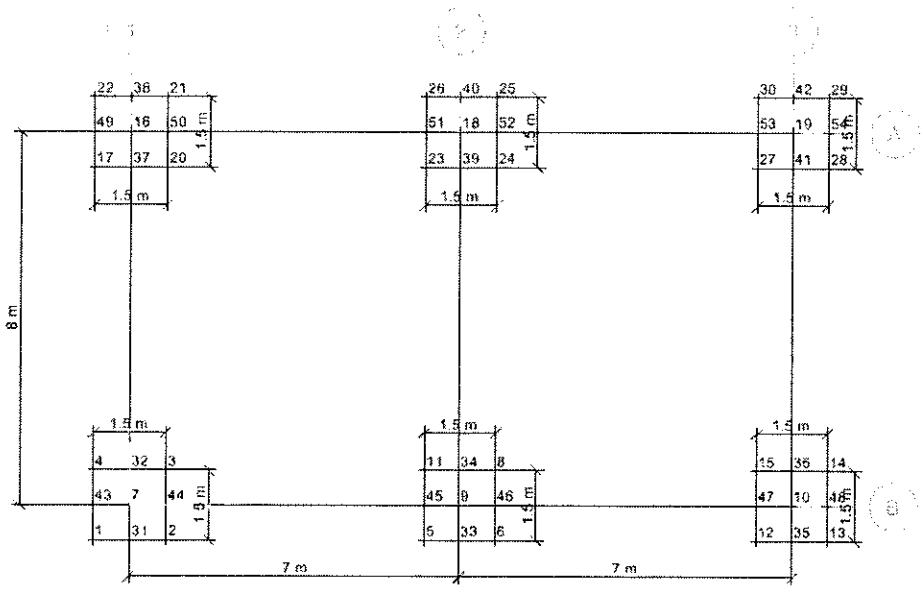
9.1. Zona alta

9.1.1. Suelo Tipo AB / CD

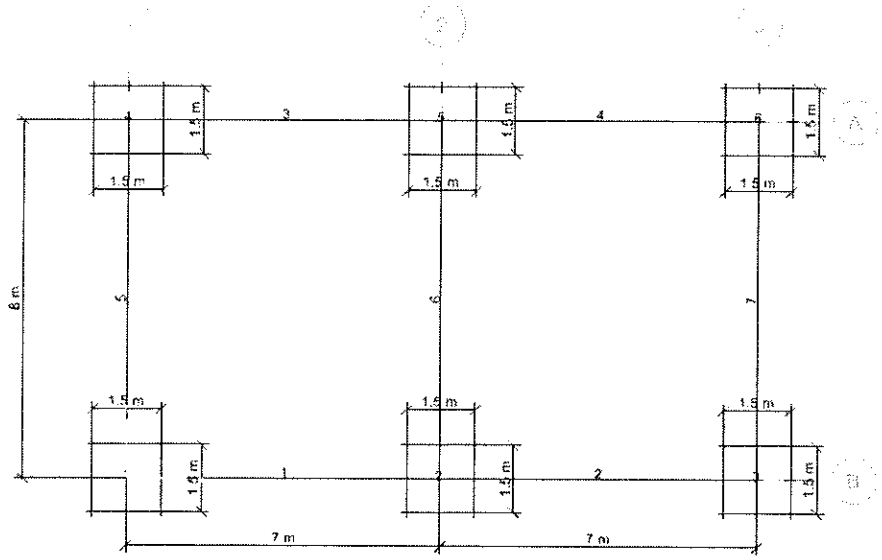
9.1.1.1. Modelo Matemático



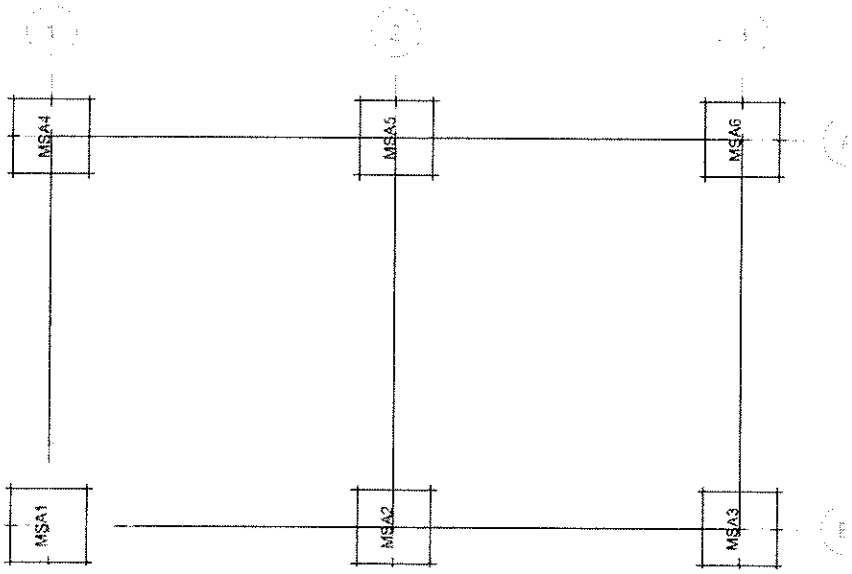
MODELO 3D_SAFE V12.3.2 - Planta Cimentación AB / CD



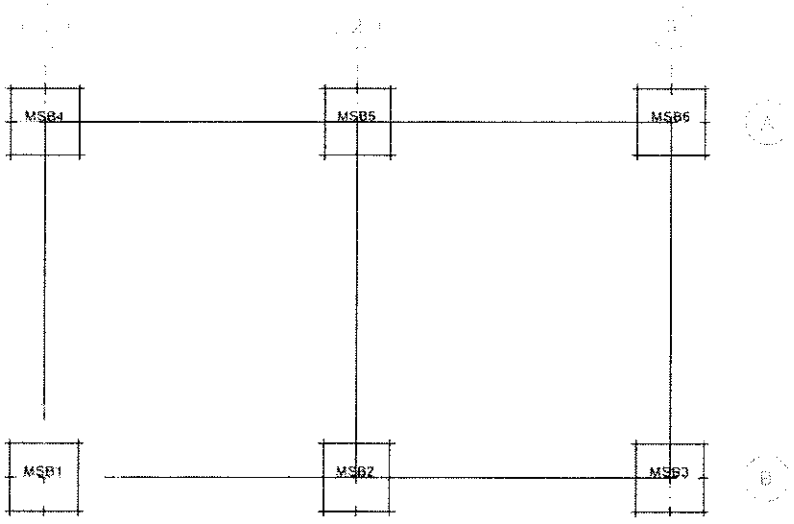
Numeración Nudos



Numeración Elementos



Identificación Strip A



Identificación Strip B

9.1.1.2. Coordenadas, asignaciones

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Table: Coordinate Systems

CoordSys	Type	OriginGx m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Grid Lines

CoordSys	AxisDir	GridID	Ordinate m	Visible	BubbleLoc	GridColor	BubbleSize mm	HideAll
GLOBAL	X	1	0.00	Yes	End	10461087	1000.00	No
GLOBAL	X	2	7.00	Yes	End			
GLOBAL	X	3	14.00	Yes	End			
GLDBAL	Y	B	0.00	Yes	End			
GLDBAL	Y	A	8.00	Yes	End			

Table: Object Geometry - Areas 01 - General, Part 1 of 2

Area	NumPoints	Point1	Point2	Point3	Point4	Auto	TotalArea mm2	AreaType
1	4	1	2	3	4	No	2250000.00	Slab
2	4	5	6	8	11	No	2250000.00	Slab
3	4	12	13	14	15	No	2250000.00	Slab
4	4	17	20	21	22	No	2250000.00	Slab
5	4	23	24	25	26	No	2250000.00	Slab
6	4	27	28	29	30	No	2250000.00	Slab

Table: Dbject Geometry - Oesign Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA1	31	0.00	-0.75			0.75	0.75
MSA1	32	0.00	0.75	0.75	0.75		
MSA2	33	7.00	-0.75			0.75	0.75
MSA2	34	7.00	0.75	0.75	0.75		
MSA3	35	14.00	-0.75			0.75	0.75

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA3	36	14.00	0.75	0.75	0.75		
MSA4	37	0.00	7.25			0.75	0.75
MSA4	38	0.00	8.75	0.75	0.75		
MSA5	39	7.00	7.25			0.75	0.75
MSA5	40	7.00	8.75	0.75	0.75		
MSA6	41	14.00	7.25			0.75	0.75
MSA6	42	14.00	8.75	0.75	0.75		
MSB1	43	-0.75	0.00			0.75	0.75
MSB1	44	0.75	0.00	0.75	0.75		
MSB2	45	6.25	0.00			0.75	0.75
MSB2	46	7.75	0.00	0.75	0.75		
MSB3	47	13.25	0.00			0.75	0.75
MSB3	48	14.75	0.00	0.75	0.75		
MSB4	49	-0.75	8.00			0.75	0.75
MSB4	50	0.75	8.00	0.75	0.75		
MSB5	51	6.25	8.00			0.75	0.75
MSB5	52	7.75	8.00	0.75	0.75		
MSB6	53	13.25	8.00			0.75	0.75
MSB6	54	14.75	8.00	0.75	0.75		

Table: Object Geometry - Dimension Lines, Part 1 of 2

AlignType	GlobalX1 m	GlobalY1 m	GlobalX2 m	GlobalY2 m	GlobalX3 m	GlobalY3 m	GlobalX4 m	GlobalY4 m
Parallel	0.00	0.00	0.00	8.00	-2.28	0.00	-2.28	8.00
Parallel	0.00	0.00	7.00	0.00	0.00	-1.52	7.00	-1.52
Parallel	7.00	0.00	14.00	0.00	7.00	-1.52	14.00	-1.52
Parallel	0.75	-0.75	0.75	0.75	1.65	-0.75	1.65	0.75
Parallel	0.75	7.25	0.75	8.75	1.65	7.25	1.65	8.75
Parallel	7.75	-0.75	7.75	0.75	8.62	-0.75	8.62	0.75
Parallel	7.75	7.25	7.75	8.75	8.62	7.25	8.62	8.75
Parallel	14.75	-0.75	14.75	0.75	15.33	-0.75	15.33	0.75
Parallel	14.75	7.25	14.75	8.75	15.33	7.25	15.33	8.75
Parallel	-0.75	0.75	0.75	0.75	-0.75	1.55	0.75	1.55
Parallel	6.25	0.75	7.75	0.75	6.25	1.55	7.75	1.55
Parallel	13.25	0.75	14.75	0.75	13.25	1.55	14.75	1.55
Parallel	-0.75	7.25	0.75	7.25	-0.75	6.45	0.75	6.45
Parallel	6.25	7.25	7.75	7.25	6.25	6.45	7.75	6.45
Parallel	13.25	7.25	14.75	7.25	13.25	6.45	14.75	6.45

Table: Object Geometry - Lines 01 - General

Line	PointI	PointJ	LineType	CurveType	Length m
1	7	9	Beam	Straight	7.00
2	9	10	Beam	Straight	7.00
3	16	18	Beam	Straight	7.00
4	18	19	Beam	Straight	7.00
5	7	16	Beam	Straight	8.00
6	9	18	Beam	Straight	8.00
7	10	19	Beam	Straight	8.00

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
1	-0.75	-0.75	0.00	No
2	0.75	-0.75	0.00	No
3	0.75	0.75	0.00	No
4	-0.75	0.75	0.00	No
5	6.25	-0.75	0.00	No
6	7.75	-0.75	0.00	No
7	0.00	0.00	0.00	Yes
8	7.75	0.75	0.00	No
9	7.00	0.00	0.00	Yes
10	14.00	0.00	0.00	Yes
11	6.25	0.75	0.00	No
12	13.25	-0.75	0.00	No
13	14.75	-0.75	0.00	No
14	14.75	0.75	0.00	No
15	13.25	0.75	0.00	No
16	0.00	8.00	0.00	Yes
17	-0.75	7.25	0.00	No
18	7.00	8.00	0.00	Yes
19	14.00	8.00	0.00	Yes
20	0.75	7.25	0.00	No

Table: Object Geometry - Point Coordinates

Point	GlobalX	GlobalY	GlobalZ	SpecialPt
22	-0.75	8.75	0.00	No
23	6.25	7.25	0.00	No
24	7.75	7.25	0.00	No
25	7.75	8.75	0.00	No
26	6.25	8.75	0.00	No
27	13.25	7.25	0.00	No
28	14.75	7.25	0.00	No
29	14.75	8.75	0.00	No
30	13.25	8.75	0.00	No
31	0.00	-0.75	0.00	No
32	0.00	0.75	0.00	No
33	7.00	-0.75	0.00	No
34	7.00	0.75	0.00	No
35	14.00	-0.75	0.00	No
36	14.00	0.75	0.00	No
37	0.00	7.25	0.00	No
38	0.00	8.75	0.00	No
39	7.00	7.25	0.00	No
40	7.00	8.75	0.00	No
41	14.00	7.25	0.00	No
42	14.00	8.75	0.00	No
43	-0.75	0.00	0.00	No
44	0.75	0.00	0.00	No
45	6.25	0.00	0.00	No
46	7.75	0.00	0.00	No
47	13.25	0.00	0.00	No
48	14.75	0.00	0.00	No
49	-0.75	8.00	0.00	No
50	0.75	8.00	0.00	No
51	6.25	8.00	0.00	No
52	7.75	8.00	0.00	No
53	13.25	8.00	0.00	No
54	14.75	8.00	0.00	No

Table: Beam Property Assignments

Line	BeamProp
1	SC35X45
2	SC35X45
3	SC35X45
4	SC35X45
5	SC35X45
6	SC35X45
7	SC35X45

Table: Slab Property Assignments

Area	SlabProp
1	ZPT
2	ZPT
3	ZPT
4	ZPT
5	ZPT
6	ZPT

Table: Soil Property Assignments

Area	SoilProp
1	SOIL_AB
2	SOIL_AB
3	SOIL_AB
4	SOIL_AB
5	SOIL_AB
6	SOIL_AB

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
1	Yes	Yes	No	No	No	No
2	Yes	Yes	No	No	No	No
3	Yes	Yes	No	No	No	No
4	Yes	Yes	No	No	No	No
5	Yes	Yes	No	No	No	No
6	Yes	Yes	No	No	No	No
8	Yes	Yes	No	No	No	No
11	Yes	Yes	No	No	No	No
12	Yes	Yes	No	No	No	No
13	Yes	Yes	No	No	No	No
14	Yes	Yes	No	No	No	No
15	Yes	Yes	No	No	No	No
17	Yes	Yes	No	No	No	No
20	Yes	Yes	No	No	No	No
21	Yes	Yes	No	No	No	No
22	Yes	Yes	No	No	No	No
23	Yes	Yes	No	No	No	No
24	Yes	Yes	No	No	No	No
25	Yes	Yes	No	No	No	No
26	Yes	Yes	No	No	No	No
27	Yes	Yes	No	No	No	No
28	Yes	Yes	No	No	No	No
29	Yes	Yes	No	No	No	No
30	Yes	Yes	No	No	No	No

9.1.1.3. Cargas, asignación de cargas SUELO AB

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	xDim mm
7	LR	-2.63	-5.95	37.99	9.27	-3.44	0.00	300.00
7	G	-2.10	-5.76	35.98	8.99	-2.87	0.00	300.00
7	Ex	-18.11	-9.35	8.85	-22.68	-39.63	-0.71	300.00
7	Ey	-5.94	-23.93	11.96	-59.40	-12.91	-1.34	300.00
7	DL	-9.77	-17.09	183.28	29.88	-13.22	0.00	300.00
9	LR	1.47	-1.04	37.82	3.00	2.47	0.00	300.00
9	G	0.59	-5.39	53.76	9.07	0.99	0.00	300.00
9	Ex	-26.00	-9.61	3.55	-26.90	-53.63	-0.93	300.00
9	Ey	-8.37	-31.85	11.77	-89.12	-17.27	-1.77	300.00
9	DL	3.43	7.32	206.93	-0.17	5.72	0.00	300.00
10	LR	1.17	-2.12	20.90	3.88	1.98	0.00	300.00
10	G	1.52	-4.22	29.14	6.84	2.28	0.00	300.00
10	Ex	-18.10	-9.97	9.21	-24.25	-39.62	-0.71	300.00
10	Ey	-6.02	-28.69	13.53	-71.03	-13.01	-1.34	300.00
10	DL	6.36	-11.03	150.79	21.37	9.75	0.00	300.00
16	LR	-2.34	5.52	32.96	-6.90	-3.02	0.00	300.00
16	G	-1.85	5.30	30.70	-6.57	-2.51	0.00	300.00
16	Ex	-15.58	-8.76	11.29	-21.86	-34.34	-0.71	300.00
16	Ey	-6.37	-23.96	11.82	-59.45	-13.88	-1.34	300.00
16	DL	-9.09	14.85	150.68	-15.11	-12.24	0.00	300.00
18	LR	1.39	1.92	27.85	-1.14	2.35	0.00	300.00
18	G	0.55	6.31	44.00	-7.28	0.94	0.00	300.00
18	Ex	-23.06	-9.55	3.61	-26.81	-47.42	-0.93	300.00
18	Ey	-9.14	-31.63	11.97	-88.82	-18.79	-1.77	300.00
18	DL	3.34	-2.83	156.29	14.02	5.60	0.00	300.00
19	LR	0.95	1.68	15.47	-1.47	1.67	0.00	300.00
19	G	1.30	3.76	23.71	-4.40	1.97	0.00	300.00
19	Ex	-15.59	-9.47	11.18	-23.56	-34.36	-0.71	300.00
19	Ey	-6.46	-28.67	13.22	-71.00	-14.01	-1.34	300.00
19	DL	5.73	8.77	117.62	-6.51	8.87	0.00	300.00

9.1.1.4. Cargas, asignación de cargas SUELO CD

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	xDim mm
7	LR	-2.63	-5.95	37.99	9.27	-3.44	0.00	300.00
7	G	-2.10	-5.76	35.98	8.99	-2.87	0.00	300.00
7	Ex	-18.11	-9.35	8.85	-22.68	-39.63	-0.71	300.00
7	Ey	-5.94	-23.93	11.96	-59.40	-12.91	-1.34	300.00
7	DL	-9.77	-17.09	183.28	29.88	-13.22	0.00	300.00
9	LR	1.47	-1.04	37.82	3.00	2.47	0.00	300.00
9	G	0.59	-5.39	53.76	9.07	0.99	0.00	300.00
9	Ex	-26.00	-9.61	3.55	-26.90	-53.63	-0.93	300.00
9	Ey	-8.37	-31.85	11.77	-89.12	-17.27	-1.77	300.00
9	DL	3.43	7.32	206.93	-0.17	5.72	0.00	300.00
10	LR	1.17	-2.12	20.90	3.88	1.98	0.00	300.00
10	G	1.52	-4.22	29.14	6.84	2.28	0.00	300.00
10	Ex	-18.10	-9.97	9.21	-24.25	-39.62	-0.71	300.00
10	Ey	-6.02	-28.69	13.53	-71.03	-13.01	-1.34	300.00
10	DL	6.36	-11.03	150.79	21.37	9.75	0.00	300.00
16	LR	-2.34	5.52	32.96	-6.90	-3.02	0.00	300.00
16	G	-1.85	5.30	30.70	-6.57	-2.51	0.00	300.00
16	Ex	-15.58	-8.76	11.29	-21.86	-34.34	-0.71	300.00
16	Ey	-6.37	-23.96	11.82	-59.45	-13.88	-1.34	300.00
16	DL	-9.09	14.85	150.68	-15.11	-12.24	0.00	300.00
18	LR	1.39	1.92	27.85	-1.14	2.35	0.00	300.00
18	G	0.55	6.31	44.00	-7.28	0.94	0.00	300.00
18	Ex	-23.06	-9.55	3.61	-26.81	-47.42	-0.93	300.00
18	Ey	-9.14	-31.63	11.97	-88.82	-18.79	-1.77	300.00
18	DL	3.34	-2.83	156.29	14.02	5.60	0.00	300.00
19	LR	0.95	1.68	15.47	-1.47	1.67	0.00	300.00
19	G	1.30	3.76	23.71	-4.40	1.97	0.00	300.00
19	Ex	-15.59	-9.47	11.18	-23.56	-34.36	-0.71	300.00
19	Ey	-6.46	-28.67	13.22	-71.00	-14.01	-1.34	300.00
19	DL	5.73	8.77	117.62	-6.51	8.87	0.00	300.00

9.1.1.5. Esfuerzos sobre el suelo AB

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Table: Soil Pressures - Enveloping Summary

Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-48.85	Envol.-SRV	Combination	0.38	7.63
1	MinPress	-161.22	Envol.-SRV	Combination	6.63	0.75
2	MaxPress	-42.96	Envol.-SRV	Combination	13.63	7.63
2	MinPress	-161.26	Envol.-SRV	Combination	7.00	0.75

Table: Soil Pressures - Summary

Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-48.85	-161.22	0.38	7.63	6.63	0.75
2	Envol.-SRV	Combination	-42.96	-161.26	13.63	7.63	7.00	0.75

Capacidad admisible de suelo AB, $_{adm}$ = 400 kN/m^2 > Soil Pressures Max/Min => Ok

9.1.1.6. Esfuerzos sobre el suelo CD

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Table: Soil Pressures - Enveloping Summary

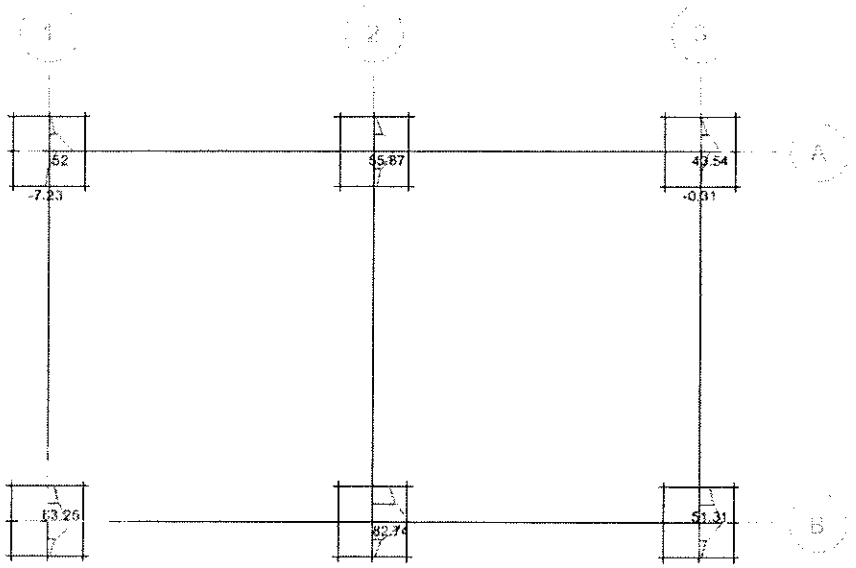
Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-55.08	Envol.-SRV	Combination	0.38	7.63
1	MinPress	-149.60	Envol.-SRV	Combination	6.63	0.75
2	MaxPress	-47.39	Envol.-SRV	Combination	13.63	7.63
2	MinPress	-149.60	Envol.-SRV	Combination	7.00	0.75

Table: Soil Pressures - Summary

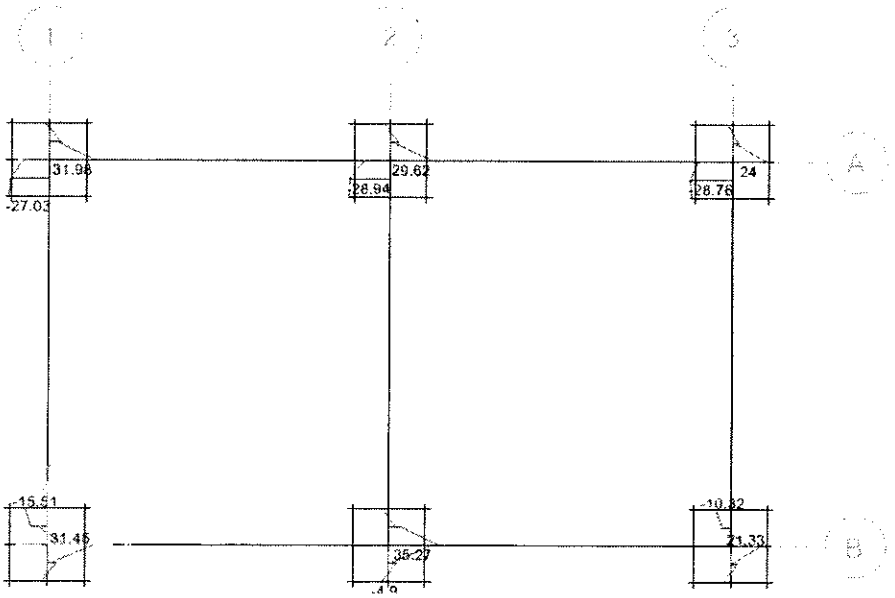
Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-55.08	-149.60	0.38	7.63	6.63	0.75
2	Envol.-SRV	Combination	-47.39	-149.60	13.63	7.63	7.00	0.75

Capacidad admisible de suelo AB, $_{adm}$ = 150 kN/m^2 > Soil Pressures Max/Min => ok

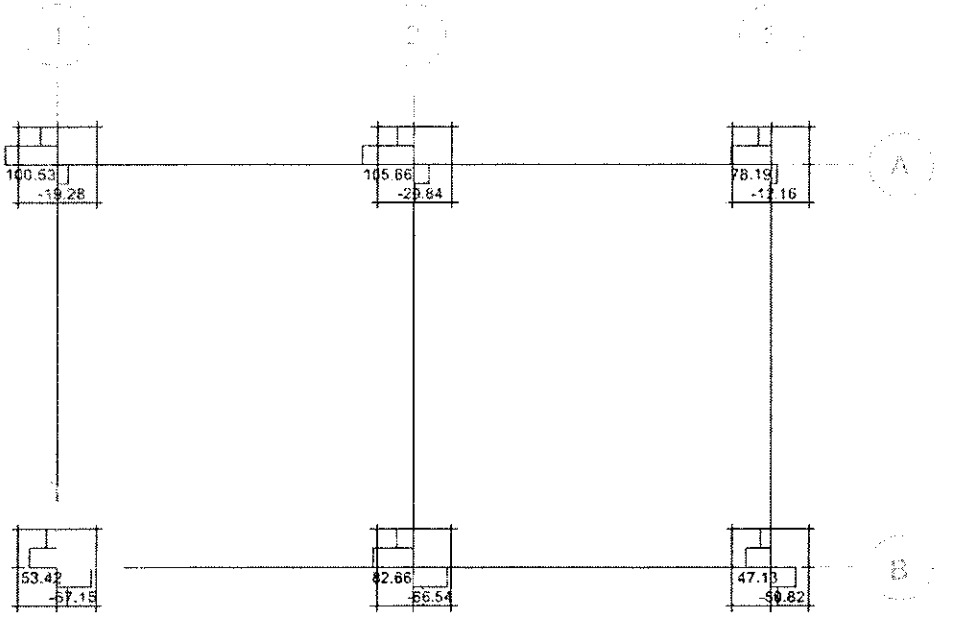
9.1.1.7. Resultados, diseño elementos



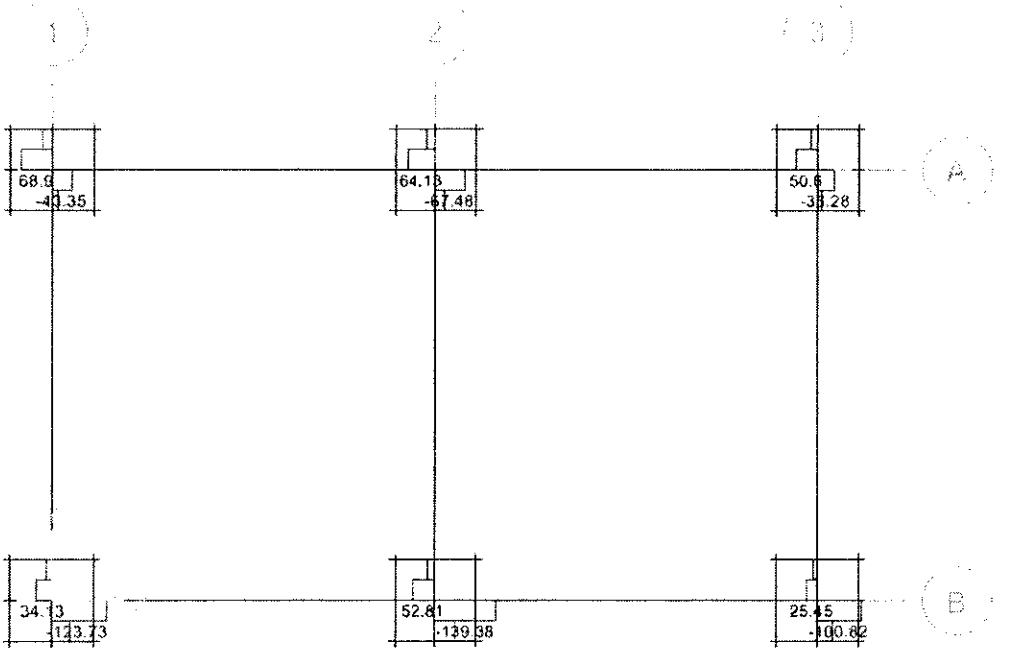
Zapatas - Strip A, Mmax (kN-m)



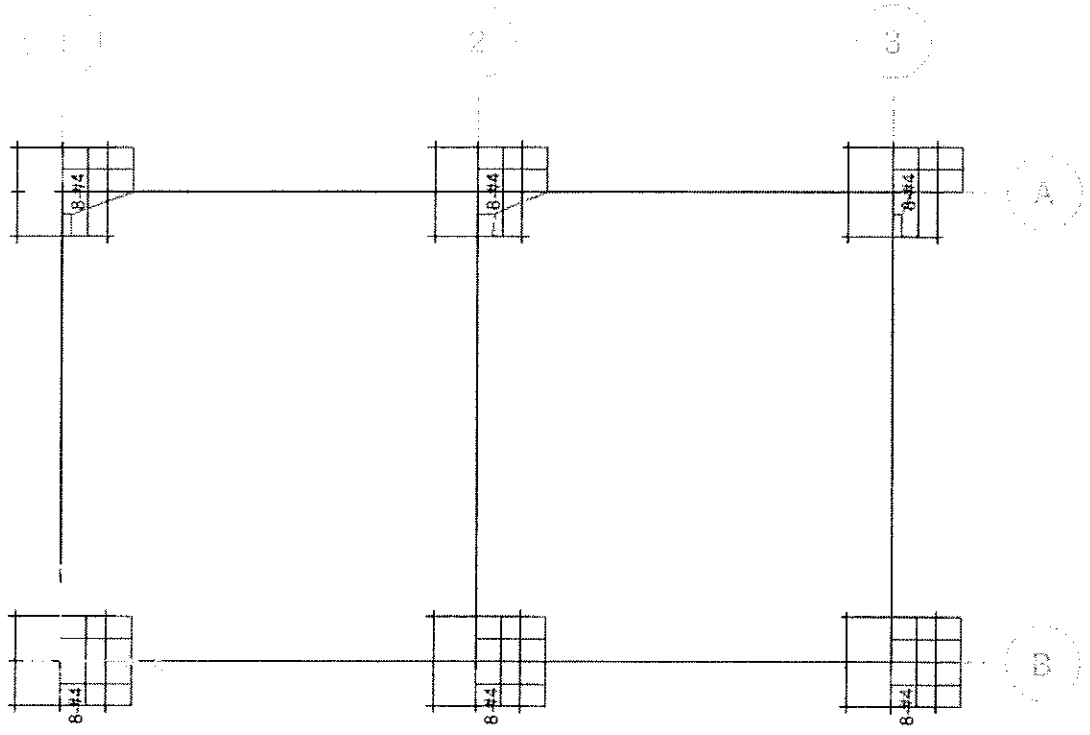
Zapatas - Strip A, Mmin (kN-m)



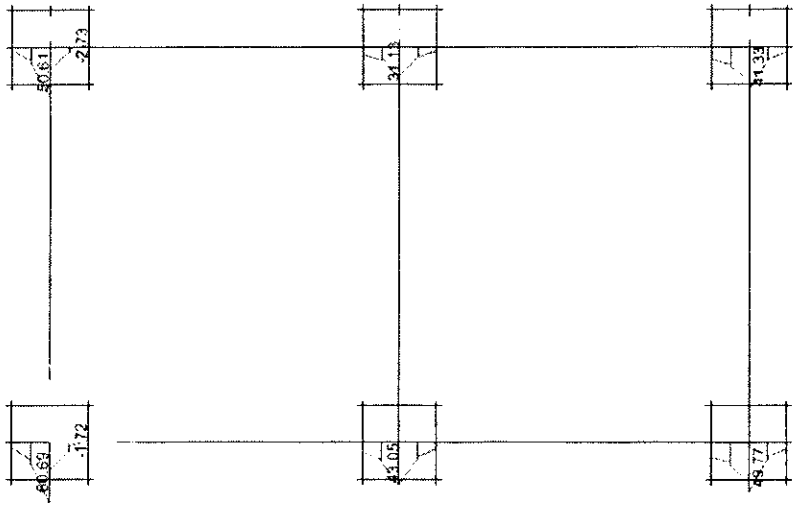
Zapatas - Strip A, Vmax (kN)



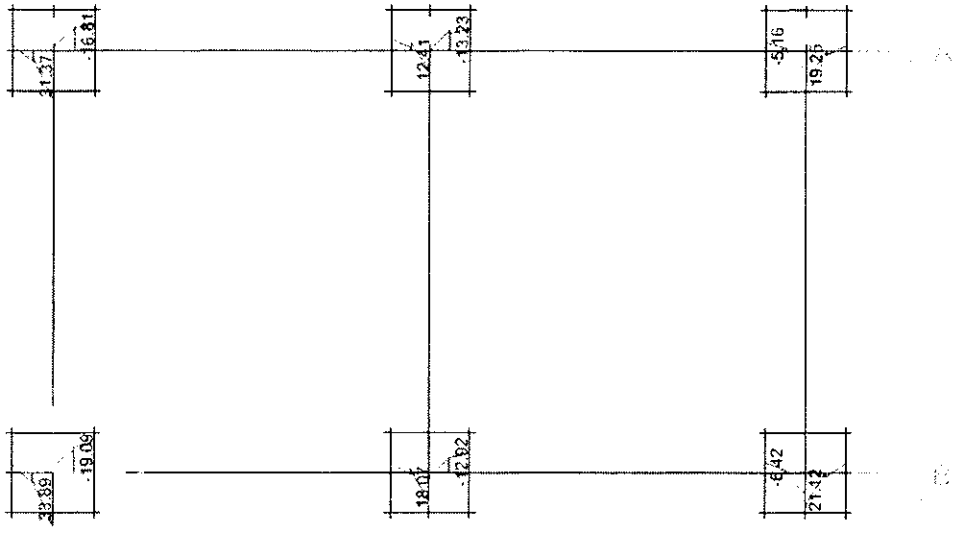
Zapatas - Strip A, Vmin (kN)



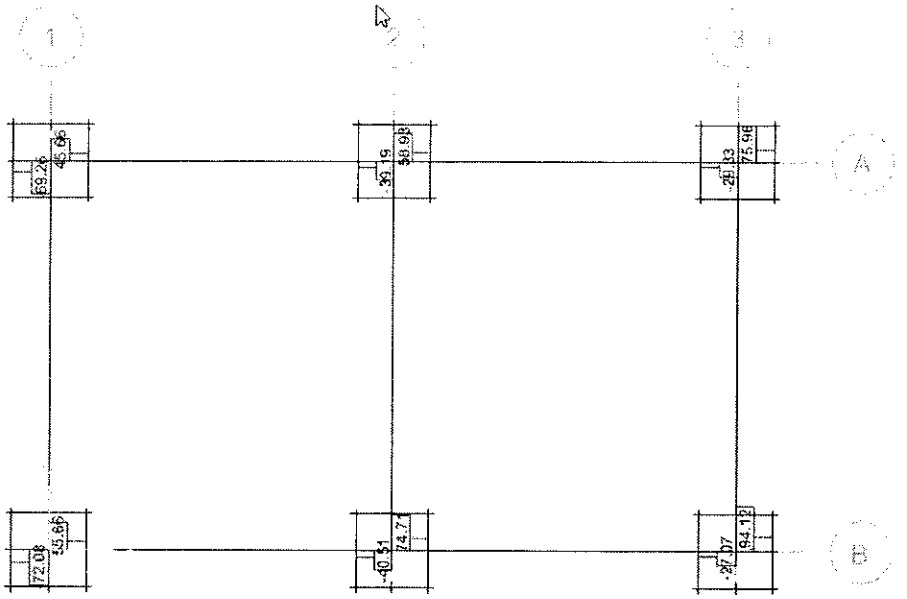
Zapatas SUELO AB - Strip A, Acero de Refuerzo



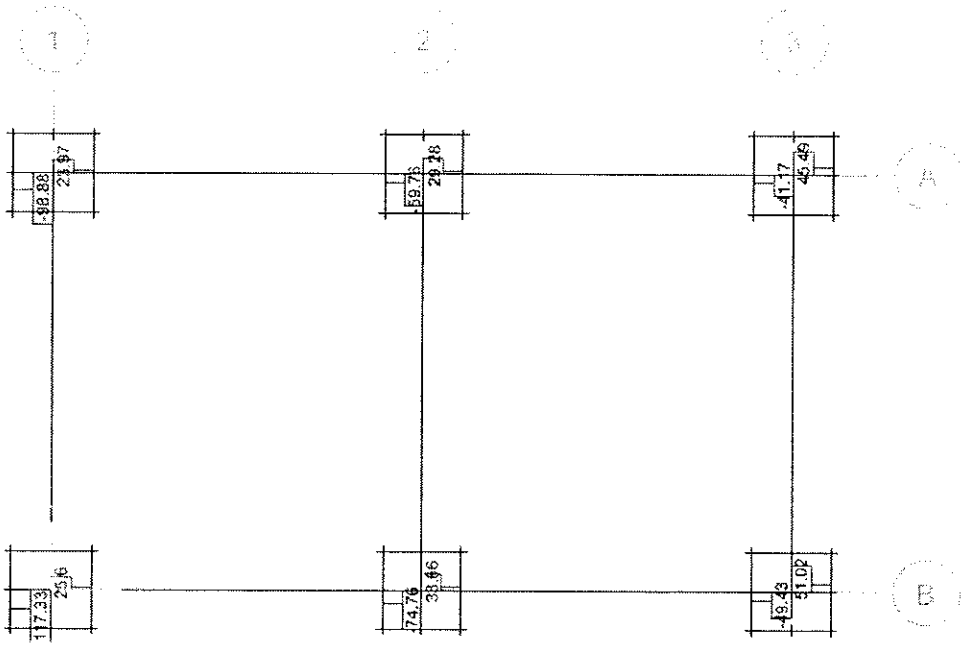
Zapatas - Strip B, Mmax (kN-m)



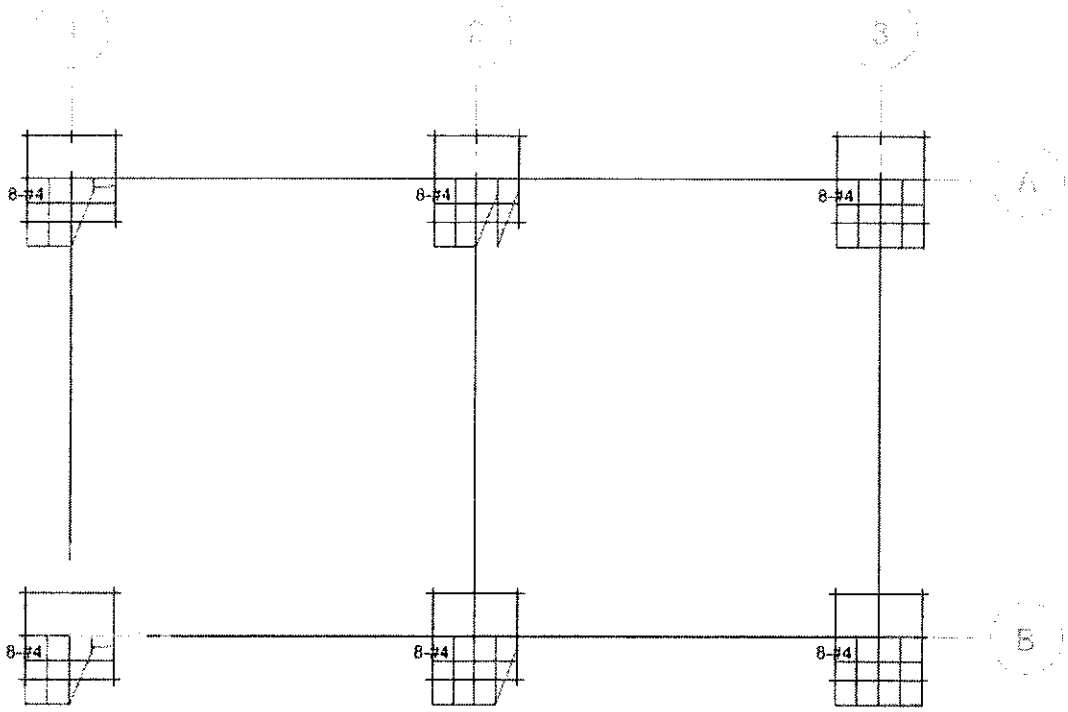
Zapatas - Strip B, Mmin (kN-m)



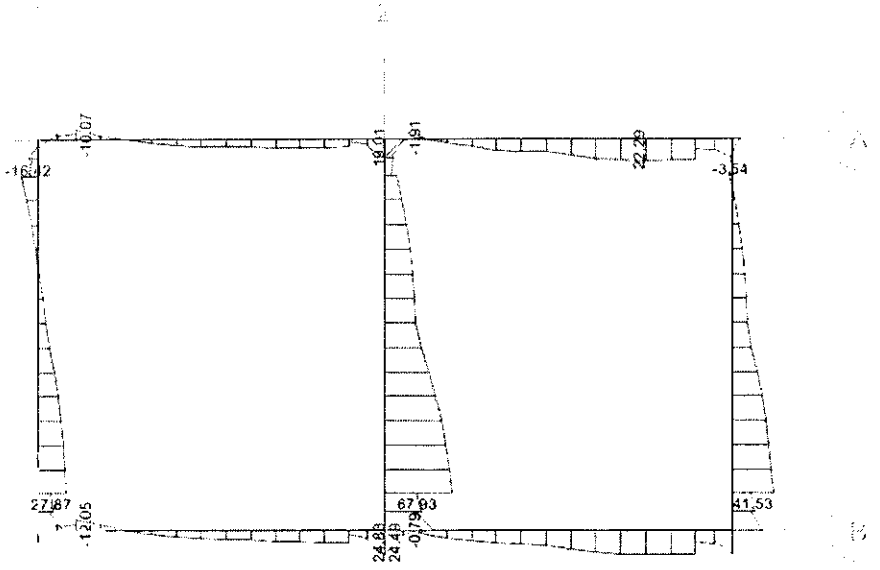
Zapatas - Strip B, Vmax (kN)



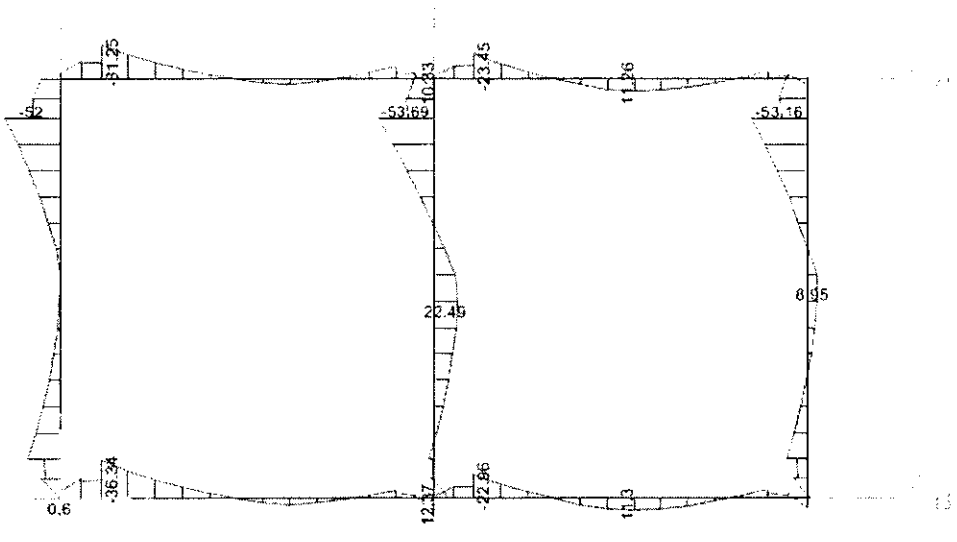
Zapatas - Strip B, Vmin (kN)



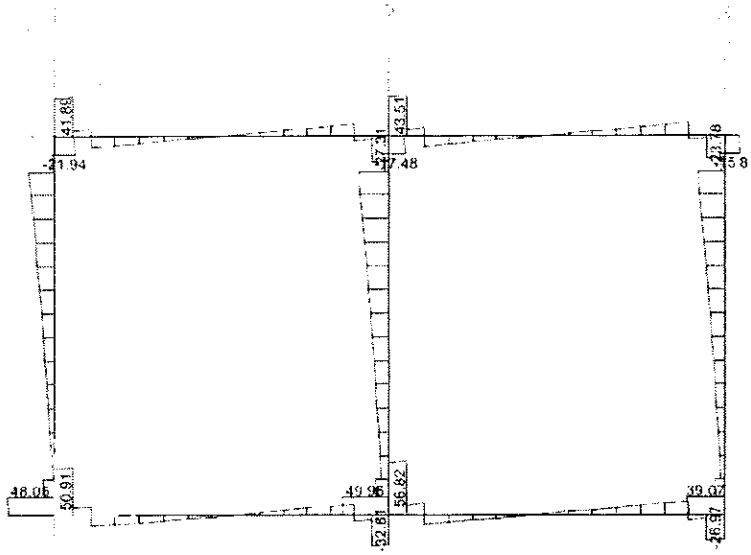
Zapatas SUELO AB - Strip B, Acero de Refuerzo



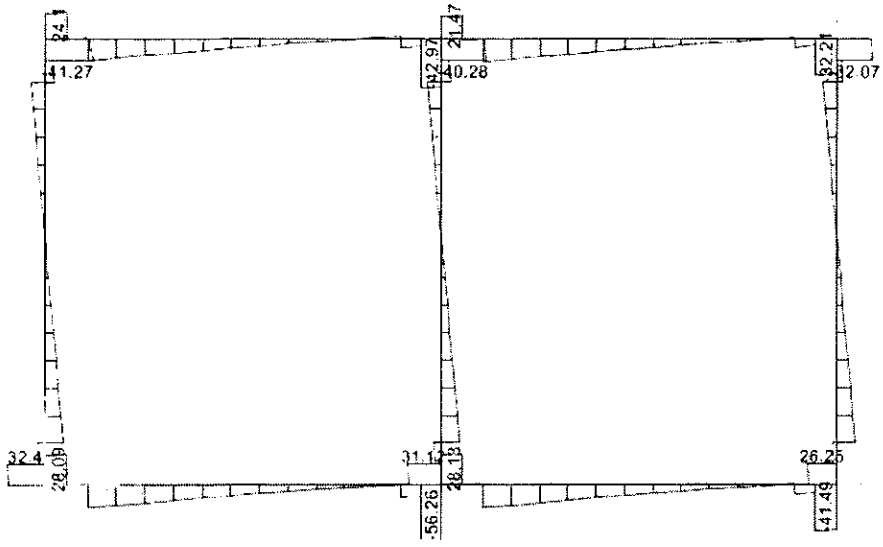
Vigas, Mmax (kN-m)



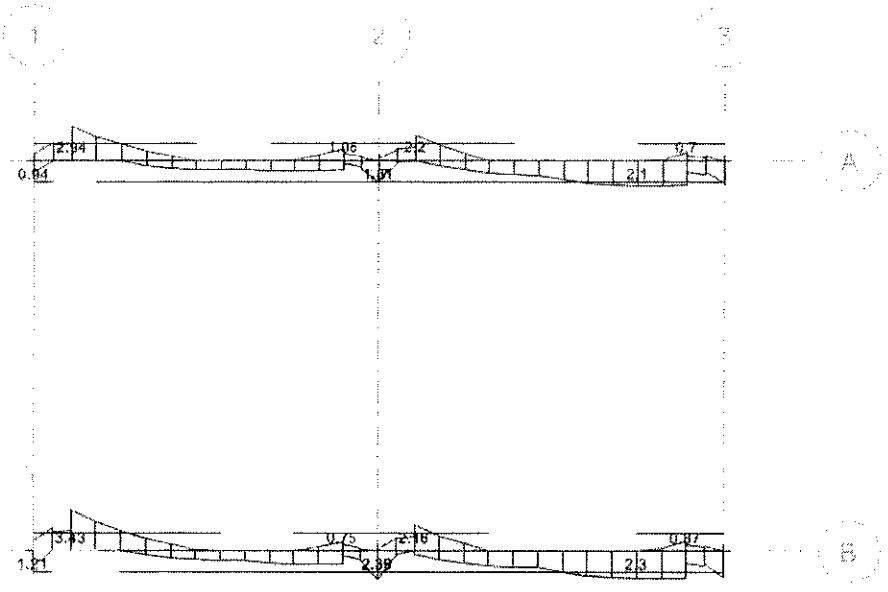
Vigas, Mmin (kN-m)



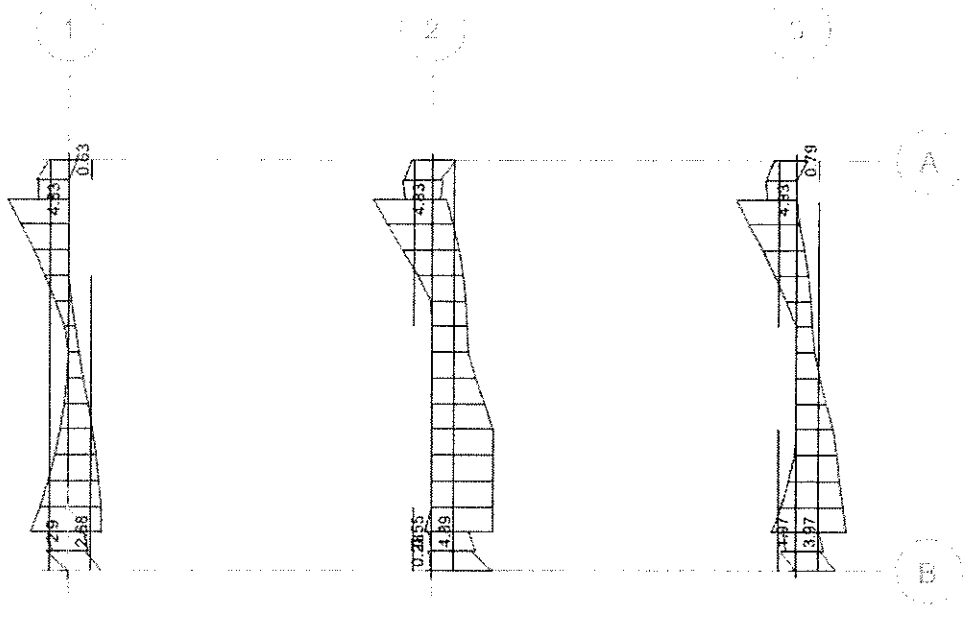
Vigas, Vmax (kN)



Vigas, Vmin (kN)



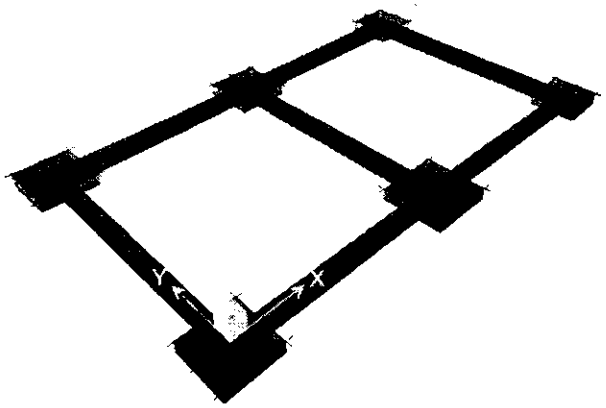
Vigas Long. Suelo AB/CD, Acero de refuerzo a flexion (cm2)



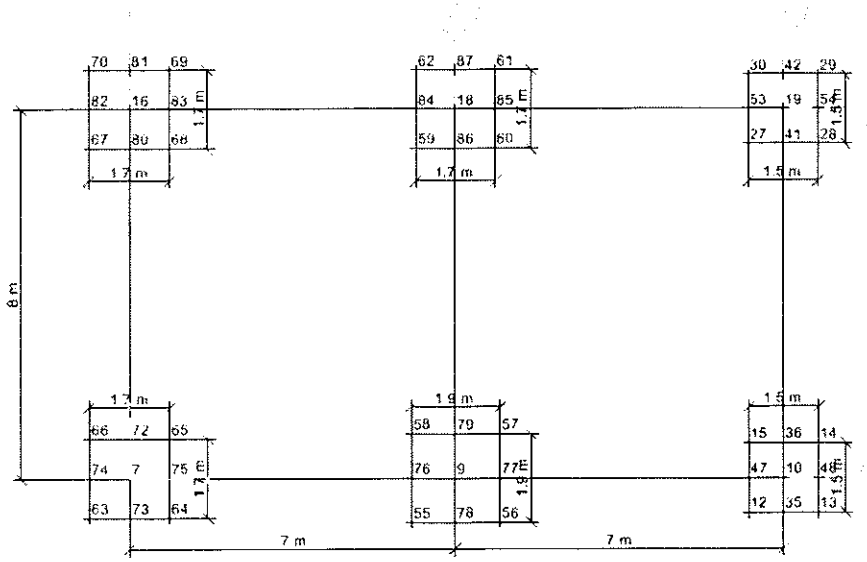
Vigas Transv. Suelo AB/CD, Acero de refuerzo a flexion (cm2)

9.1.2. Suelo Tipo E

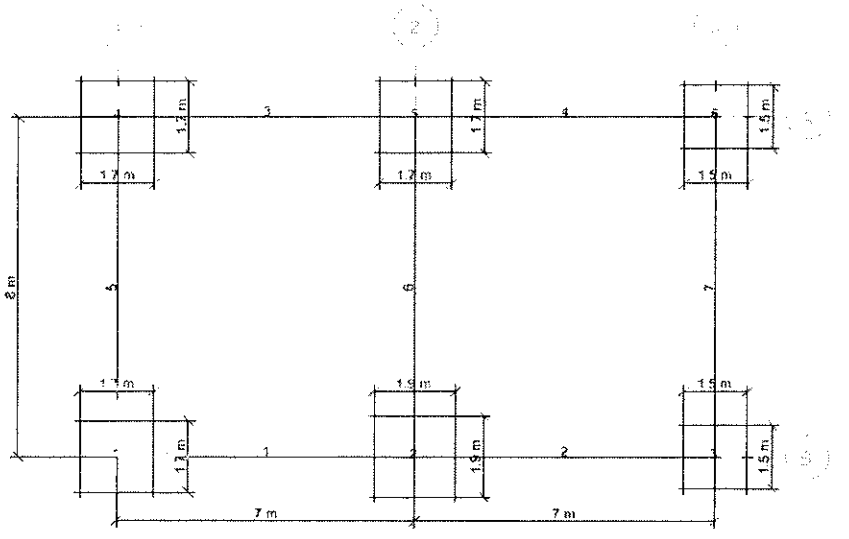
9.1.2.1. Modelo Matemático



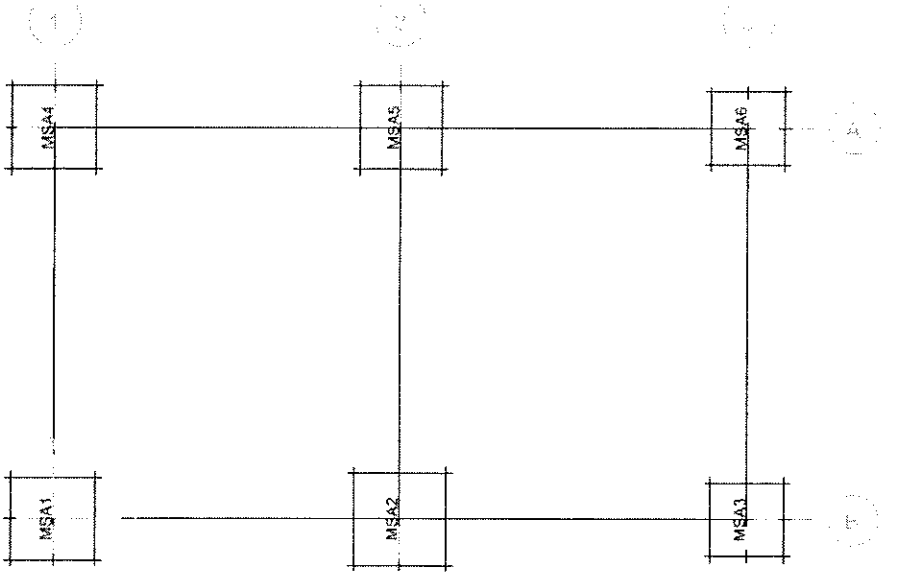
MODELO 3D_SAFE V12.3.2 - Planta Cimentación E



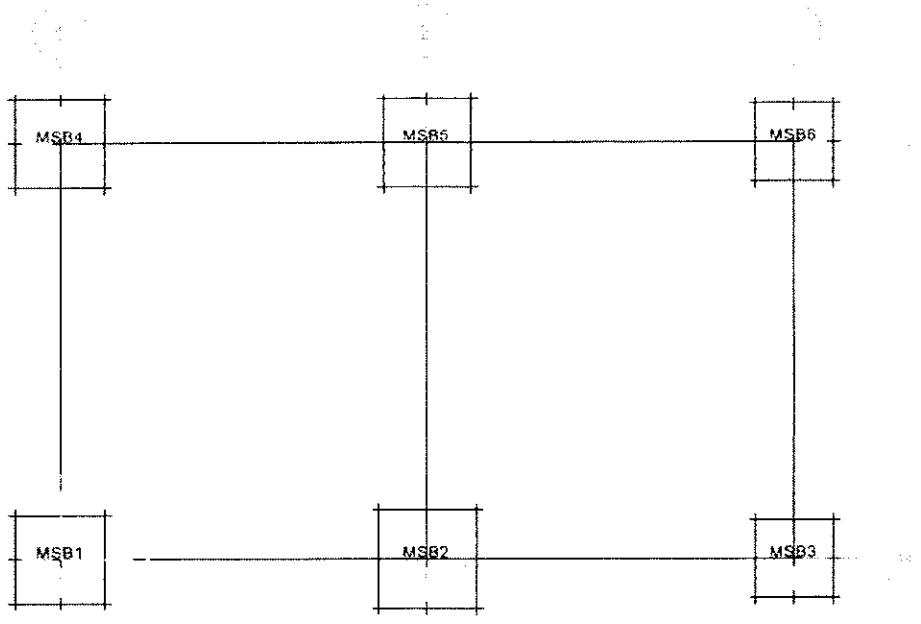
Numeración Nudos



Numeración Elementos



Identificación Strip A



Identificación Strip B

9.1.2.2. Coordenadas, asignaciones

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Table: Coordinate Systems

CoordSys	Type	OriginGx m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Grid Lines

CoordSys	AxisDir	GridID	Ordinate m	Visible	BubbleLoc	GridColor	BubbleSize mm	HideAll
GLOBAL	X	1	0.00	Yes	End	10461087	1000.00	No
GLOBAL	X	2	7.00	Yes	End			
GLOBAL	X	3	14.00	Yes	End			
GLOBAL	Y	B	0.00	Yes	End			
GLOBAL	Y	A	8.00	Yes	End			

Table: Object Geometry - Areas 01 - General, Part 1 of 2

Area	NumPoints	Point1	Point2	Point3	Point4	Auto	TotalArea mm2	AreaType
1	4	63	64	65	66	No	2890000.00	slab
2	4	55	56	57	58	No	3610000.00	slab
3	4	12	13	14	15	No	2250000.00	slab
4	4	67	68	69	70	No	2890000.00	slab
5	4	59	60	61	62	No	2890000.00	slab
6	4	27	28	29	30	No	2250000.00	slab

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA1	73	0.00	-0.85			0.85	0.85
MSA1	72	0.00	0.85	0.85	0.85		
MSA2	78	7.00	-0.95			0.95	0.95
MSA2	79	7.00	0.95	0.95	0.95		
MSA3	35	14.00	-0.75			0.75	0.75
MSA3	36	14.00	0.75	0.75	0.75		
MSA4	80	0.00	7.15			0.85	0.85
MSA4	81	0.00	8.85	0.85	0.85		
MSA5	86	7.00	7.15			0.85	0.85
MSA5	87	7.00	8.85	0.85	0.85		
MSA6	41	14.00	7.25			0.75	0.75
MSA6	42	14.00	8.75	0.75	0.75		
MSB1	74	-0.85	0.00			0.85	0.85
MSB1	75	0.85	0.00	0.85	0.85		
MSB2	76	6.05	0.00			0.95	0.95
MSB2	77	7.95	0.00	0.95	0.95		
MSB3	47	13.25	0.00			0.75	0.75
MSB3	48	14.75	0.00	0.75	0.75		
MSB4	82	-0.85	8.00			0.85	0.85
MSB4	83	0.85	8.00	0.85	0.85		
MSB5	84	6.15	8.00			0.85	0.85
MSB5	85	7.85	8.00	0.85	0.85		
MSB6	53	13.25	8.00			0.75	0.75
MSB6	54	14.75	8.00	0.75	0.75		

Table: Object Geometry - Dimension Lines, Part 1 of 2

AlignType	GlobalX1 m	GlobalY1 m	GlobalX2 m	GlobalY2 m	GlobalX3 m	GlobalY3 m	GlobalX4 m	GlobalY4 m
Parallel	0.00	0.00	0.00	8.00	-2.28	0.00	-2.28	8.00
Parallel	0.00	0.00	7.00	0.00	0.00	-1.52	7.00	-1.52
Parallel	7.00	0.00	14.00	0.00	7.00	-1.52	14.00	-1.52
Parallel	0.75	-0.85	0.75	0.85	1.65	-0.85	1.65	0.85
Parallel	0.75	7.15	0.75	8.85	1.65	7.15	1.65	8.85
Parallel	7.75	-0.95	7.75	0.95	8.62	-0.95	8.62	0.95
Parallel	7.75	7.15	7.75	8.85	8.62	7.15	8.62	8.85
Parallel	14.75	-0.75	14.75	0.75	15.33	-0.75	15.33	0.75
Parallel	14.75	7.25	14.75	8.75	15.33	7.25	15.33	8.75
Parallel	-0.85	0.75	0.85	0.75	-0.85	1.55	0.85	1.55
Parallel	6.05	0.75	7.95	0.75	6.05	1.55	7.95	1.55
Parallel	13.25	0.75	14.75	0.75	13.25	1.55	14.75	1.55
Parallel	-0.85	7.25	0.85	7.25	-0.85	6.45	0.85	6.45
Parallel	6.15	7.25	7.85	7.25	6.15	6.45	7.85	6.45
Parallel	13.25	7.25	14.75	7.25	13.25	6.45	14.75	6.45

Table: Object Geometry - Lines 01 - General

Line	PointI	PointJ	LineType	CurveType	Length m
1	7	9	Beam	Straight	7.00
2	9	10	Beam	Straight	7.00
3	16	18	Beam	Straight	7.00
4	18	19	Beam	Straight	7.00
5	7	16	Beam	Straight	8.00
6	9	18	Beam	Straight	8.00
7	10	19	Beam	Straight	8.00

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
7	0.00	0.00	0.00	Yes
9	7.00	0.00	0.00	Yes
10	14.00	0.00	0.00	Yes
12	13.25	-0.75	0.00	No
13	14.75	-0.75	0.00	No
14	14.75	0.75	0.00	No
15	13.25	0.75	0.00	No
16	0.00	8.00	0.00	Yes
18	7.00	8.00	0.00	Yes
19	14.00	8.00	0.00	Yes
27	13.25	7.25	0.00	No

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
28	14.75	7.25	0.00	No
29	14.75	8.75	0.00	No
30	13.25	8.75	0.00	No
35	14.00	-0.75	0.00	No
36	14.00	0.75	0.00	No
41	14.00	7.25	0.00	No
42	14.00	8.75	0.00	No
47	13.25	0.00	0.00	No
48	14.75	0.00	0.00	No
53	13.25	8.00	0.00	No
54	14.75	8.00	0.00	No
55	6.05	-0.95	0.00	No
56	7.95	-0.95	0.00	No
57	7.95	0.95	0.00	No
58	6.05	0.95	0.00	No
59	6.15	7.15	0.00	No
60	7.85	7.15	0.00	No
61	7.85	8.85	0.00	No
62	6.15	8.85	0.00	No
63	-0.85	-0.85	0.00	No
64	0.85	-0.85	0.00	No
65	0.85	0.85	0.00	No
66	-0.85	0.85	0.00	No
67	-0.85	7.15	0.00	No
68	0.85	7.15	0.00	No
69	0.85	8.85	0.00	No
70	-0.85	8.85	0.00	No
72	0.00	0.85	0.00	No
73	0.00	-0.85	0.00	No
74	-0.85	0.00	0.00	No
75	0.85	0.00	0.00	No
76	6.05	0.00	0.00	No
77	7.95	0.00	0.00	No
78	7.00	-0.95	0.00	No
79	7.00	0.95	0.00	No
80	0.00	7.15	0.00	No
81	0.00	8.85	0.00	No
82	-0.85	8.00	0.00	No
83	0.85	8.00	0.00	No
84	6.15	8.00	0.00	No
85	7.85	8.00	0.00	No
86	7.00	7.15	0.00	No
87	7.00	8.85	0.00	No

Table: Beam Property Assignments

Line	BeamProp
1	SC35X45
2	SC35X45
3	SC35X45
4	SC35X45
5	SC35X45
6	SC35X45
7	SC35X45

Table: Slab Property Assignments

Area	SlabProp
1	ZPT
2	ZPT
3	ZPT
4	ZPT
5	ZPT
6	ZPT

Table: Soil Property Assignments

Area	SoilProp
1	SOIL_E
2	SOIL_E
3	SOIL_E
4	SOIL_E
5	SOIL_E
6	SOIL_E

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
12	Yes	Yes	No	No	No	No
13	Yes	Yes	No	No	No	No
14	Yes	Yes	No	No	No	No
15	Yes	Yes	No	No	No	No
27	Yes	Yes	No	No	No	No
28	Yes	Yes	No	No	No	No
29	Yes	Yes	No	No	No	No
30	Yes	Yes	No	No	No	No
55	Yes	Yes	No	No	No	No
56	Yes	Yes	No	No	No	No
57	Yes	Yes	No	No	No	No
58	Yes	Yes	No	No	No	No
59	Yes	Yes	No	No	No	No
60	Yes	Yes	No	No	No	No
61	Yes	Yes	No	No	No	No
62	Yes	Yes	No	No	No	No
63	Yes	Yes	No	No	No	No

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
64	Yes	Yes	No	No	No	No
65	Yes	Yes	No	No	No	No
66	Yes	Yes	No	No	No	No
67	Yes	Yes	No	No	No	No
68	Yes	Yes	No	No	No	No
69	Yes	Yes	No	No	No	No
70	Yes	Yes	No	No	No	No

9.1.2.3. Cargas, asignación de cargas SUELO E

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	XDim mm
7	LR	-2.63	-5.95	37.99	9.27	-3.44	0.00	300.00
7	G	-2.10	-5.76	35.98	8.99	-2.87	0.00	300.00
7	Ex	-19.24	-9.71	9.33	-23.52	-42.11	-0.74	300.00
7	Ey	-6.28	-24.46	12.16	-60.70	-13.65	-1.38	300.00
7	OL	-9.77	-17.09	183.28	29.88	-13.22	0.00	300.00
9	LR	1.47	-1.04	37.82	3.00	2.47	0.00	300.00
9	G	0.59	-5.39	53.76	9.07	0.99	0.00	300.00
9	Ex	-27.62	-9.63	3.56	-26.94	-56.98	-0.98	300.00
9	Ey	-8.85	-31.88	11.78	-89.20	-18.27	-1.82	300.00
9	DL	3.43	7.32	206.93	-0.17	5.72	0.00	300.00
10	LR	1.17	-2.12	20.90	3.88	1.98	0.00	300.00
10	G	1.52	-4.22	29.14	6.84	2.28	0.00	300.00
10	Ex	-19.23	-10.08	9.66	-24.48	-42.10	-0.74	300.00
10	Ey	-6.34	-28.54	13.49	-70.64	-13.74	-1.38	300.00
10	OL	6.36	-11.03	150.79	21.37	9.75	0.00	300.00
16	LR	-2.34	5.52	32.96	-6.90	-3.02	0.00	300.00
16	G	-1.85	5.30	30.70	-6.57	-2.51	0.00	300.00
16	Ex	-16.55	-9.06	11.95	-22.62	-36.48	-0.74	300.00
16	Ey	-6.68	-24.49	12.00	-60.73	-14.56	-1.38	300.00
16	OL	-9.09	14.85	150.68	-15.11	-12.24	0.00	300.00
18	LR	1.39	1.92	27.85	-1.14	2.35	0.00	300.00
18	G	0.55	6.31	44.00	-7.28	0.94	0.00	300.00
18	Ex	-24.49	-9.56	3.62	-26.85	-50.36	-0.98	300.00
18	Ey	-9.59	-31.67	11.98	-88.91	-19.71	-1.82	300.00
18	OL	3.34	-2.83	156.29	14.02	5.60	0.00	300.00
19	LR	0.95	1.68	15.47	-1.47	1.67	0.00	300.00
19	G	1.30	3.76	23.71	-4.40	1.97	0.00	300.00
19	Ex	-16.56	-9.52	11.79	-23.71	-36.49	-0.74	300.00
19	Ey	-6.76	-28.51	13.21	-70.61	-14.66	-1.38	300.00
19	DL	5.73	8.77	117.62	-6.51	8.87	0.00	300.00

9.1.2.4. Esfuerzos sobre el suelo E

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Table: Soil Pressures - Enveloping Summary

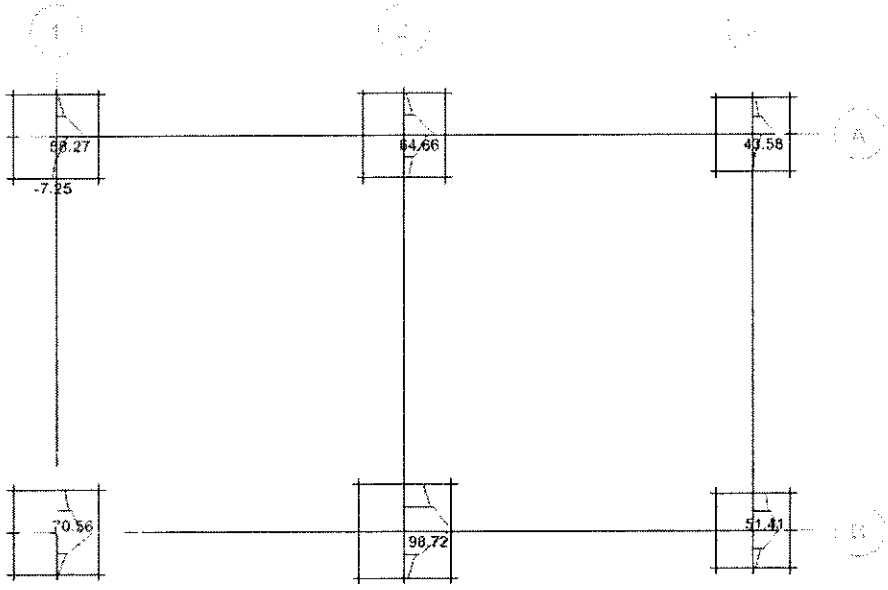
Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-45.49	Envol.-SRV	Combination	0.43	7.58
1	MinPress	-98.63	Envol.-SRV	Combination	6.53	0.95
2	MaxPress	-46.10	Envol.-SRV	Combination	7.00	0.48
2	MinPress	-100.00	Envol.-SRV	Combination	13.63	0.38

Table: Soil Pressures - Summary

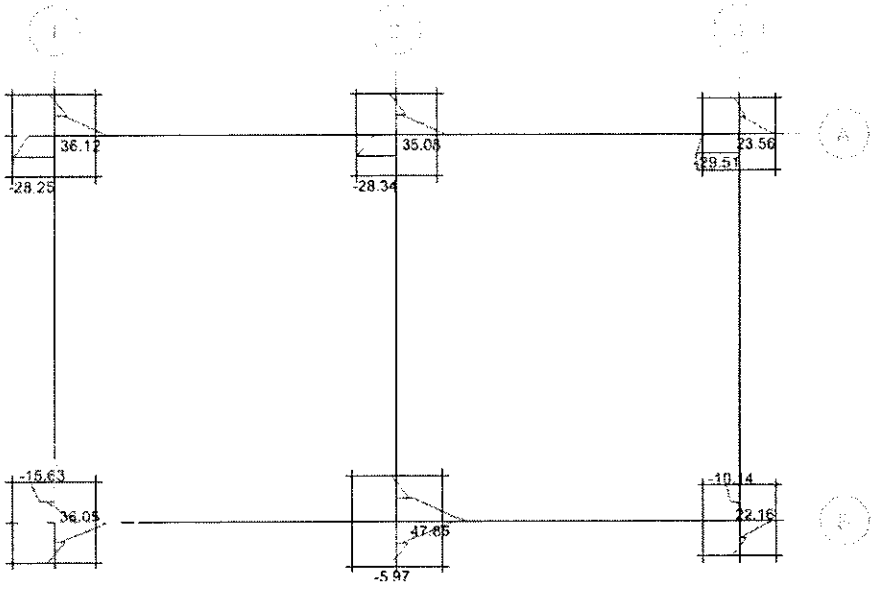
Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-45.49	-98.63	0.43	7.58	6.53	0.95
2	Envol.-SRV	Combination	-46.10	-100.00	7.00	0.48	13.63	0.38

Capacidad admisible de suelo AB, $_{adm}$ = 100 kN/m^2 > Soil Pressures Max/Min => Ok

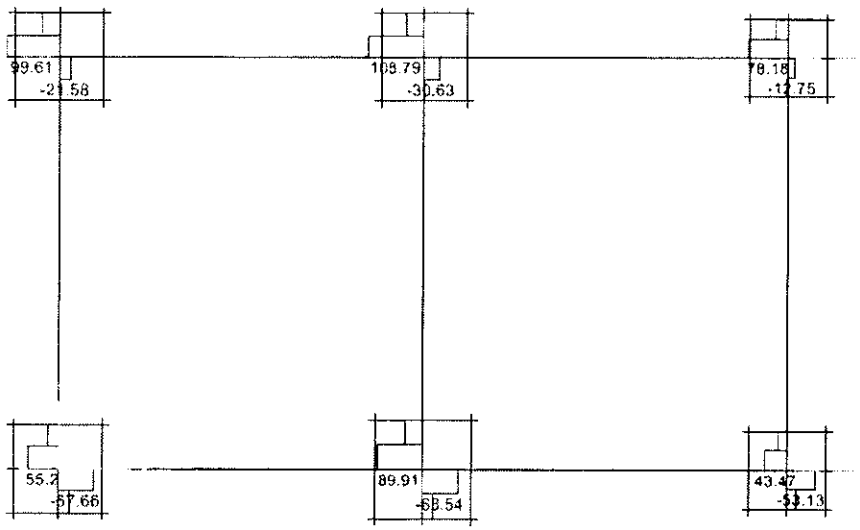
9.1.2.5. Resultados, diseño elementos



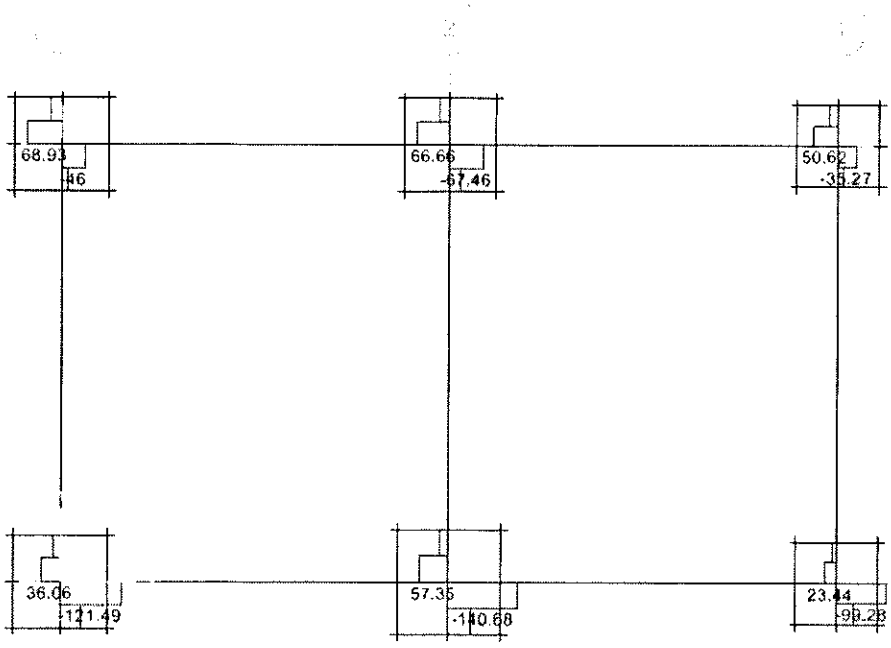
Zapatas - Strip A, Mmax (kN-m)



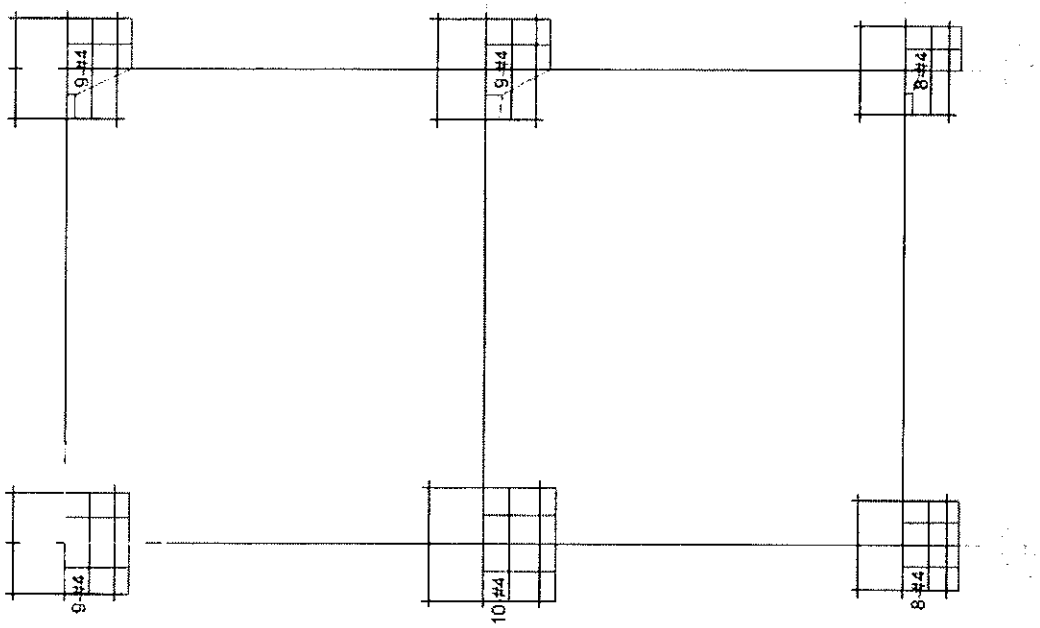
Zapatas - Strip A, Mmin (kN-m)



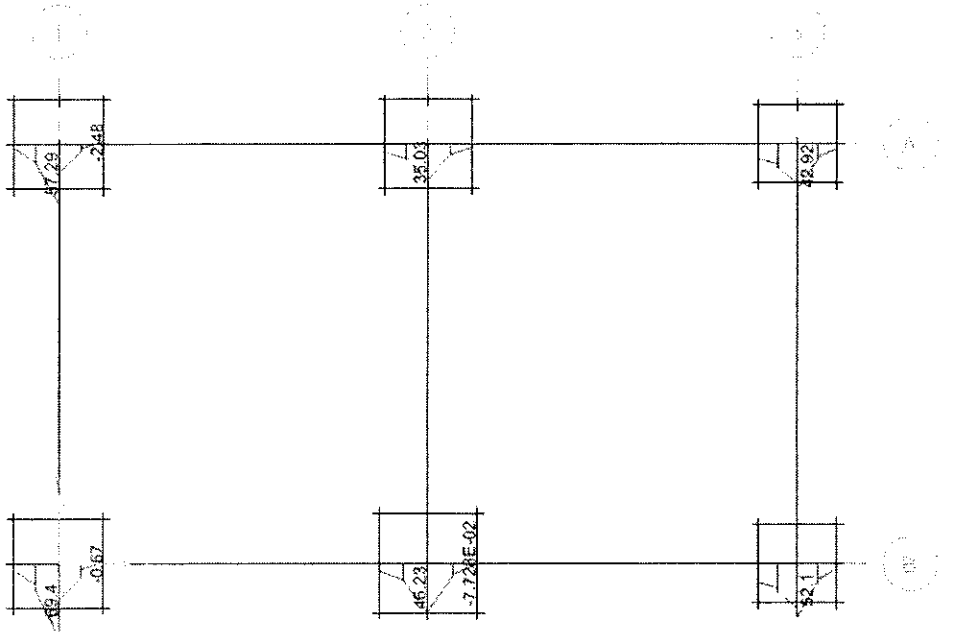
Zapatas - Strip A, Vmax (kN)



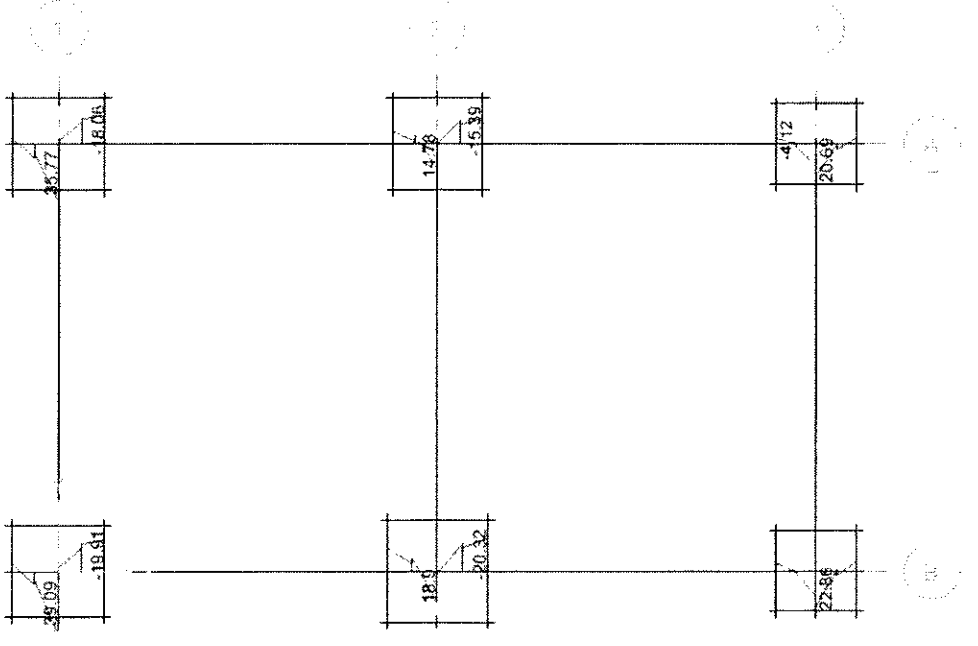
Zapatas - Strip A, Vmin (kN)



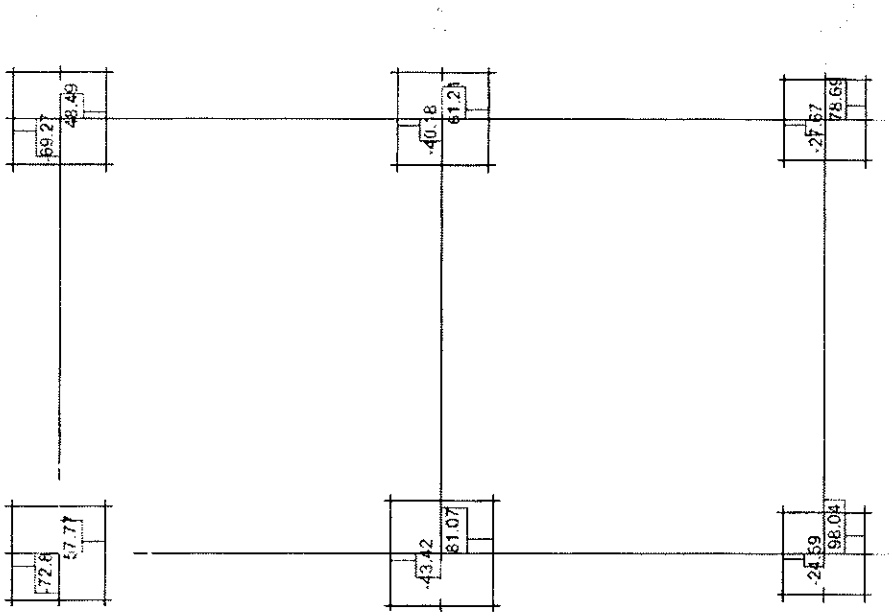
Zapatas SUELO E - Strip A, Acero de Refuerzo



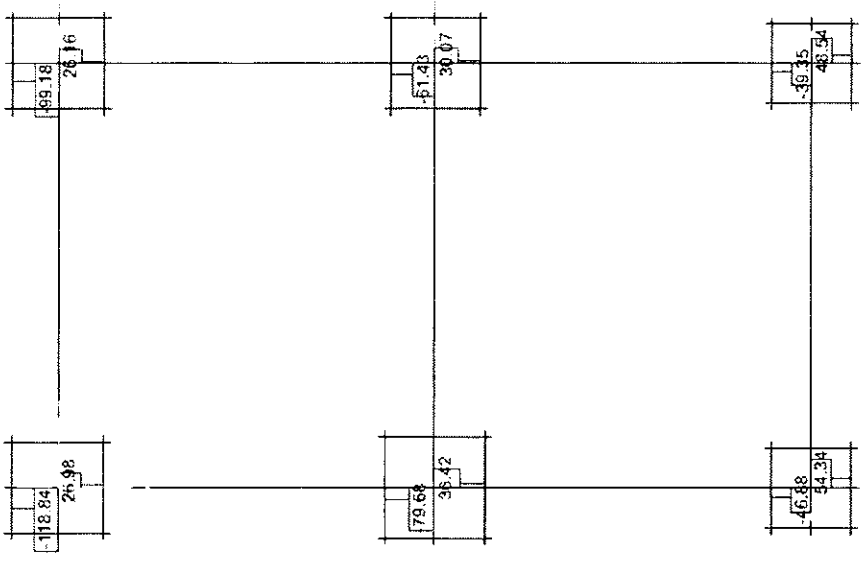
Zapatas - Strip B, Mmax (kN-m)



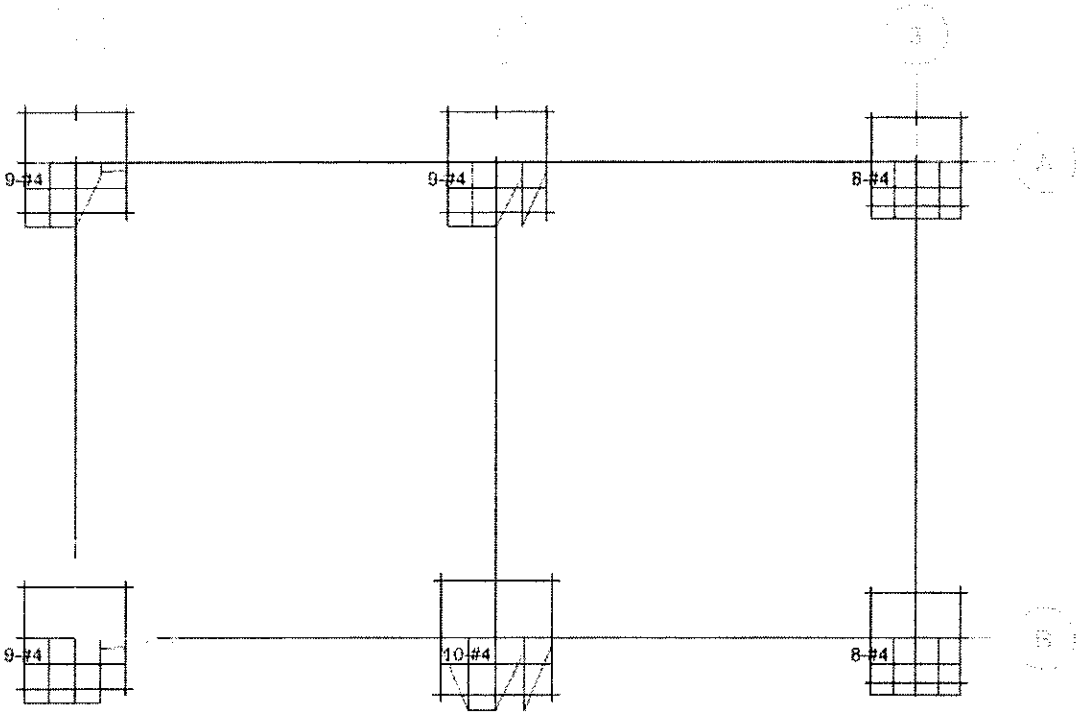
Zapatas - Strip B, Mmin (kN-m)



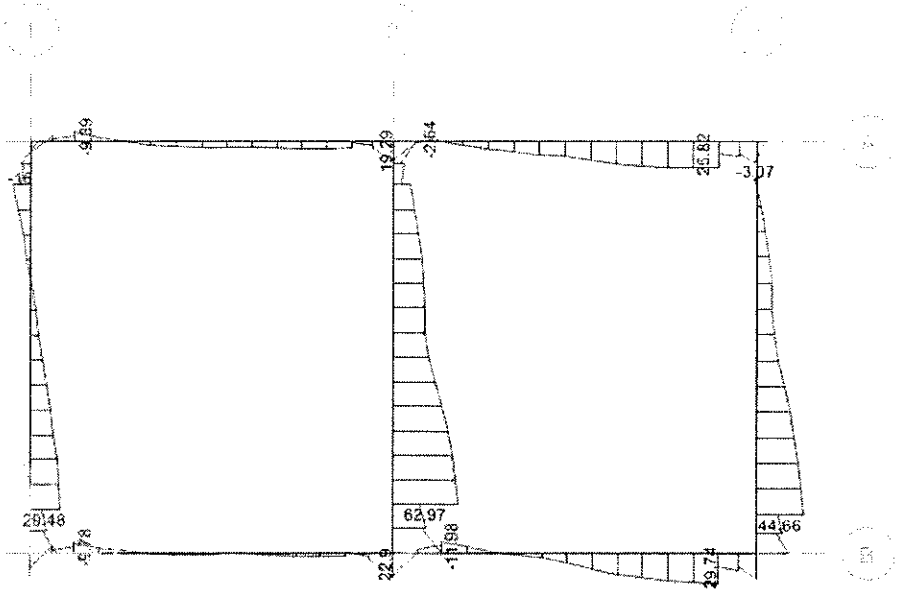
Zapatas - Strip B, Vmax (kN)



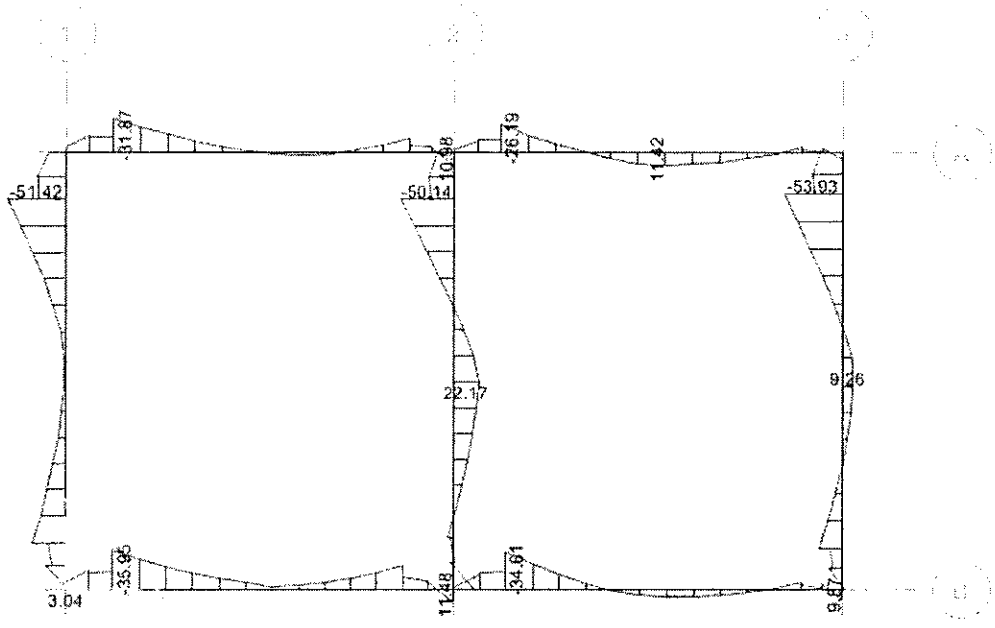
Zapatas - Strip B, Vmin (kN)



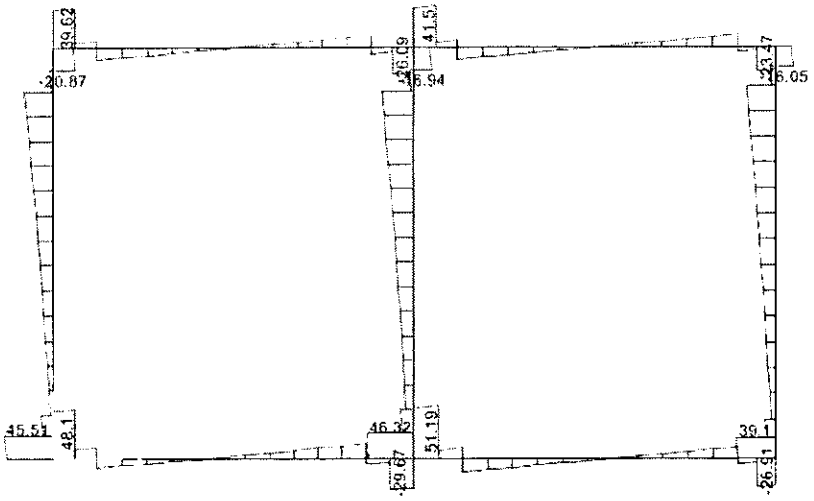
Zapatas SUELO E - Strip B, Acero de Refuerzo



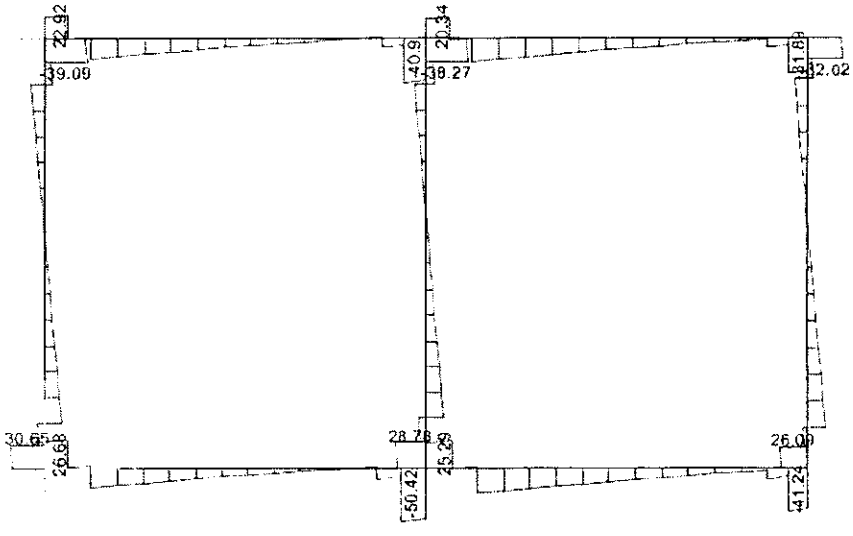
Vigas, Mmax (kN-m)



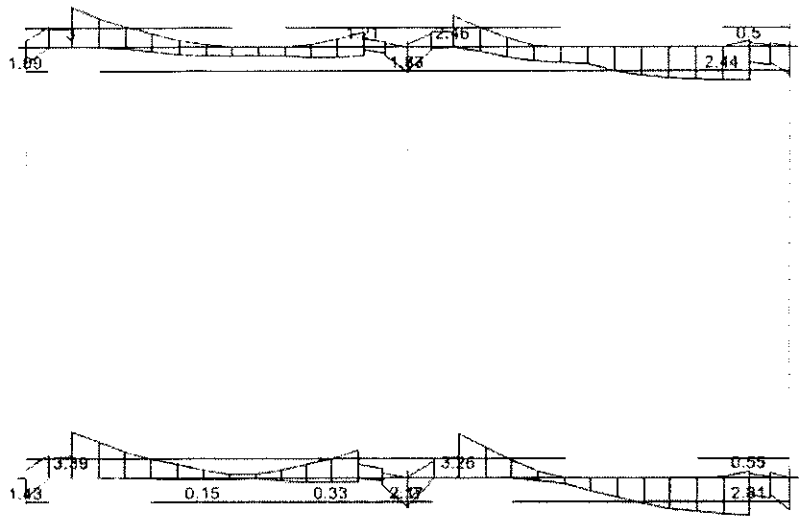
Vigas, Mmin (kN-m)



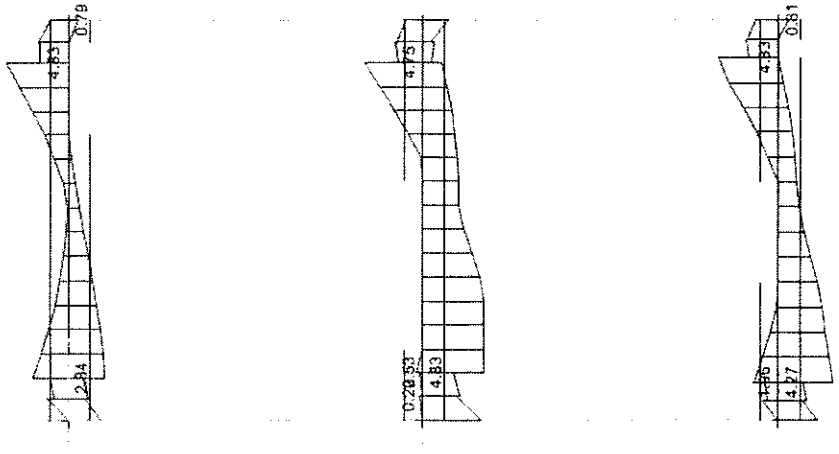
Vigas, Vmax (kN)



Vigas, Vmin (kN)



Vigas Long. Suelo E, Acero de refuerzo a flexion (cm2)

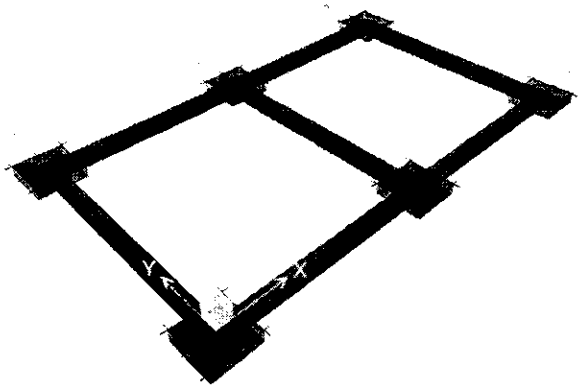


Vigas Transv. Suelo E, Acero de refuerzo a flexion (cm2)

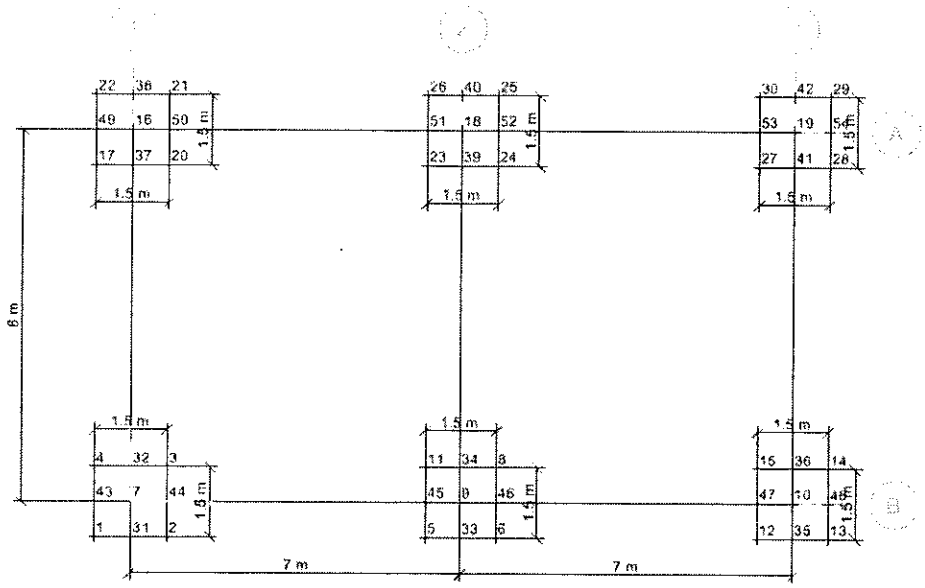
9.2. Zona Intermedia

9.2.1. Suelo Tipo AB / CD

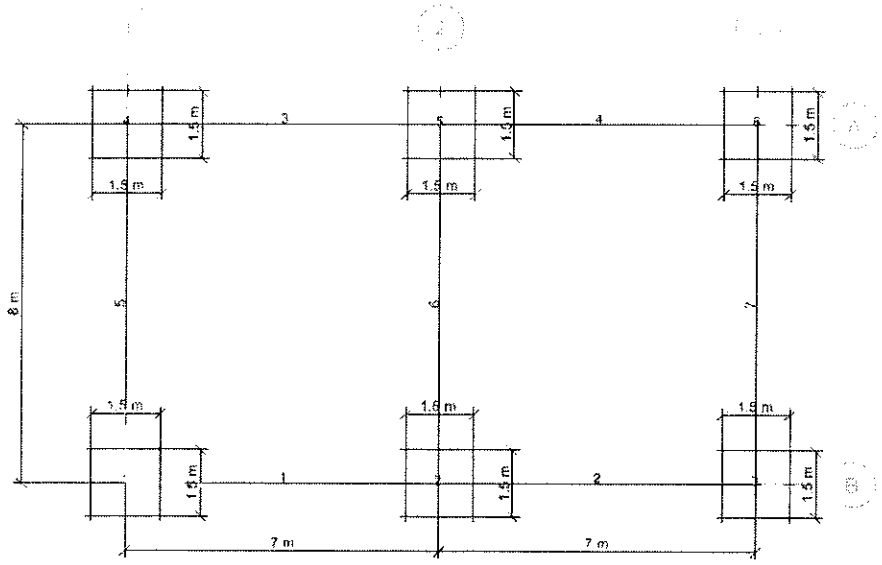
9.2.1.1. Modelo Matemático



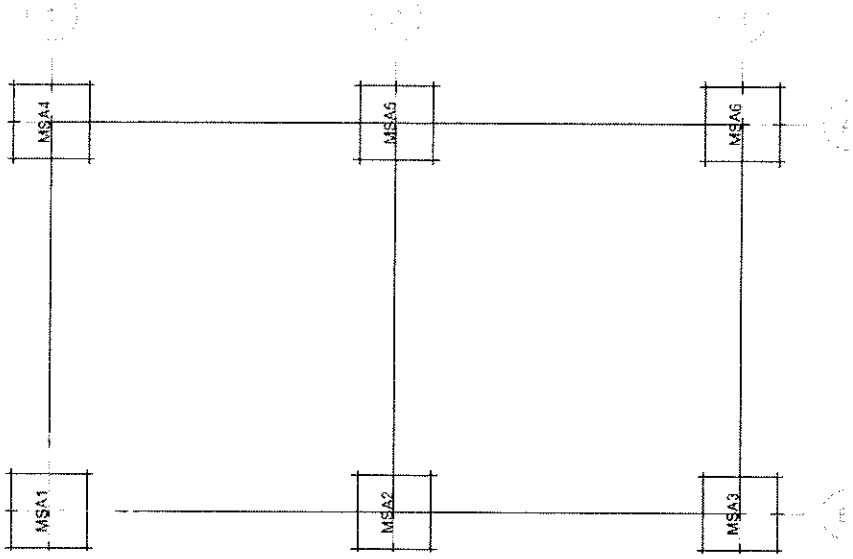
MODELO 3D_SAFE V12.3.2 - Planta Cimentación AB / CD



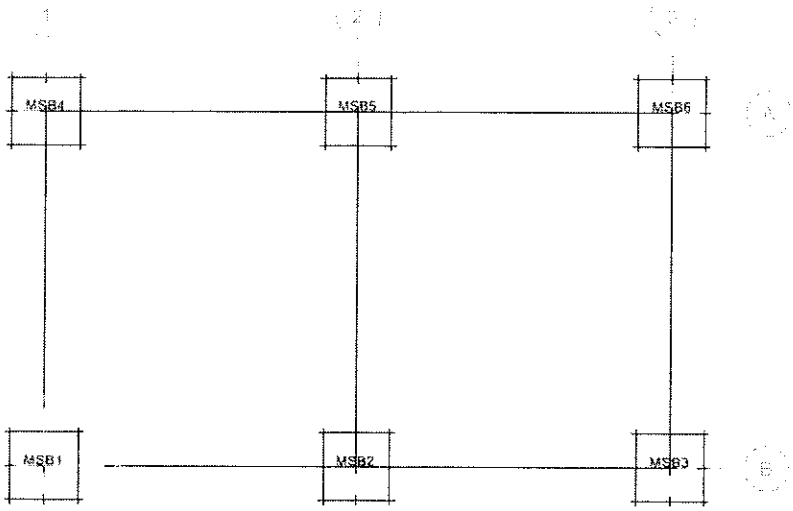
Numeración Nudos



Numeración Elementos



Identificación Strip A



Identificación Strip B

9.2.1.2. Coordenadas, asignaciones

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Table: Coordinate Systems

CoordSys	Type	OriginGx m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Grid Lines

CoordSys	AxisDir	GridID	Ordinate m	Visible	BubbleLoc	GridColor	BubbleSize mm	HideAll
GLOBAL	X	1	0.00	Yes	End	10461087	1000.00	No
GLOBAL	X	2	7.00	Yes	End			
GLOBAL	X	3	14.00	Yes	End			
GLOBAL	Y	B	0.00	Yes	End			
GLOBAL	Y	A	8.00	Yes	End			

Table: Object Geometry - Areas 01 - General, Part 1 of 2

Area	NumPoints	Point1	Point2	Point3	Point4	Auto	TotalArea mm2	AreaType
1	4	1	2	3	4	No	2250000.00	Slab
2	4	5	6	8	11	No	2250000.00	Slab
3	4	12	13	14	15	No	2250000.00	Slab
4	4	17	20	21	22	No	2250000.00	Slab
5	4	23	24	25	26	No	2250000.00	Slab
6	4	27	28	29	30	No	2250000.00	Slab

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA1	31	0.00	-0.75			0.75	0.75
MSA1	32	0.00	0.75	0.75	0.75		
MSA2	33	7.00	-0.75			0.75	0.75
MSA2	34	7.00	0.75	0.75	0.75		
MSA3	35	14.00	-0.75			0.75	0.75

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA3	36	14.00	0.75	0.75	0.75		
MSA4	37	0.00	7.25			0.75	0.75
MSA4	38	0.00	8.75	0.75	0.75		
MSA5	39	7.00	7.25			0.75	0.75
MSA5	40	7.00	8.75	0.75	0.75		
MSA6	41	14.00	7.25			0.75	0.75
MSA6	42	14.00	8.75	0.75	0.75		
MSB1	43	-0.75	0.00			0.75	0.75
MSB1	44	0.75	0.00	0.75	0.75		
MSB2	45	6.25	0.00			0.75	0.75
MSB2	46	7.75	0.00	0.75	0.75		
MSB3	47	13.25	0.00			0.75	0.75
MSB3	48	14.75	0.00	0.75	0.75		
MSB4	49	-0.75	8.00			0.75	0.75
MSB4	50	0.75	8.00	0.75	0.75		
MSB5	51	6.25	8.00			0.75	0.75
MSB5	52	7.75	8.00	0.75	0.75		
MSB6	53	13.25	8.00			0.75	0.75
MSB6	54	14.75	8.00	0.75	0.75		

Table: Object Geometry - Dimension Lines, Part 1 of 2

AlignType	GlobalX1 m	GlobalY1 m	GlobalX2 m	GlobalY2 m	GlobalX3 m	GlobalY3 m	GlobalX4 m	GlobalY4 m
Parallel	0.00	0.00	0.00	8.00	-2.28	0.00	-2.28	8.00
Parallel	0.00	0.00	7.00	0.00	0.00	-1.52	7.00	-1.52
Parallel	7.00	0.00	14.00	0.00	7.00	-1.52	14.00	-1.52
Parallel	0.75	-0.75	0.75	0.75	1.65	-0.75	1.65	0.75
Parallel	0.75	7.25	0.75	8.75	1.65	7.25	1.65	8.75
Parallel	7.75	-0.75	7.75	0.75	8.62	-0.75	8.62	0.75
Parallel	7.75	7.25	7.75	8.75	8.62	7.25	8.62	8.75
Parallel	14.75	-0.75	14.75	0.75	15.33	-0.75	15.33	0.75
Parallel	14.75	7.25	14.75	8.75	15.33	7.25	15.33	8.75
Parallel	-0.75	0.75	0.75	0.75	-0.75	1.55	0.75	1.55
Parallel	6.25	0.75	7.75	0.75	6.25	1.55	7.75	1.55
Parallel	13.25	0.75	14.75	0.75	13.25	1.55	14.75	1.55
Parallel	-0.75	7.25	0.75	7.25	-0.75	6.45	0.75	6.45
Parallel	6.25	7.25	7.75	7.25	6.25	6.45	7.75	6.45
Parallel	13.25	7.25	14.75	7.25	13.25	6.45	14.75	6.45

Table: Object Geometry - Lines 01 - General

Line	PointI	PointJ	LineType	CurveType	Length m
1	7	9	Beam	Straight	7.00
2	9	10	Beam	Straight	7.00
3	16	18	Beam	Straight	7.00
4	18	19	Beam	Straight	7.00
5	7	16	Beam	Straight	8.00
6	9	18	Beam	Straight	8.00
7	10	19	Beam	Straight	8.00

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
1	-0.75	-0.75	0.00	No
2	0.75	-0.75	0.00	No
3	0.75	0.75	0.00	No
4	-0.75	0.75	0.00	No
5	6.25	-0.75	0.00	No
6	7.75	-0.75	0.00	No
7	0.00	0.00	0.00	Yes
8	7.75	0.75	0.00	No
9	7.00	0.00	0.00	Yes
10	14.00	0.00	0.00	Yes
11	6.25	0.75	0.00	No
12	13.25	-0.75	0.00	No
13	14.75	-0.75	0.00	No
14	14.75	0.75	0.00	No
15	13.25	0.75	0.00	No
16	0.00	8.00	0.00	Yes
17	-0.75	7.25	0.00	No
18	7.00	8.00	0.00	Yes
19	14.00	8.00	0.00	Yes
20	0.75	7.25	0.00	No

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
21	0.75	8.75	0.00	No
22	-0.75	8.75	0.00	No
23	6.25	7.25	0.00	No
24	7.75	7.25	0.00	No
25	7.75	8.75	0.00	No
26	6.25	8.75	0.00	No
27	13.25	7.25	0.00	No
28	14.75	7.25	0.00	No
29	14.75	8.75	0.00	No
30	13.25	8.75	0.00	No
31	0.00	-0.75	0.00	No
32	0.00	0.75	0.00	No
33	7.00	-0.75	0.00	No
34	7.00	0.75	0.00	No
35	14.00	-0.75	0.00	No
36	14.00	0.75	0.00	No
37	0.00	7.25	0.00	No
38	0.00	8.75	0.00	No
39	7.00	7.25	0.00	No
40	7.00	8.75	0.00	No
41	14.00	7.25	0.00	No
42	14.00	8.75	0.00	No
43	-0.75	0.00	0.00	No
44	0.75	0.00	0.00	No
45	6.25	0.00	0.00	No
46	7.75	0.00	0.00	No
47	13.25	0.00	0.00	No
48	14.75	0.00	0.00	No
49	-0.75	8.00	0.00	No
50	0.75	8.00	0.00	No
51	6.25	8.00	0.00	No
52	7.75	8.00	0.00	No
53	13.25	8.00	0.00	No
54	14.75	8.00	0.00	No

Table: Beam Property Assignments

Line	BeamProp
1	SC30X40
2	SC30X40
3	SC30X40
4	SC30X40
5	SC30X40
6	SC30X40
7	SC30X40

Table: Slab Property Assignments

Area	SlabProp
1	ZPT
2	ZPT
3	ZPT
4	ZPT
5	ZPT
6	ZPT

Table: Soil Property Assignments

Area	SoilProp
1	SOIL_AB
2	SOIL_AB
3	SOIL_AB
4	SOIL_AB
5	SOIL_AB
6	SOIL_AB

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
1	Yes	Yes	No	No	No	No
2	Yes	Yes	No	No	No	No
3	Yes	Yes	No	No	No	No
4	Yes	Yes	No	No	No	No
5	Yes	Yes	No	No	No	No
6	Yes	Yes	No	No	No	No
8	Yes	Yes	No	No	No	No
11	Yes	Yes	No	No	No	No
12	Yes	Yes	No	No	No	No
13	Yes	Yes	No	No	No	No
14	Yes	Yes	No	No	No	No
15	Yes	Yes	No	No	No	No
17	Yes	Yes	No	No	No	No
20	Yes	Yes	No	No	No	No
21	Yes	Yes	No	No	No	No
22	Yes	Yes	No	No	No	No
23	Yes	Yes	No	No	No	No
24	Yes	Yes	No	No	No	No
25	Yes	Yes	No	No	No	No
26	Yes	Yes	No	No	No	No
27	Yes	Yes	No	No	No	No
28	Yes	Yes	No	No	No	No
29	Yes	Yes	No	No	No	No
30	Yes	Yes	No	No	No	No

9.2.1.3. Cargas, asignación de cargas SUELO AB

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	XDim mm
7	LR	-2.61	-5.90	37.95	9.12	-3.39	0.00	300.00
7	G	-2.09	-5.60	35.89	8.58	-2.85	0.00	300.00
7	Ex	-9.53	-4.93	4.97	-12.03	-20.88	-0.33	300.00
7	Ey	-3.24	-14.29	7.00	-35.45	-7.03	-0.80	300.00
7	DL	-9.72	-17.21	183.30	30.16	-13.10	-1.000E-02	300.00
9	LR	1.51	-1.14	37.98	3.05	2.54	0.00	300.00
9	G	0.60	-5.55	54.16	8.99	1.02	0.00	300.00
9	Ex	-13.74	-5.28	1.82	-14.99	-28.34	-0.44	300.00
9	Ey	-4.54	-17.54	6.04	-49.78	-9.37	-1.06	300.00
9	DL	3.52	6.98	207.15	0.62	5.90	-1.000E-02	300.00
10	LR	1.19	-2.11	20.91	3.84	2.03	0.00	300.00
10	G	1.53	-4.08	29.07	6.47	2.30	0.00	300.00
10	Ex	-9.53	-5.18	5.11	-12.67	-20.88	-0.33	300.00
10	Ey	-3.27	-15.86	7.49	-39.29	-7.07	-0.80	300.00
10	DL	6.41	-11.25	150.93	21.92	9.86	-1.000E-02	300.00
16	LR	-2.33	5.61	33.01	-7.08	-2.97	0.00	300.00
16	G	-1.84	5.53	30.79	-7.09	-2.49	0.00	300.00
16	Ex	-8.40	-4.72	5.64	-11.75	-18.60	-0.33	300.00
16	Ey	-3.55	-14.38	6.80	-35.59	-7.75	-0.80	300.00
16	DL	-9.09	14.74	150.73	-14.82	-12.18	-1.000E-02	300.00
18	LR	1.27	1.82	27.68	-1.71	2.15	0.00	300.00
18	G	0.51	5.74	43.62	-7.37	0.86	0.00	300.00
18	Ex	-11.03	-3.95	1.87	-9.97	-22.35	-0.33	300.00
18	Ey	-4.49	-13.12	6.22	-33.10	-9.09	-0.80	300.00
18	DL	3.06	-1.81	152.85	8.55	5.12	-1.000E-02	300.00
19	LR	0.97	1.72	15.47	-1.54	1.73	0.00	300.00
19	G	1.30	3.97	23.77	-4.87	1.99	0.00	300.00
19	Ex	-8.40	-5.01	5.60	-12.43	-18.61	-0.33	300.00
19	Ey	-3.58	-15.94	7.32	-39.40	-7.79	-0.80	300.00
19	DL	5.83	8.55	117.53	-5.96	9.07	-1.000E-02	300.00

9.2.1.4. Cargas, asignación de cargas SUELO CD

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	XDim mm
7	LR	-2.61	-5.90	37.95	9.12	-3.39	0.00	300.00
7	G	-2.09	-5.60	35.89	8.58	-2.85	0.00	300.00
7	Ex	-15.49	-7.72	8.01	-18.81	-33.93	-0.53	300.00
7	Ey	-5.22	-22.08	10.84	-54.79	-11.31	-1.24	300.00
7	DL	-9.72	-17.21	183.30	30.16	-13.10	-1.000E-02	300.00
9	LR	1.51	-1.14	37.98	3.05	2.54	0.00	300.00
9	G	0.60	-5.55	54.16	8.99	1.02	0.00	300.00
9	Ex	-22.33	-8.17	2.81	-23.18	-46.05	-0.69	300.00
9	Ey	-7.32	-27.11	9.34	-76.93	-15.09	-1.64	300.00
9	DL	3.52	6.98	207.15	0.62	5.90	-1.000E-02	300.00
10	LR	1.19	-2.11	20.91	3.84	2.03	0.00	300.00
10	G	1.53	-4.08	29.07	6.47	2.30	0.00	300.00
10	Ex	-15.49	-8.07	8.23	-19.72	-33.93	-0.53	300.00
10	Ey	-5.26	-24.51	11.60	-60.72	-11.37	-1.24	300.00
10	DL	6.41	-11.25	150.93	21.92	9.86	-1.000E-02	300.00
16	LR	-2.33	5.61	33.01	-7.08	-2.97	0.00	300.00
16	G	-1.84	5.53	30.79	-7.09	-2.49	0.00	300.00
16	Ex	-13.65	-7.36	9.12	-18.32	-30.22	-0.53	300.00
16	Ey	-5.63	-22.23	10.54	-55.00	-12.30	-1.24	300.00
16	DL	-9.09	14.74	150.73	-14.82	-12.18	-1.000E-02	300.00
18	LR	1.27	1.82	27.68	-1.71	2.15	0.00	300.00
18	G	0.51	5.74	43.62	-7.37	0.86	0.00	300.00
18	Ex	-17.92	-6.11	2.90	-15.41	-36.30	-0.53	300.00
18	Ey	-7.13	-20.28	9.61	-51.15	-14.45	-1.24	300.00
18	DL	3.06	-1.81	152.85	8.55	5.12	-1.000E-02	300.00
19	LR	0.97	1.72	15.47	-1.54	1.73	0.00	300.00
19	G	1.30	3.97	23.77	-4.87	1.99	0.00	300.00
19	Ex	-13.65	-7.78	9.03	-19.31	-30.23	-0.53	300.00
19	Ey	-5.67	-24.63	11.33	-60.89	-12.36	-1.24	300.00
19	DL	5.83	8.55	117.53	-5.96	9.07	-1.000E-02	300.00

9.2.1.5. Esfuerzos sobre el suelo AB

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Table: Soil Pressures - Enveloping Summary

Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-42.35	Envol.-SRV	Combination	0.38	7.63
1	MinPress	-153.89	Envol.-SRV	Combination	6.63	0.75
2	MaxPress	-39.40	Envol.-SRV	Combination	13.63	7.63
2	MinPress	-154.53	Envol.-SRV	Combination	7.38	0.75

Table: Soil Pressures - Summary

Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-42.35	-153.89	0.38	7.63	6.63	0.75
2	Envol.-SRV	Combination	-39.40	-154.53	13.63	7.63	7.38	0.75

Capacidad admisible de suelo A8, $_{adm}$ = 400 kN/m^2 > soil Pressures Max/Min => Ok

9.2.1.6. Esfuerzos sobre el suelo CD

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Table: Soil Pressures - Enveloping Summary

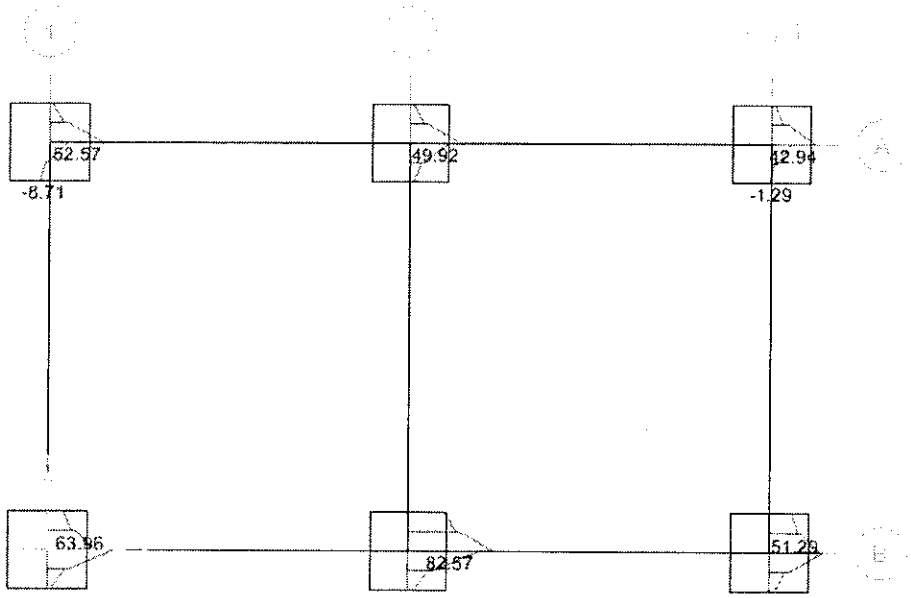
Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-46.67	Envol.-SRV	Combination	0.38	7.63
1	MinPress	-149.04	Envol.-SRV	Combination	6.63	0.75
2	MaxPress	-41.67	Envol.-SRV	Combination	13.63	7.63
2	MinPress	-149.25	Envol.-SRV	Combination	7.38	0.75

Table: Soil Pressures - Summary

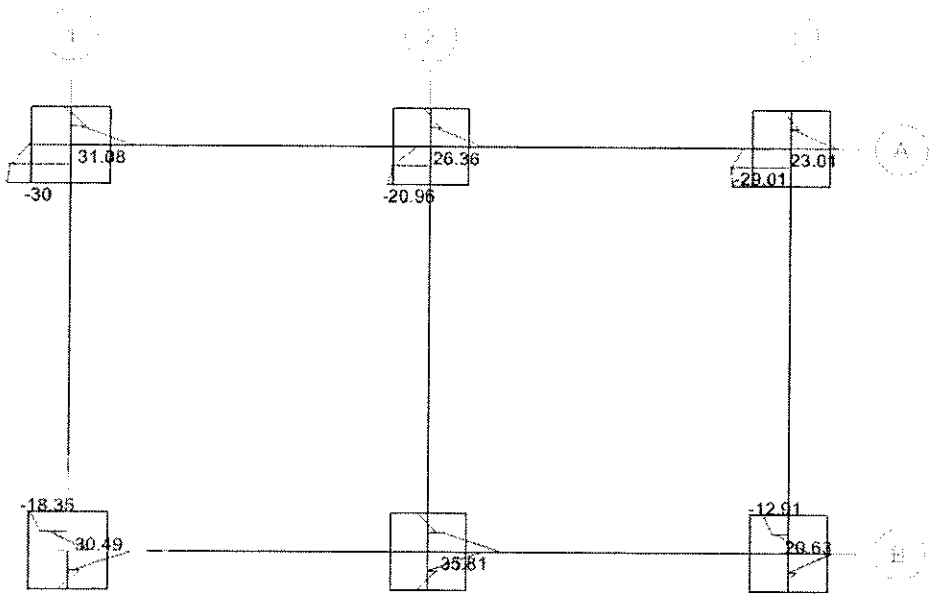
Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-46.67	-149.04	0.38	7.63	6.63	0.75
2	Envol.-SRV	Combination	-41.67	-149.25	13.63	7.63	7.38	0.75

Capacidad admisible de suelo A8, $_{adm}$ = 150 kN/m^2 > Soil Pressures Max/Min => Ok

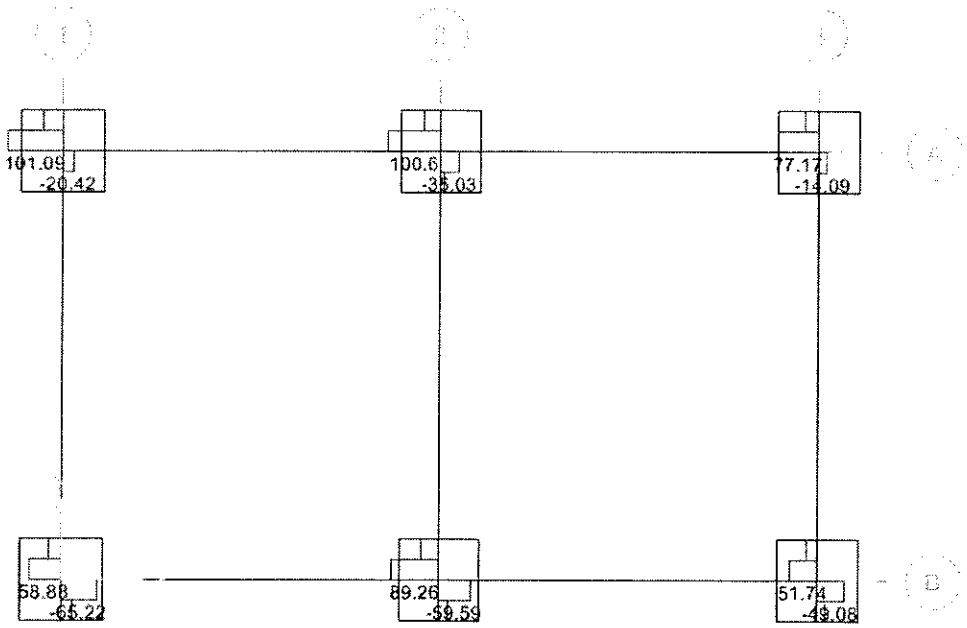
9.2.1.7. Resultados, diseño elementos



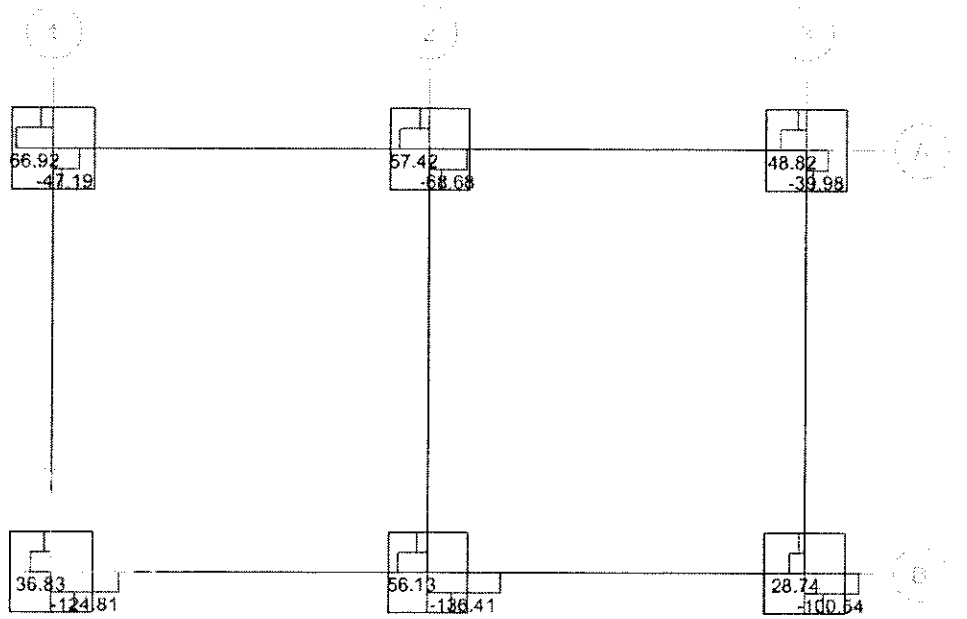
Zapatas - Strip A, Mmax (kN-m)



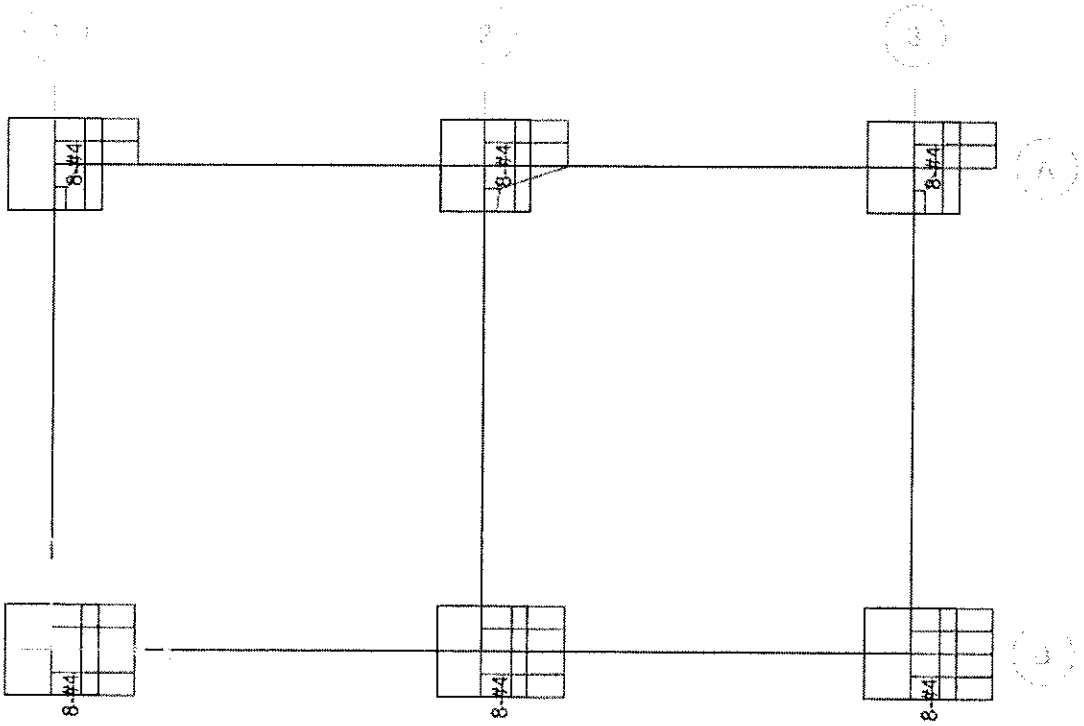
Zapatas - Strip A, Mmin (kN-m)



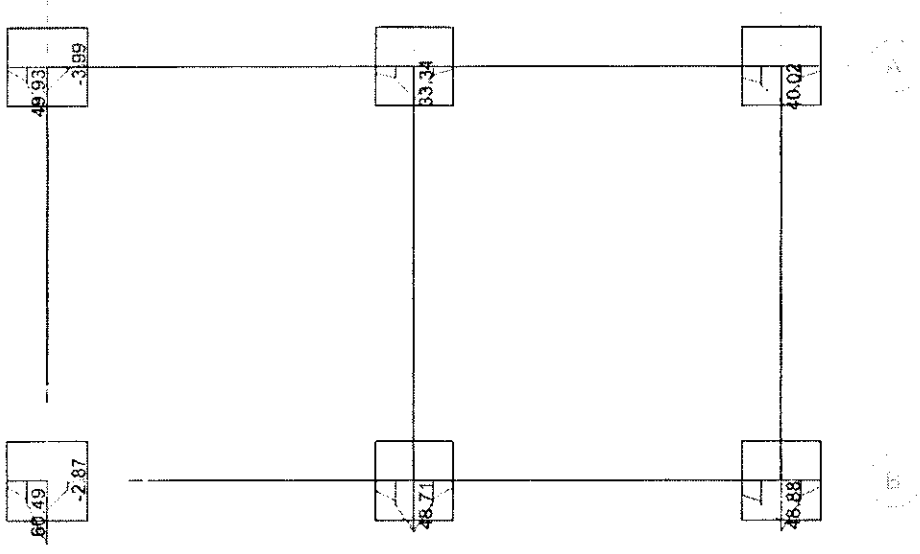
Zapatas - Strip A, Vmax (kN)



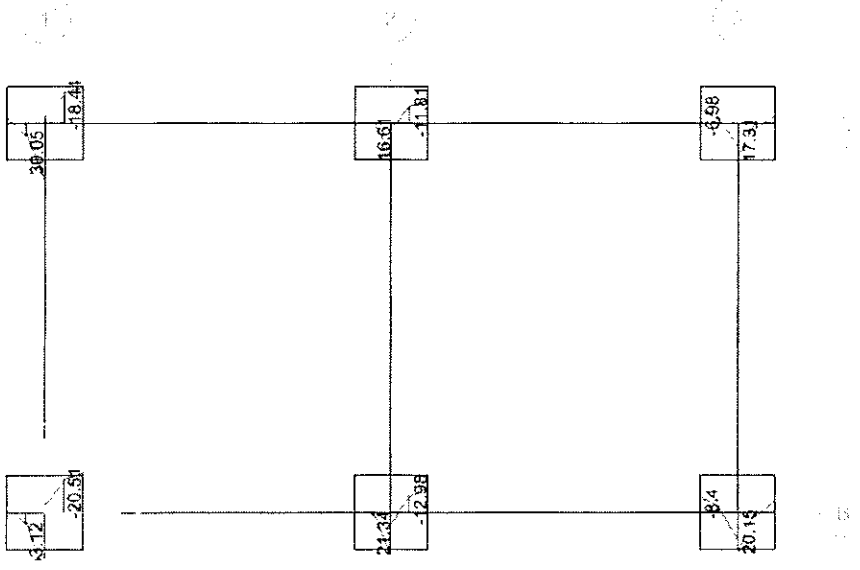
Zapatas - Strip A, Vmin (kN)



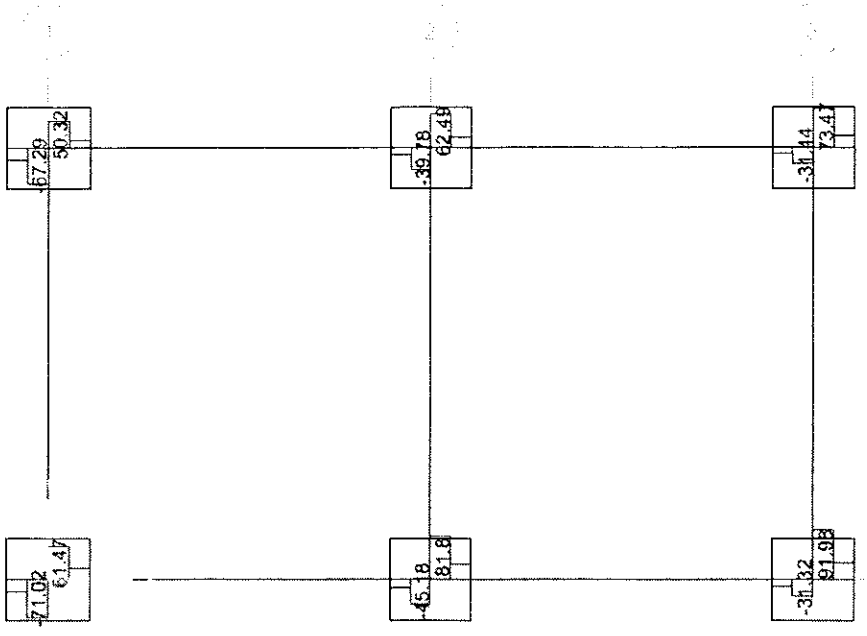
Zapatas – Strip A, Acero de Refuerzo



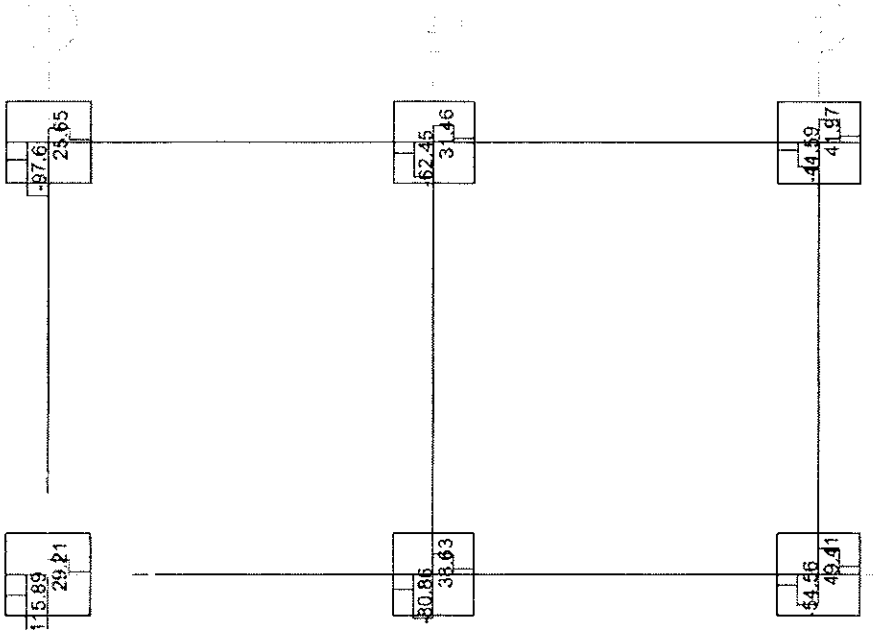
Zapatas - Strip B, Mmax (kN-m)



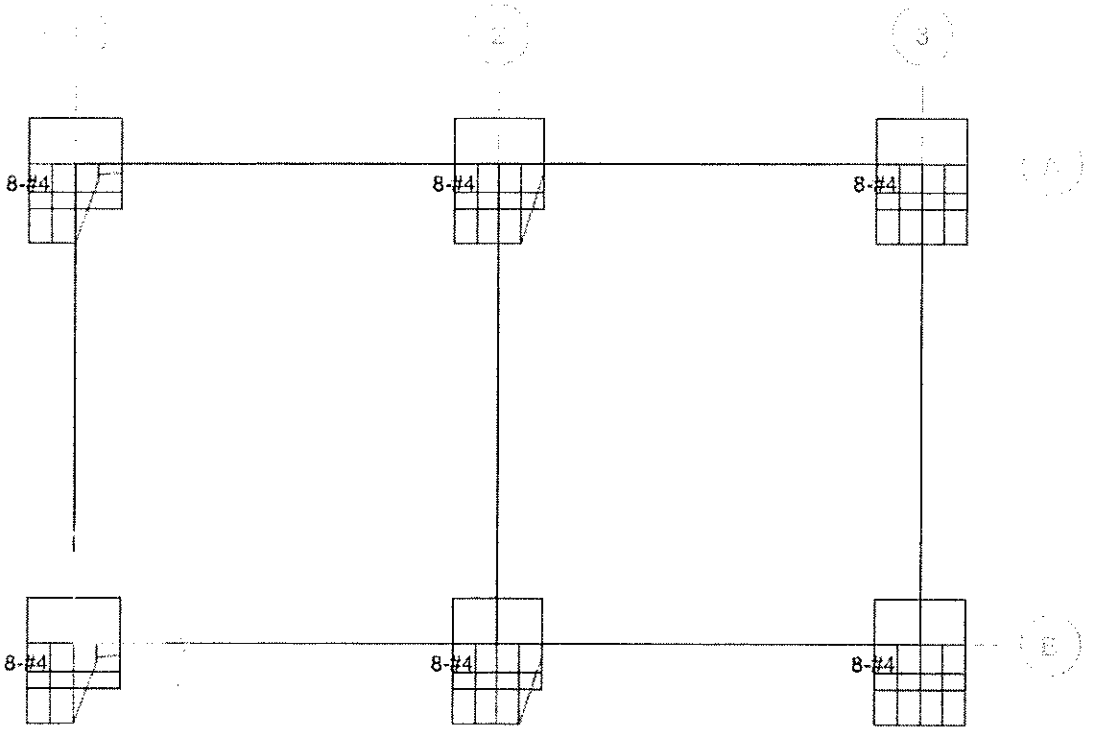
Zapatas - Strip B, Mmin (kN-m)



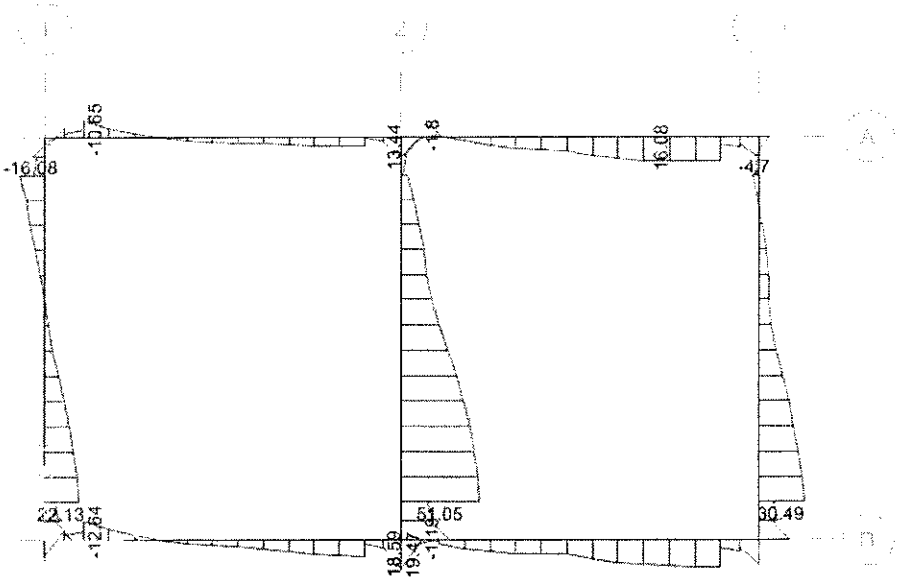
Zapatas - Strip B, Vmax (kN)



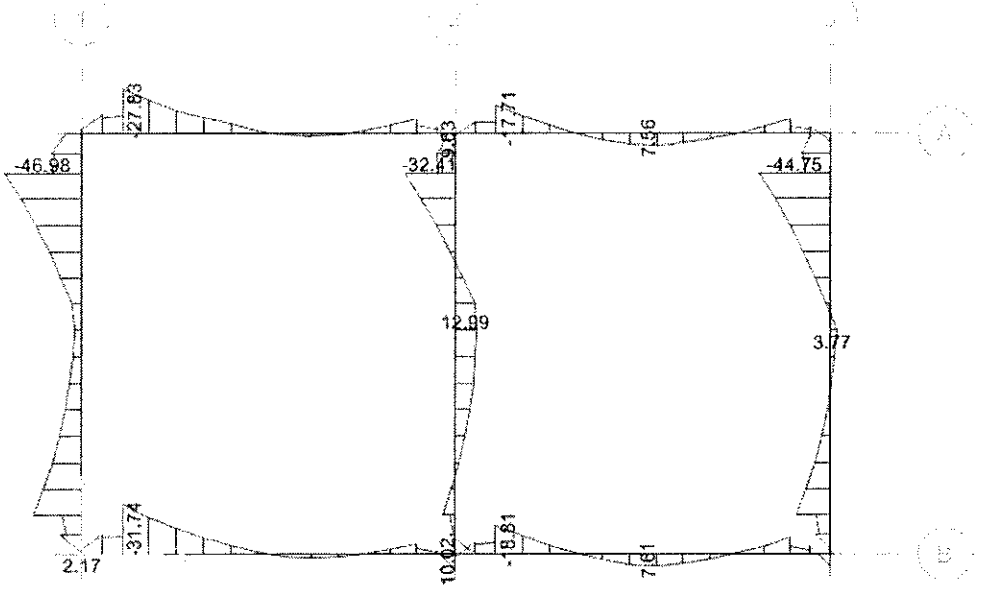
Zapatas - Strip B, Vmin (kN)



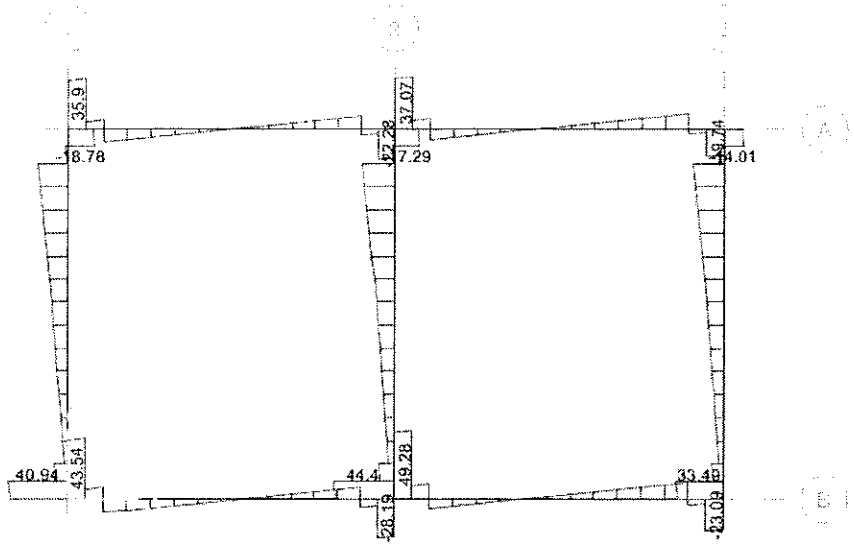
Zapatas SUELO AB/CD - Strip B, Acero de Refuerzo



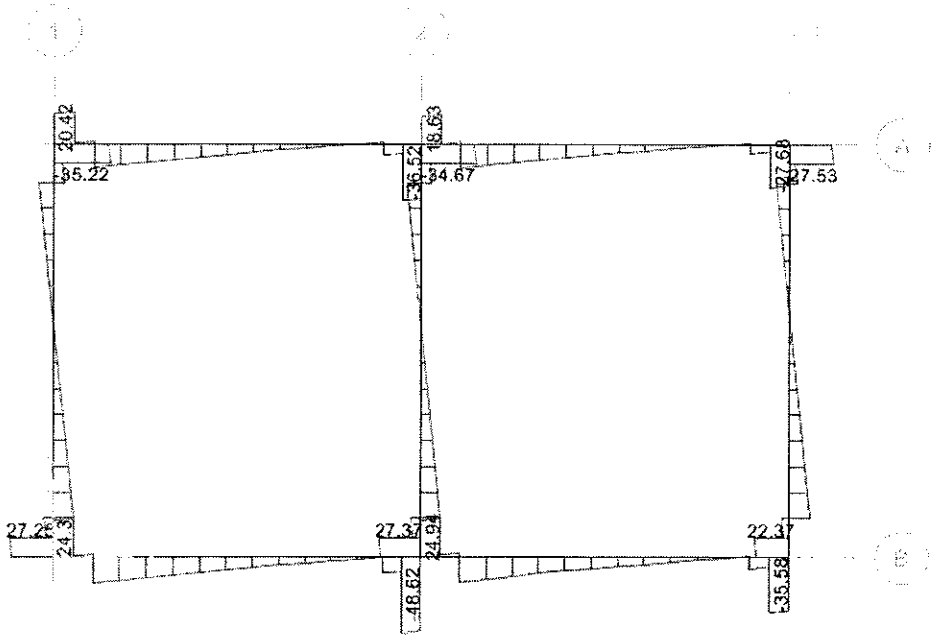
Vigas, Mmax (kN-m)



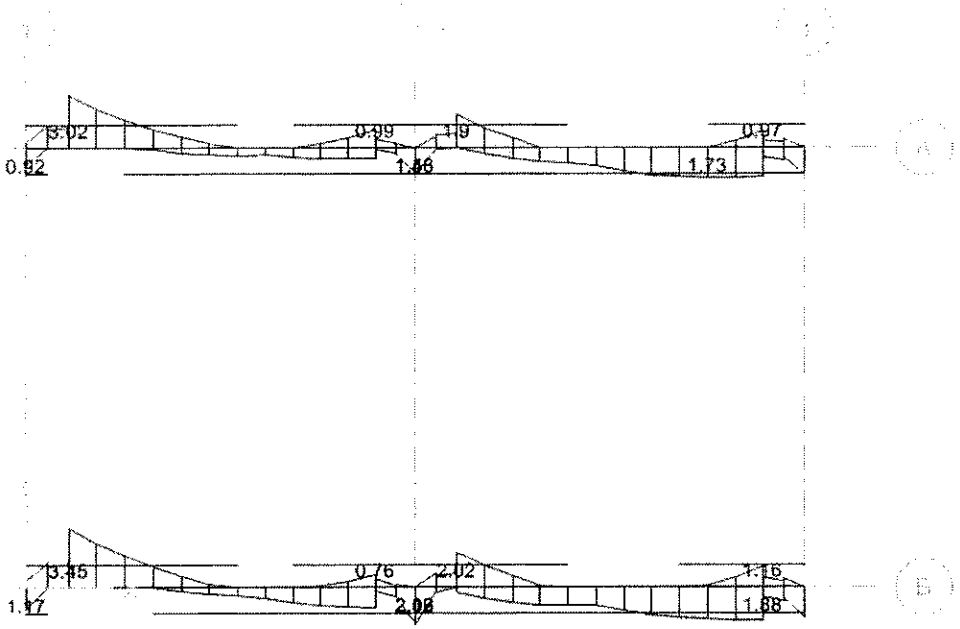
Vigas, Mmin (kN-m)



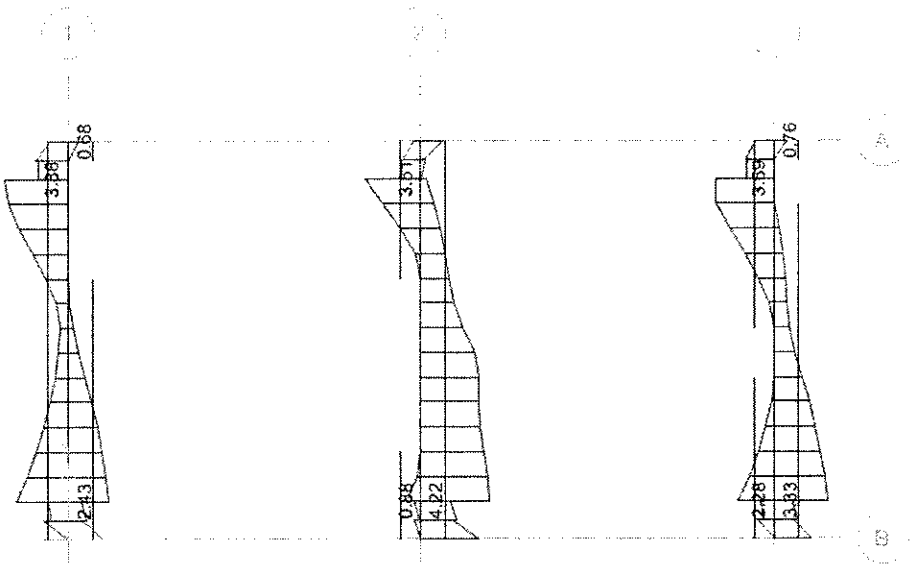
Vigas, Vmax (kN)



Vigas, Vmin (kN)



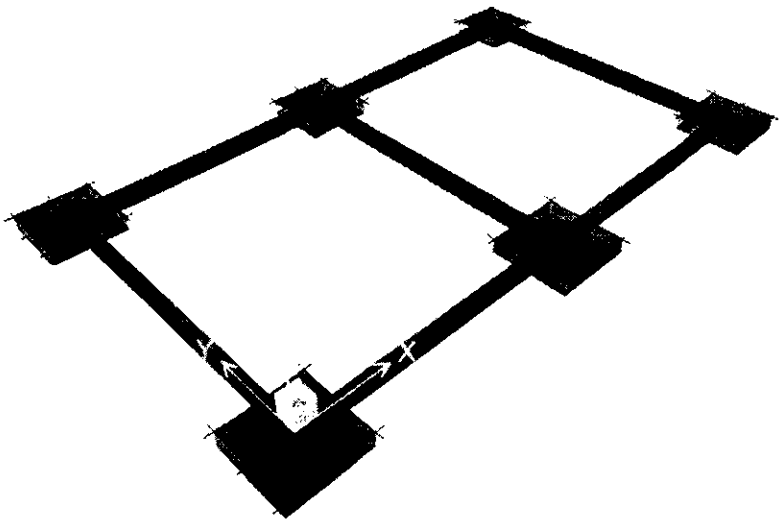
Vigas Long. Suelo AB/CD, Acero de refuerzo a flexion (cm2)



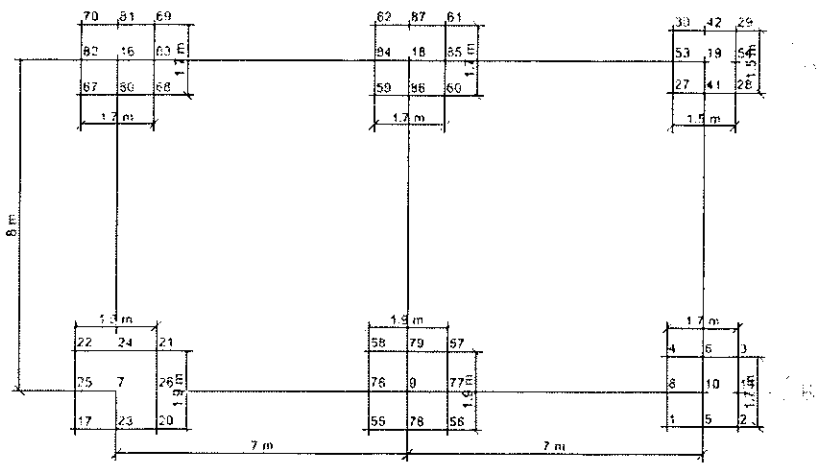
Vigas Transv. Suelo AB/CD, Acero de refuerzo a flexion (cm2)

9.2.2. Suelo Tipo E

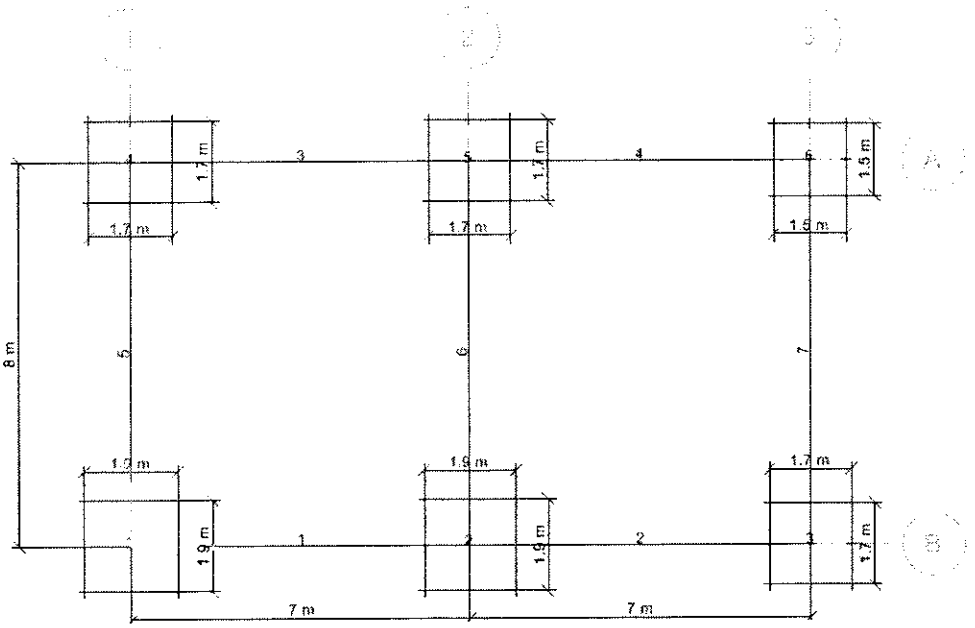
9.2.2.1. Modelo Matemático



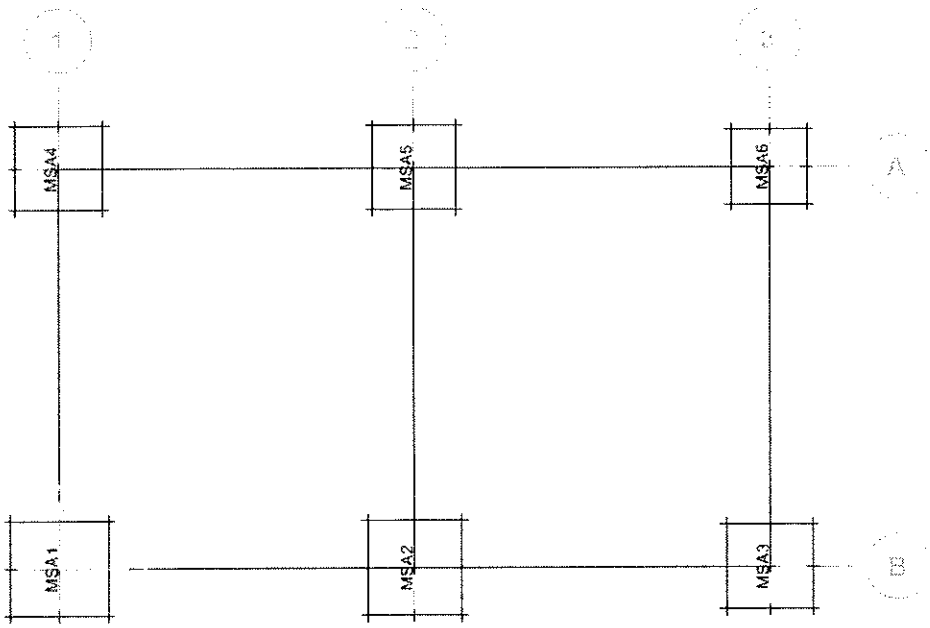
MODELO 3D_SAFE V12.3.2 - Planta Cimentación E



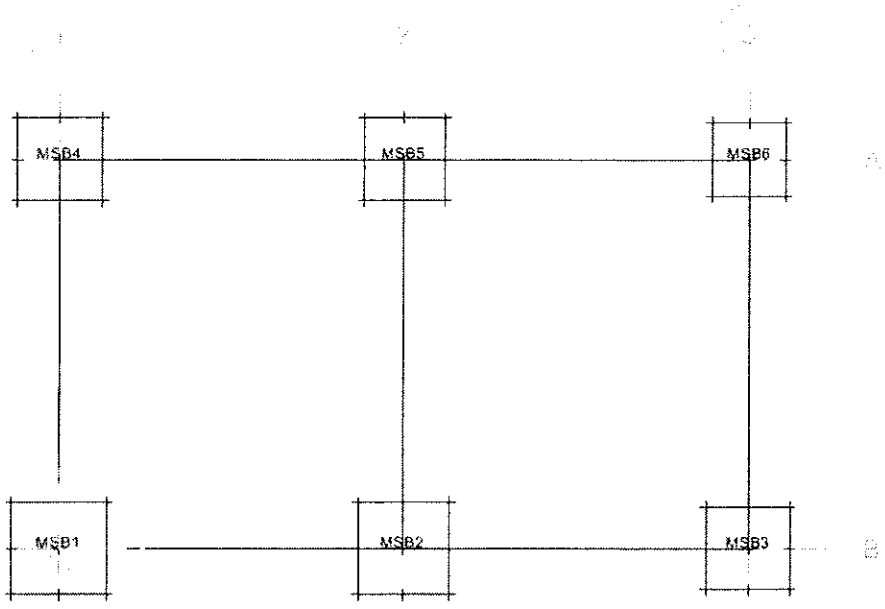
Numeración Nudos



Numeración Elementos



Identificación Strip A



Identificación Strip B

9.2.2.2. Coordenadas, asignaciones

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Table: Coordinate Systems

CoordSys	Type	OriginGx m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Grid Lines

CoordSys	AxisDir	GridID	Ordinate m	Visible	BubbleLoc	GridColor	BubbleSize mm	HideAll
GLOBAL	X	1	0.00	Yes	End	10461087	1000.00	No
GLOBAL	X	2	7.00	Yes	End			
GLOBAL	X	3	14.00	Yes	End			
GLOBAL	Y	B	0.00	Yes	End			
GLOBAL	Y	A	8.00	Yes	End			

Table: Object Geometry - Areas 01 - General, Part 1 of 2

Area	NumPoints	Point1	Point2	Point3	Point4	Auto	TotalArea mm2	AreaType
1	4	17	20	21	22	No	3610000.00	Slab
2	4	55	56	57	58	No	3610000.00	Slab
3	4	1	2	3	4	No	2890000.00	Slab
4	4	67	68	69	70	No	2890000.00	Slab
5	4	59	60	61	62	No	2890000.00	Slab
6	4	27	28	29	30	No	2250000.00	Slab

Table: Object Geometry - Oesign Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA1	23	0.00	-0.95			0.95	0.95
MSA1	24	0.00	0.95	0.95	0.95		
MSA2	78	7.00	-0.95			0.95	0.95
MSA2	79	7.00	0.95	0.95	0.95		
MSA3	5	14.00	-0.85			0.85	0.85
MSA3	6	14.00	0.85	0.85	0.85		
MSA4	80	0.00	7.15			0.85	0.85
MSA4	81	0.00	8.85	0.85	0.85		
MSA5	86	7.00	7.15			0.85	0.85
MSA5	87	7.00	8.85	0.85	0.85		
MSA6	41	14.00	7.25			0.75	0.75
MSA6	42	14.00	8.75	0.75	0.75		
MSB1	25	-0.95	0.00			0.95	0.95
MSB1	26	0.95	0.00	0.95	0.95		
MSB2	76	6.05	0.00			0.95	0.95
MSB2	77	7.95	0.00	0.95	0.95		
MSB3	8	13.15	0.00			0.85	0.85
MSB3	11	14.85	0.00	0.85	0.85		
MSB4	82	-0.85	8.00			0.85	0.85
MSB4	83	0.85	8.00	0.85	0.85		
MSB5	84	6.15	8.00			0.85	0.85
MSB5	85	7.85	8.00	0.85	0.85		
MSB6	53	13.25	8.00			0.75	0.75
MSB6	54	14.75	8.00	0.75	0.75		

Table: Object Geometry - Oimension Lines, Part 1 of 2

AlignType	GlobalX1 m	GlobalY1 m	GlobalX2 m	GlobalY2 m	GlobalX3 m	GlobalY3 m	GlobalX4 m	GlobalY4 m
Parallel	0.00	0.00	0.00	8.00	-2.28	0.00	-2.28	8.00
Parallel	0.00	0.00	7.00	0.00	0.00	-1.52	7.00	-1.52
Parallel	7.00	0.00	14.00	0.00	7.00	-1.52	14.00	-1.52
Parallel	0.75	-0.95	0.75	0.95	1.65	-0.95	1.65	0.95
Parallel	0.75	7.15	0.75	8.85	1.65	7.15	1.65	8.85
Parallel	7.75	-0.95	7.75	0.95	8.62	-0.95	8.62	0.95
Parallel	7.75	7.15	7.75	8.85	8.62	7.15	8.62	8.85
Parallel	14.75	-0.85	14.75	0.85	15.33	-0.85	15.33	0.85
Parallel	14.75	7.25	14.75	8.75	15.33	7.25	15.33	8.75
Parallel	-0.95	0.75	0.95	0.75	-0.95	1.55	0.95	1.55
Parallel	6.05	0.75	7.95	0.75	6.05	1.55	7.95	1.55
Parallel	13.15	0.75	14.85	0.75	13.15	1.55	14.85	1.55
Parallel	-0.85	7.25	0.85	7.25	-0.85	6.45	0.85	6.45
Parallel	6.15	7.25	7.85	7.25	6.15	6.45	7.85	6.45
Parallel	13.25	7.25	14.75	7.25	13.25	6.45	14.75	6.45

Table: Object Geometry - Lines 01 - General

Line	PointI	PointJ	LineType	CurveType	Length m
1	7	9	Beam	Straight	7.00
2	9	10	Beam	Straight	7.00
3	16	18	Beam	Straight	7.00
4	18	19	Beam	Straight	7.00
5	7	16	Beam	Straight	8.00
6	9	18	Beam	Straight	8.00
7	10	19	Beam	Straight	8.00

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
1	13.15	-0.85	0.00	No
2	14.85	-0.85	0.00	No
3	14.85	0.85	0.00	No
4	13.15	0.85	0.00	No
5	14.00	-0.85	0.00	No
6	14.00	0.85	0.00	No
7	0.00	0.00	0.00	Yes
8	13.15	0.00	0.00	No
9	7.00	0.00	0.00	Yes
10	14.00	0.00	0.00	Yes
11	14.85	0.00	0.00	No
16	0.00	8.00	0.00	Yes

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
17	-0.95	-0.95	0.00	No
18	7.00	8.00	0.00	Yes
19	14.00	8.00	0.00	Yes
20	0.95	-0.95	0.00	No
21	0.95	0.95	0.00	No
22	-0.95	0.95	0.00	No
23	0.00	-0.95	0.00	No
24	0.00	0.95	0.00	No
25	-0.95	0.00	0.00	No
26	0.95	0.00	0.00	No
27	13.25	7.25	0.00	No
28	14.75	7.25	0.00	No
29	14.75	8.75	0.00	No
30	13.25	8.75	0.00	No
41	14.00	7.25	0.00	No
42	14.00	8.75	0.00	No
53	13.25	8.00	0.00	No
54	14.75	8.00	0.00	No
55	6.05	-0.95	0.00	No
56	7.95	-0.95	0.00	No
57	7.95	0.95	0.00	No
58	6.05	0.95	0.00	No
59	6.15	7.15	0.00	No
60	7.85	7.15	0.00	No
61	7.85	8.85	0.00	No
62	6.15	8.85	0.00	No
67	-0.85	7.15	0.00	No
68	0.85	7.15	0.00	No
69	0.85	8.85	0.00	No
70	-0.85	8.85	0.00	No
76	6.05	0.00	0.00	No
77	7.95	0.00	0.00	No
78	7.00	-0.95	0.00	No
79	7.00	0.95	0.00	No
80	0.00	7.15	0.00	No
81	0.00	8.85	0.00	No
82	-0.85	8.00	0.00	No
83	0.85	8.00	0.00	No
84	6.15	8.00	0.00	No
85	7.85	8.00	0.00	No
86	7.00	7.15	0.00	No
87	7.00	8.85	0.00	No

9.2.2.3. Cargas, asignación de cargas SUELO E

Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	XDim mm
7	LR	-2.61	-5.90	37.95	9.12	-3.39	0.00	300.00
7	G	-2.09	-5.60	35.89	8.58	-2.85	0.00	300.00
7	Ex	-23.83	-11.82	12.31	-28.80	-52.20	-0.81	300.00
7	Ey	-8.01	-33.77	16.58	-83.79	-17.39	-1.90	300.00
7	OL	-9.72	-17.21	183.30	30.16	-13.10	-1.000E-02	300.00
9	LR	1.51	-1.14	37.98	3.05	2.54	0.00	300.00
9	G	0.60	-5.55	54.16	8.99	1.02	0.00	300.00
9	Ex	-34.35	-12.49	4.30	-35.45	-70.85	-1.06	300.00
9	Ey	-11.25	-41.47	14.28	-117.66	-23.20	-2.50	300.00
9	OL	3.52	6.98	207.15	0.62	5.90	-1.000E-02	300.00
10	LR	1.19	-2.11	20.91	3.84	2.03	0.00	300.00
10	G	1.53	-4.08	29.07	6.47	2.30	0.00	300.00
10	Ex	-23.82	-12.36	12.64	-30.18	-52.20	-0.81	300.00
10	Ey	-8.08	-37.49	17.74	-92.87	-17.47	-1.90	300.00
10	OL	6.41	-11.25	150.93	21.92	9.86	-1.000E-02	300.00
16	LR	-2.33	5.61	33.01	-7.08	-2.97	0.00	300.00
16	G	-1.84	5.53	30.79	-7.09	-2.49	0.00	300.00
16	Ex	-20.99	-11.27	14.02	-28.05	-46.49	-0.81	300.00
16	Ey	-8.64	-34.00	16.13	-84.12	-18.87	-1.90	300.00
16	OL	-9.09	14.74	150.73	-14.82	-12.18	-1.000E-02	300.00
18	LR	1.27	1.82	27.68	-1.71	2.15	0.00	300.00
18	G	0.51	5.74	43.62	-7.37	0.86	0.00	300.00
18	Ex	-27.56	-9.34	4.43	-23.57	-55.85	-0.81	300.00
18	Ey	-10.95	-31.01	14.70	-78.23	-22.17	-1.90	300.00
18	OL	3.06	-1.81	152.85	8.55	5.12	-1.000E-02	300.00
19	LR	0.97	1.72	15.47	-1.54	1.73	0.00	300.00
19	G	1.30	3.97	23.77	-4.87	1.99	0.00	300.00
19	Ex	-21.00	-11.90	13.89	-29.55	-46.51	-0.81	300.00
19	Ey	-8.70	-37.67	17.34	-93.13	-18.97	-1.90	300.00
19	OL	5.83	8.55	117.53	-5.96	9.07	-1.000E-02	300.00

9.2.2.4. Esfuerzos sobre el suelo E

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Table: Soil Pressures - Enveloping Summary

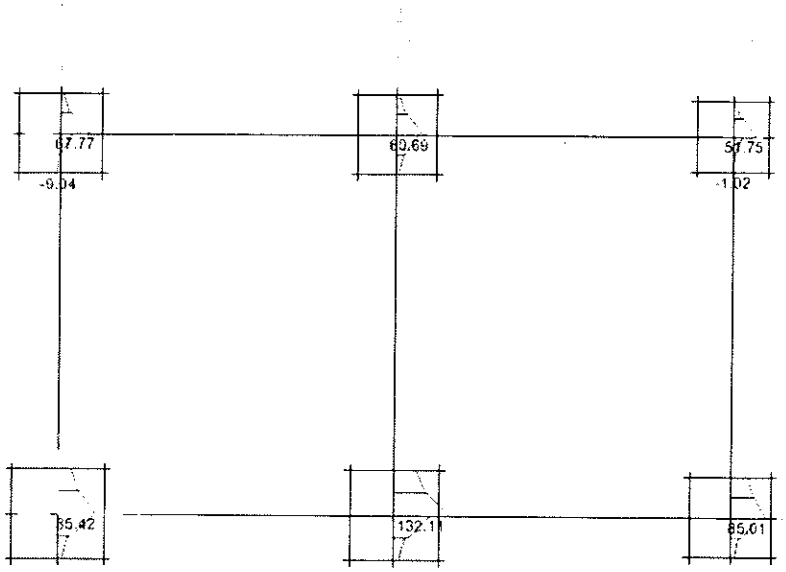
Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-23.24	Envol.-SRV	Combination	0.43	7.58
1	MinPress	-100.22	Envol.-SRV	Combination	6.53	0.95
2	MaxPress	-30.84	Envol.-SRV	Combination	13.63	7.63
2	MinPress	-101.11	Envol.-SRV	Combination	7.48	0.95

Table: Soil Pressures - Summary

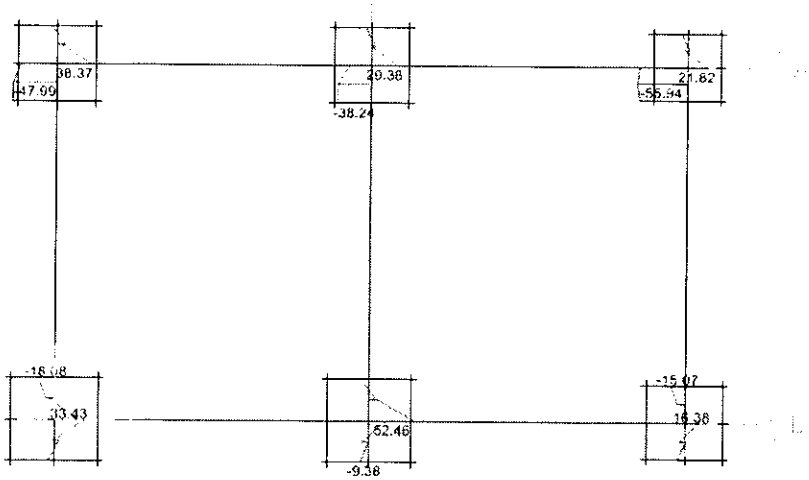
Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-23.24	-100.22	0.43	7.58	6.53	0.95
2	Envol.-SRV	Combination	-30.84	-101.11	13.63	7.63	7.48	0.95

Capacidad admisible de suelo AB, $_{adm}$ = 100 kN/m^2 > Soil Pressures Max/Min => ok

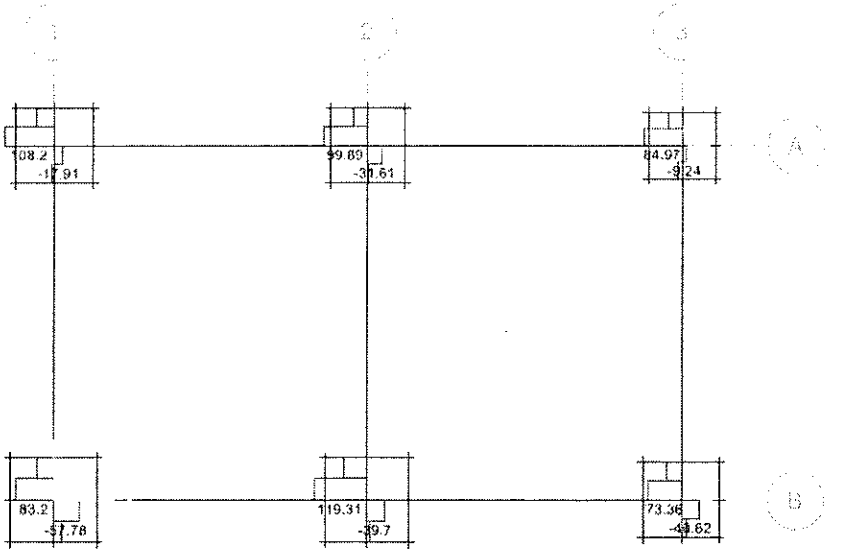
9.2.2.5. Resultados, diseño elementos



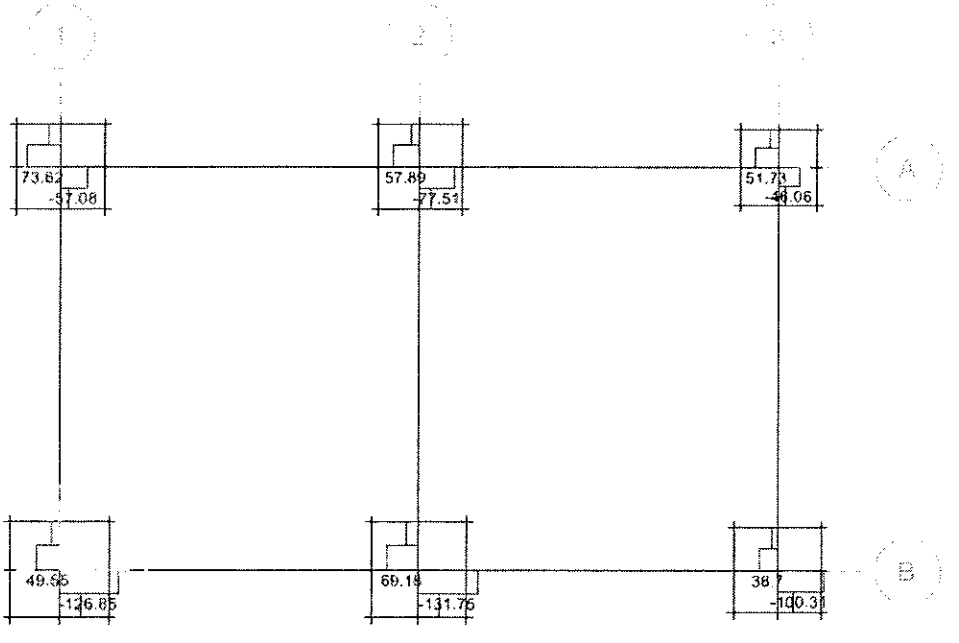
Zapatas - Strip A, Mmax (kN-m)



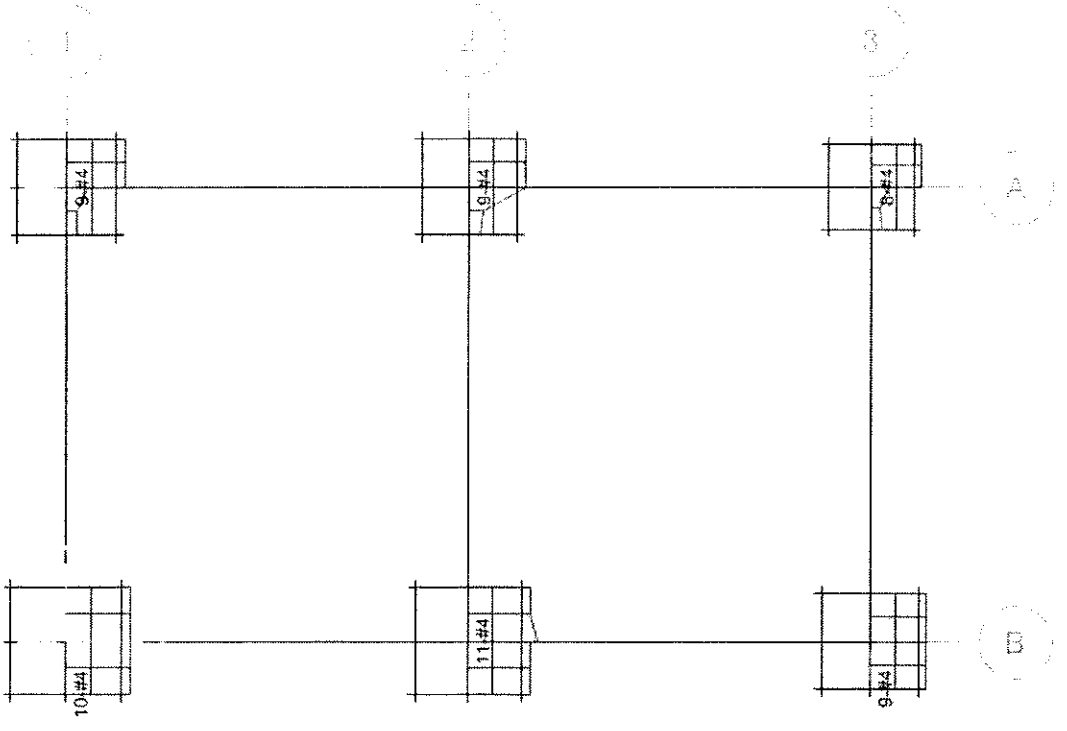
Zapatas - Strip A, Mmin (kN-m)



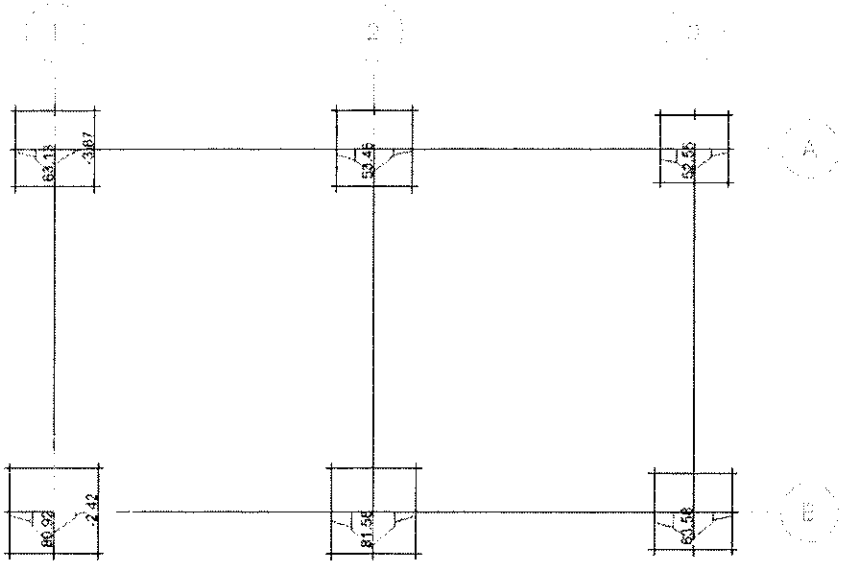
Zapatas - Strip A, Vmax (kN)



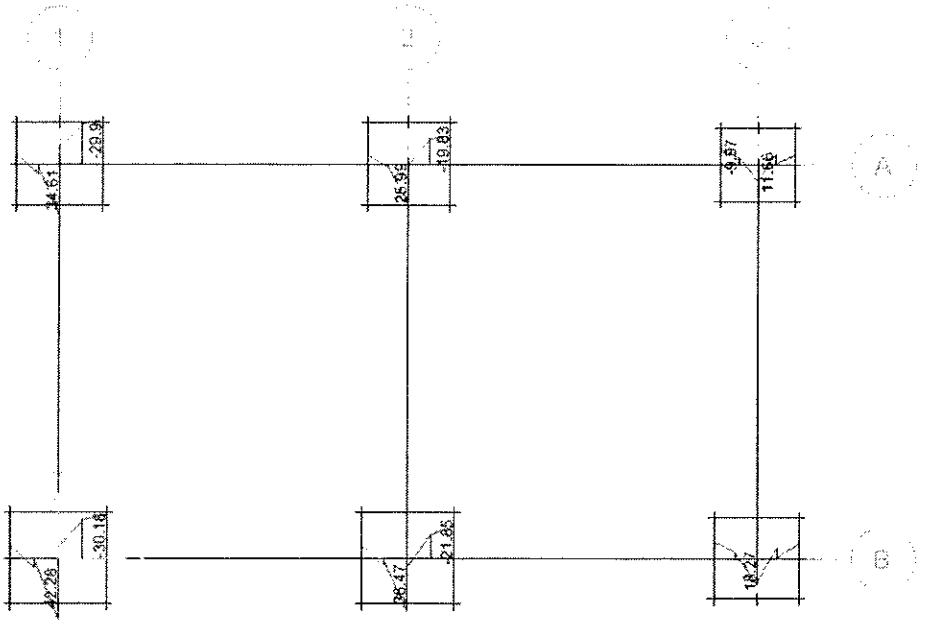
Zapatas - Strip A, Vmin (kN)



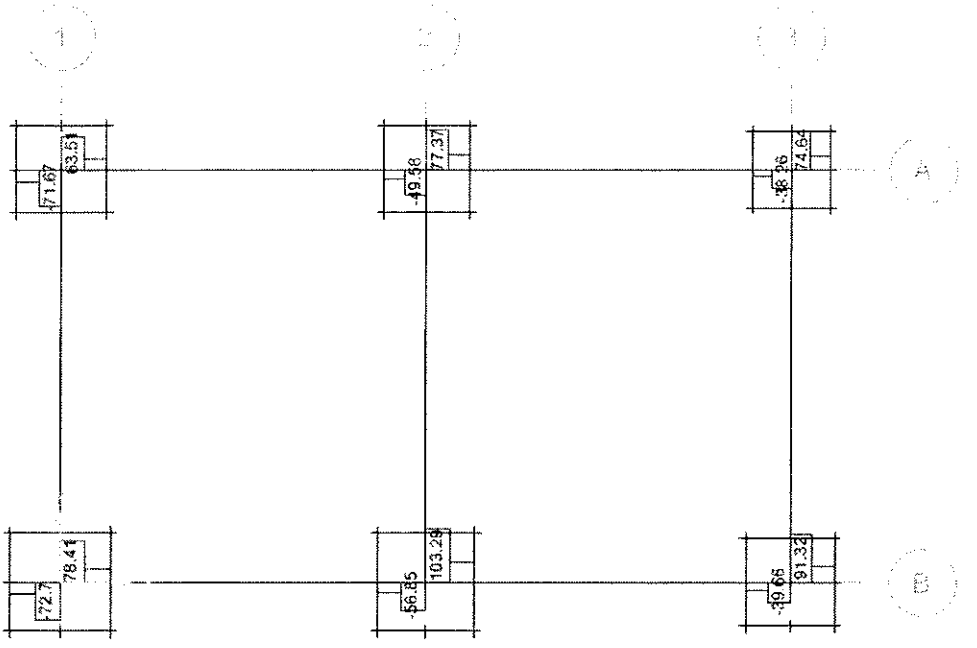
Zapatas SUELO E - Strip A, Acero de Refuerzo



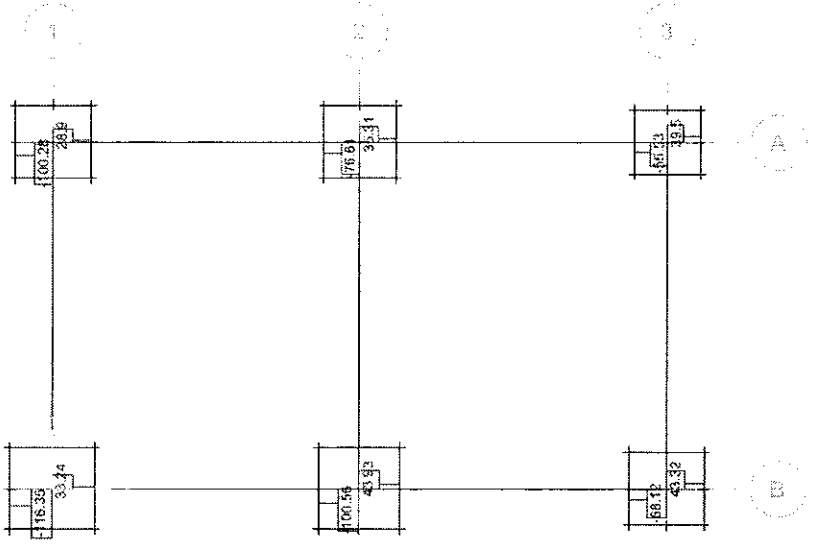
Zapatas - Strip B, Mmax (kN-m)



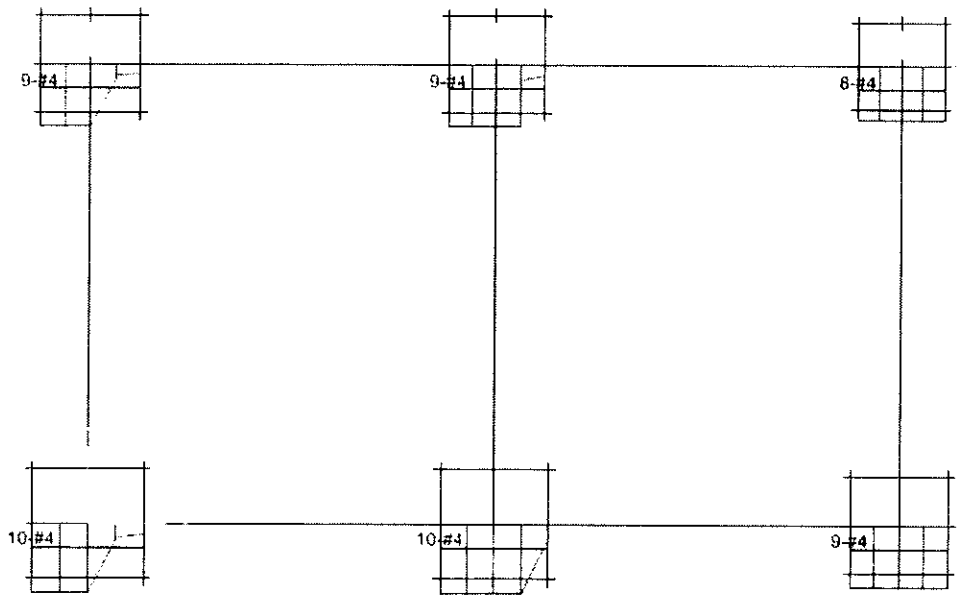
Zapatas - Strip B, Mmin (kN-m)



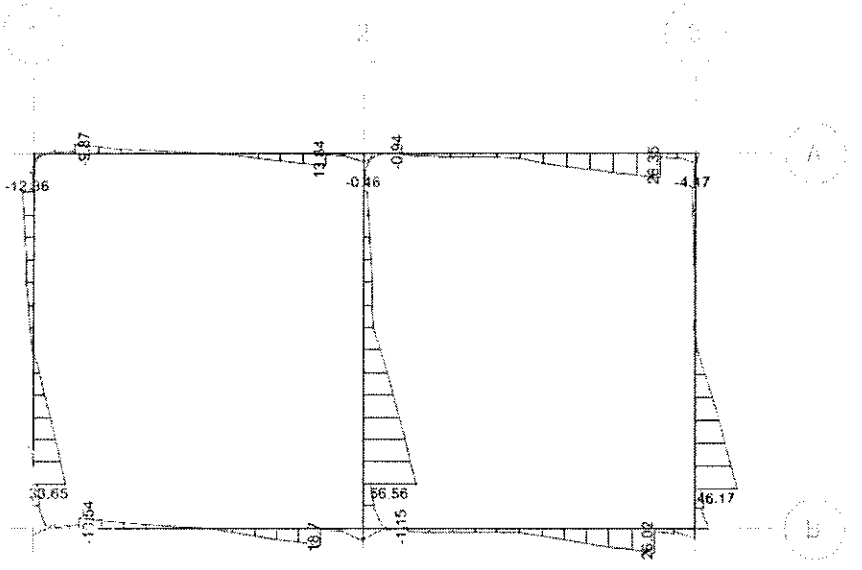
Zapatas - Strip B, Vmax (kN)



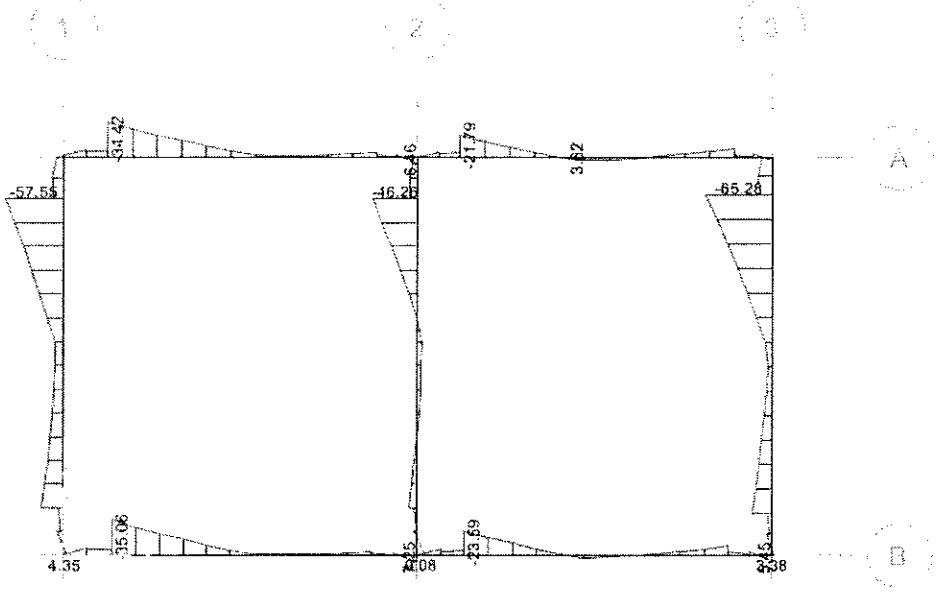
Zapatas - Strip B, Vmin (kN)



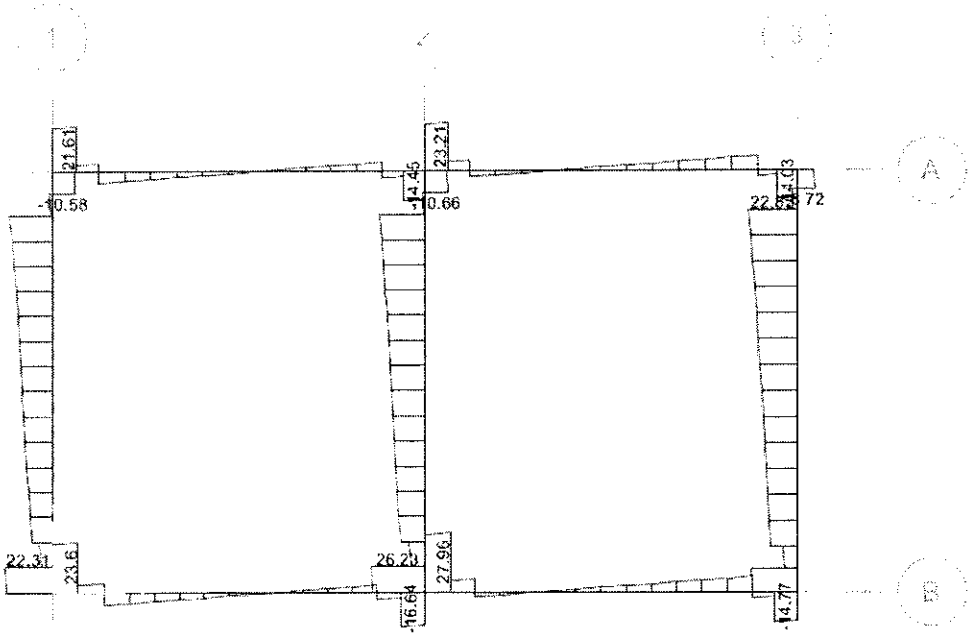
Zapatas SUELO E – Strip B, Acero de Refuerzo



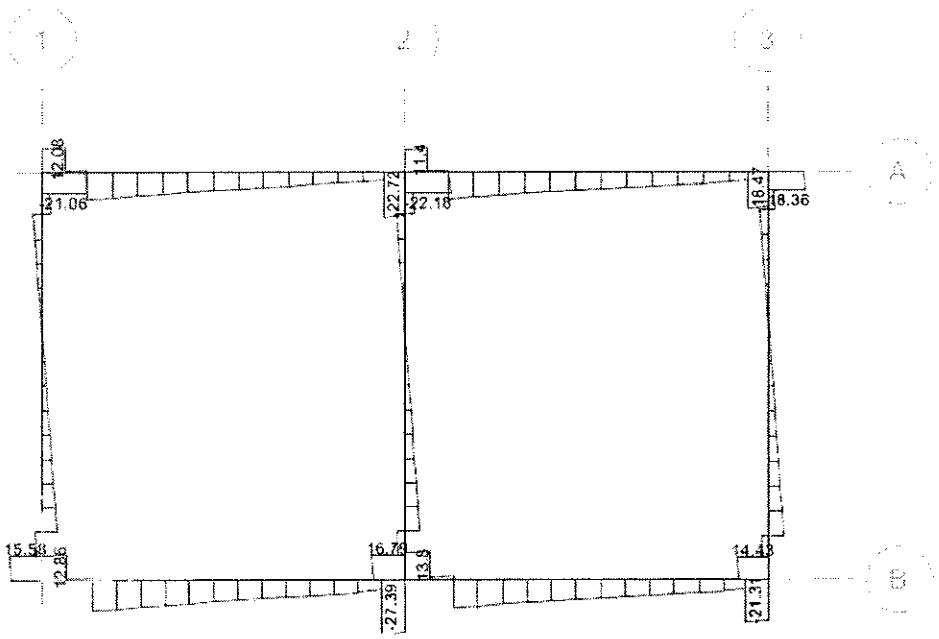
Vigas, Mmax (kN-m)



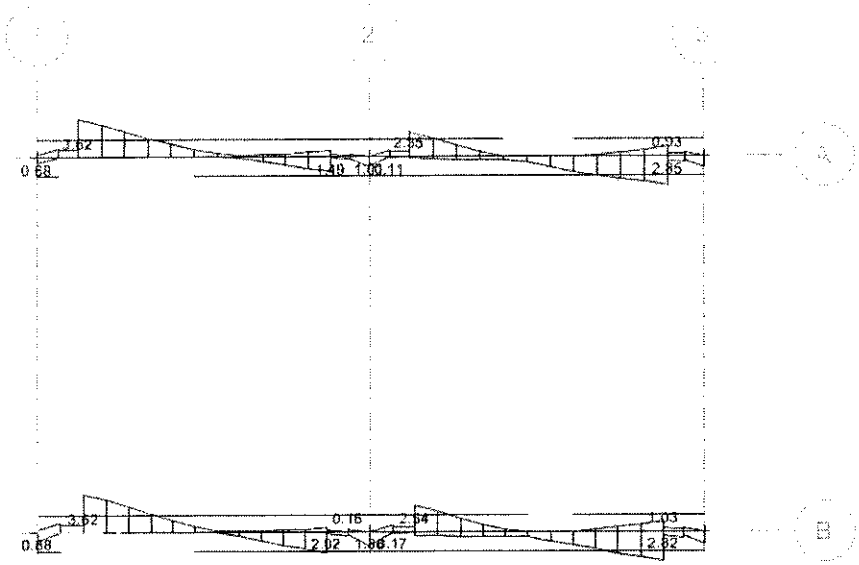
Vigas, Mmin (kN-m)



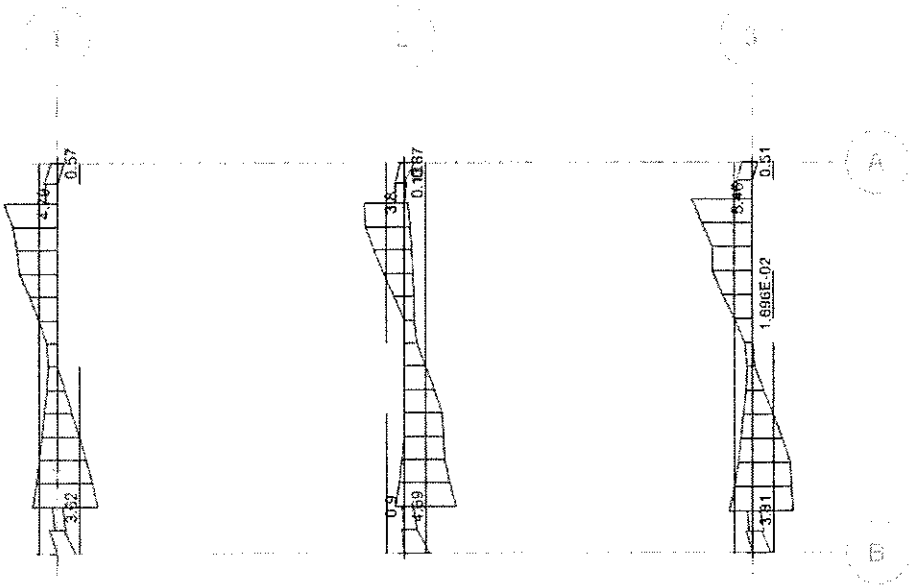
Vigas, Vmax (kN)



Vigas, Vmin (kN)



Vigas Long. Suelo E, Acero de refuerzo a flexion (cm2)

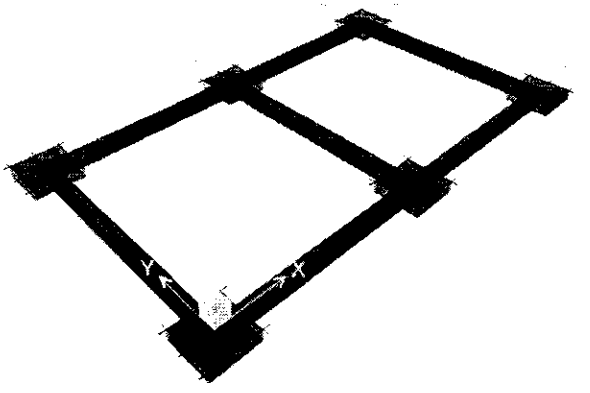


Vigas Transv. Suelo E, Acero de refuerzo a flexion (cm2)

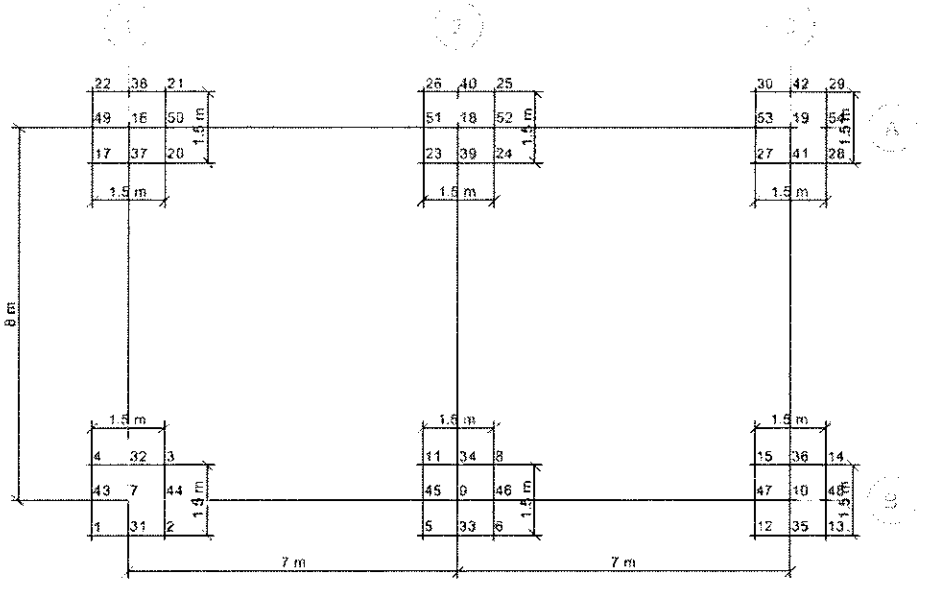
9.3. Zona Baja

9.3.1. Suelo Tipo AB / CD

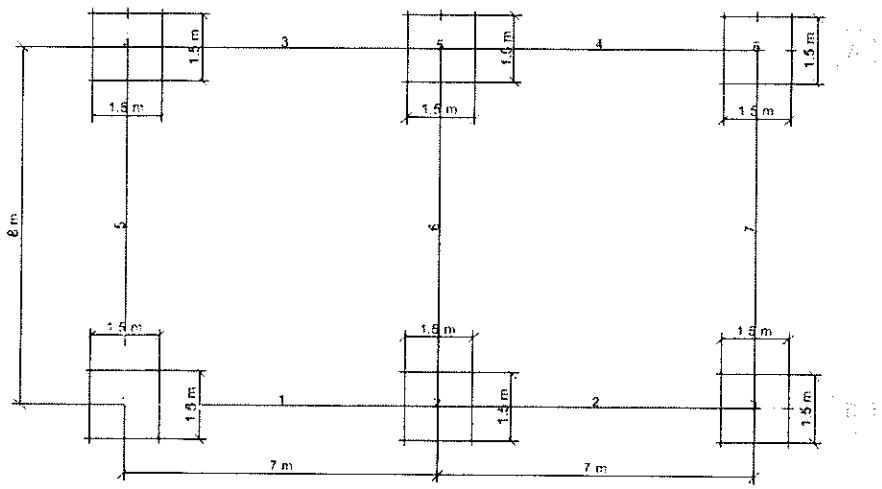
9.3.1.1. Modelo Matemático



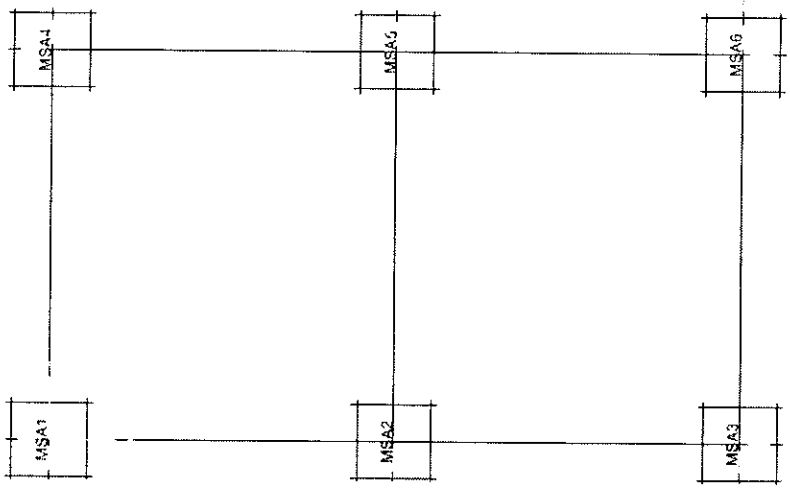
MODELO 3D_SAFE V12.3.2 - Planta Cimentación AB / CD



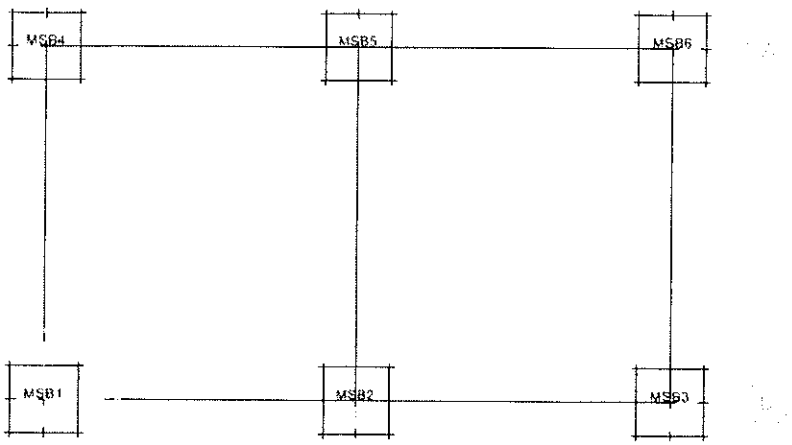
Numeración Nudos



Numeración Elementos



Identificación Strip A



Identificación Strip B

9.3.1.2. Coordenadas, asignaciones

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Table: Coordinate Systems

CoordSys	Type	OriginGX m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Grid Lines

CoordSys	AxisDir	GridID	Ordinate m	Visible	BubbleLoc	GridColor	BubbleSize mm	HideAll
GLOBAL	X	1	0.00	Yes	End	10461087	1000.00	No
GLOBAL	X	2	7.00	Yes	End			
GLOBAL	X	3	14.00	Yes	End			
GLOBAL	Y	B	0.00	Yes	End			
GLOBAL	Y	A	8.00	Yes	End			

Table: Object Geometry - Areas 01 - General, Part 1 of 2

Area	NumPoints	Point1	Point2	Point3	Point4	Auto	TotalArea mm2	AreaType
1	4	1	2	3	4	No	2250000.00	Slab
2	4	5	6	8	11	No	2250000.00	Slab
3	4	12	13	14	15	No	2250000.00	Slab
4	4	17	20	21	22	No	2250000.00	Slab
5	4	23	24	25	26	No	2250000.00	Slab
6	4	27	28	29	30	No	2250000.00	Slab

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA1	31	0.00	-0.75			0.75	0.75
MSA1	32	0.00	0.75	0.75	0.75		
MSA2	33	7.00	-0.75			0.75	0.75
MSA2	34	7.00	0.75	0.75	0.75		
MSA3	35	14.00	-0.75			0.75	0.75

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA3	36	14.00	0.75	0.75	0.75		
MSA4	37	0.00	7.25			0.75	0.75
MSA4	38	0.00	8.75	0.75	0.75		
MSA5	39	7.00	7.25			0.75	0.75
MSA5	40	7.00	8.75	0.75	0.75		
MSA6	41	14.00	7.25			0.75	0.75
MSA6	42	14.00	8.75	0.75	0.75		
MSB1	43	-0.75	0.00			0.75	0.75
MSB1	44	0.75	0.00	0.75	0.75		
MSB2	45	6.25	0.00			0.75	0.75
MSB2	46	7.75	0.00	0.75	0.75		
MSB3	47	13.25	0.00			0.75	0.75
MSB3	48	14.75	0.00	0.75	0.75		
MSB4	49	-0.75	8.00			0.75	0.75
MSB4	50	0.75	8.00	0.75	0.75		
MSB5	51	6.25	8.00			0.75	0.75
MSB5	52	7.75	8.00	0.75	0.75		
MSB6	53	13.25	8.00			0.75	0.75
MSB6	54	14.75	8.00	0.75	0.75		

Table: Object Geometry - Dimension Lines, Part 1 of 2

AlignType	GlobalX1 m	GlobalY1 m	GlobalX2 m	GlobalY2 m	GlobalX3 m	GlobalY3 m	GlobalX4 m	GlobalY4 m
Parallel	0.00	0.00	0.00	8.00	-2.28	0.00	-2.28	8.00
Parallel	0.00	0.00	7.00	0.00	0.00	-1.52	7.00	-1.52
Parallel	7.00	0.00	14.00	0.00	7.00	-1.52	14.00	-1.52
Parallel	0.75	-0.75	0.75	0.75	1.65	-0.75	1.65	0.75
Parallel	0.75	7.25	0.75	8.75	1.65	7.25	1.65	8.75
Parallel	7.75	-0.75	7.75	0.75	8.62	-0.75	8.62	0.75
Parallel	7.75	7.25	7.75	8.75	8.62	7.25	8.62	8.75
Parallel	14.75	-0.75	14.75	0.75	15.33	-0.75	15.33	0.75
Parallel	14.75	7.25	14.75	8.75	15.33	7.25	15.33	8.75
Parallel	-0.75	0.75	0.75	0.75	-0.75	1.55	0.75	1.55
Parallel	6.25	0.75	7.75	0.75	6.25	1.55	7.75	1.55
Parallel	13.25	0.75	14.75	0.75	13.25	1.55	14.75	1.55
Parallel	-0.75	7.25	0.75	7.25	-0.75	6.45	0.75	6.45
Parallel	6.25	7.25	7.75	7.25	6.25	6.45	7.75	6.45
Parallel	13.25	7.25	14.75	7.25	13.25	6.45	14.75	6.45

Table: Object Geometry - Lines 01 - General

Line	PointI	PointJ	LineType	CurveType	Length m
1	7	9	Beam	Straight	7.00
2	9	10	Beam	Straight	7.00
3	16	18	Beam	Straight	7.00
4	18	19	Beam	Straight	7.00
5	7	16	Beam	Straight	8.00
6	9	18	Beam	Straight	8.00
7	10	19	Beam	Straight	8.00

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
1	-0.75	-0.75	0.00	No
2	0.75	-0.75	0.00	No
3	0.75	0.75	0.00	No
4	-0.75	0.75	0.00	No
5	6.25	-0.75	0.00	No
6	7.75	-0.75	0.00	No
7	0.00	0.00	0.00	Yes
8	7.75	0.75	0.00	No
9	7.00	0.00	0.00	Yes
10	14.00	0.00	0.00	Yes
11	6.25	0.75	0.00	No
12	13.25	-0.75	0.00	No
13	14.75	-0.75	0.00	No
14	14.75	0.75	0.00	No
15	13.25	0.75	0.00	No
16	0.00	8.00	0.00	Yes
17	-0.75	7.25	0.00	No
18	7.00	8.00	0.00	Yes
19	14.00	8.00	0.00	Yes
20	0.75	7.25	0.00	No

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
21	0.75	8.75	0.00	No
22	-0.75	8.75	0.00	No
23	6.25	7.25	0.00	No
24	7.75	7.25	0.00	No
25	7.75	8.75	0.00	No
26	6.25	8.75	0.00	No
27	13.25	7.25	0.00	No
28	14.75	7.25	0.00	No
29	14.75	8.75	0.00	No
30	13.25	8.75	0.00	No
31	0.00	-0.75	0.00	No
32	0.00	0.75	0.00	No
33	7.00	-0.75	0.00	No
34	7.00	0.75	0.00	No
35	14.00	-0.75	0.00	No
36	14.00	0.75	0.00	No
37	0.00	7.25	0.00	No
38	0.00	8.75	0.00	No
39	7.00	7.25	0.00	No
40	7.00	8.75	0.00	No
41	14.00	7.25	0.00	No
42	14.00	8.75	0.00	No
43	-0.75	0.00	0.00	No
44	0.75	0.00	0.00	No
45	6.25	0.00	0.00	No
46	7.75	0.00	0.00	No
47	13.25	0.00	0.00	No
48	14.75	0.00	0.00	No
49	-0.75	8.00	0.00	No
50	0.75	8.00	0.00	No
51	6.25	8.00	0.00	No
52	7.75	8.00	0.00	No
53	13.25	8.00	0.00	No
54	14.75	8.00	0.00	No

Table: Beam Property Assignments

Line	BeamProp
1	SC30X40
2	SC30X40
3	SC30X40
4	SC30X40
5	SC30X40
6	SC30X40
7	SC30X40

Table: Slab Property Assignments

Area	SlabProp
1	ZPT
2	ZPT
3	ZPT
4	ZPT
5	ZPT
6	ZPT

Table: Soil Property Assignments

Area	SoilProp
1	SOIL_AB
2	SOIL_AB
3	SOIL_AB
4	SOIL_AB
5	SOIL_AB
6	SOIL_AB

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
1	Yes	Yes	No	No	No	No
2	Yes	Yes	No	No	No	No
3	Yes	Yes	No	No	No	No
4	Yes	Yes	No	No	No	No
5	Yes	Yes	No	No	No	No
6	Yes	Yes	No	No	No	No
8	Yes	Yes	No	No	No	No
11	Yes	Yes	No	No	No	No
12	Yes	Yes	No	No	No	No
13	Yes	Yes	No	No	No	No
14	Yes	Yes	No	No	No	No
15	Yes	Yes	No	No	No	No
17	Yes	Yes	No	No	No	No
20	Yes	Yes	No	No	No	No
21	Yes	Yes	No	No	No	No
22	Yes	Yes	No	No	No	No
23	Yes	Yes	No	No	No	No
24	Yes	Yes	No	No	No	No
25	Yes	Yes	No	No	No	No
26	Yes	Yes	No	No	No	No
27	Yes	Yes	No	No	No	No
28	Yes	Yes	No	No	No	No
29	Yes	Yes	No	No	No	No
30	Yes	Yes	No	No	No	No

9.3.1.3. Cargas, asignación de cargas SUELO AB

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	XDim mm
7	LR	-2.60	-6.00	38.04	9.37	-3.35	0.00	300.00
7	G	-2.08	-5.86	35.98	9.18	-2.82	0.00	300.00
7	Ex	-13.44	-7.74	6.56	-18.84	-29.59	-0.52	300.00
7	Ey	-4.57	-22.00	10.41	-54.37	-9.94	-1.17	300.00
9	LR	1.38	-0.84	37.87	2.11	2.32	0.00	300.00
9	G	0.55	-4.76	53.89	7.64	0.93	0.00	300.00
9	Ex	-17.19	-5.52	2.44	-14.12	-34.93	-0.52	300.00
9	Ey	-5.66	-18.28	8.09	-46.74	-11.49	-1.17	300.00
10	LR	1.23	-2.16	20.94	3.97	2.11	0.00	300.00
10	G	1.53	-4.33	29.14	7.03	2.33	0.00	300.00
10	Ex	-13.44	-7.37	6.66	-17.94	-29.58	-0.52	300.00
10	Ey	-4.58	-21.80	10.21	-53.86	-9.96	-1.17	300.00
16	LR	-2.31	5.51	32.94	-6.83	-2.92	0.00	300.00
16	G	-1.83	5.33	30.68	-6.58	-2.47	0.00	300.00
16	Ex	-11.74	-7.37	8.20	-18.32	-26.02	-0.52	300.00
16	Ey	-5.18	-21.94	10.08	-54.29	-11.28	-1.17	300.00
18	LR	1.30	1.82	27.75	-1.63	2.22	0.00	300.00
18	G	0.52	5.83	43.91	-7.28	0.89	0.00	300.00
18	Ex	-15.47	-5.51	2.46	-14.10	-31.33	-0.52	300.00
18	Ey	-6.51	-18.26	8.15	-46.70	-13.18	-1.17	300.00
19	LR	1.00	1.66	15.45	-1.41	1.78	0.00	300.00
19	G	1.31	3.79	23.69	-4.41	2.01	0.00	300.00
19	Ex	-11.74	-7.02	8.03	-17.46	-26.02	-0.52	300.00
19	Ey	-5.16	-21.72	10.15	-53.77	-11.25	-1.17	300.00

9.3.1.4. Cargas, asignación de cargas SUELO CD

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	XDim mm
7	LR	-2.60	-6.00	38.04	9.37	-3.35	0.00	300.00
7	G	-2.08	-5.86	35.98	9.18	-2.82	0.00	300.00
7	Ex	-20.77	-11.89	10.13	-28.94	-45.73	-0.80	300.00
7	Ey	-7.05	-33.73	15.97	-83.36	-15.34	-1.80	300.00
7	DL	-9.80	-17.14	183.69	30.23	-13.15	0.00	300.00
9	LR	1.38	-0.84	37.87	2.11	2.32	0.00	300.00
9	G	0.55	-4.76	53.89	7.64	0.93	0.00	300.00
9	Ex	-26.57	-8.47	3.75	-21.65	-53.98	-0.80	300.00
9	Ey	-8.73	-28.03	12.41	-71.66	-17.74	-1.80	300.00
9	DL	3.22	7.28	203.89	-4.14	5.39	0.00	300.00
10	LR	1.23	-2.16	20.94	3.97	2.11	0.00	300.00
10	G	1.53	-4.33	29.14	7.03	2.33	0.00	300.00
10	Ex	-20.77	-11.32	10.28	-27.54	-45.72	-0.80	300.00
10	Ey	-7.07	-33.42	15.66	-82.59	-15.36	-1.80	300.00
10	DL	6.59	-11.07	151.17	21.72	10.20	0.00	300.00
16	LR	-2.31	5.51	32.94	-6.83	-2.92	0.00	300.00
16	G	-1.83	5.33	30.68	-6.58	-2.47	0.00	300.00
16	Ex	-18.14	-11.31	12.67	-28.13	-40.21	-0.80	300.00
16	Ey	-7.97	-33.64	15.47	-83.24	-17.36	-1.80	300.00
16	DL	-9.05	14.55	150.58	-14.39	-12.06	0.00	300.00
18	LR	1.30	1.82	27.75	-1.63	2.22	0.00	300.00
18	G	0.52	5.83	43.91	-7.28	0.89	0.00	300.00
18	Ex	-23.91	-8.46	3.78	-21.63	-48.42	-0.80	300.00
18	Ey	-10.02	-28.00	12.50	-71.61	-20.29	-1.80	300.00
18	DL	3.14	-2.08	152.56	9.05	5.29	0.00	300.00
19	LR	1.00	1.66	15.45	-1.41	1.78	0.00	300.00
19	G	1.31	3.79	23.69	-4.41	2.01	0.00	300.00
19	Ex	-18.14	-10.77	12.39	-26.80	-40.21	-0.80	300.00
19	Ey	-7.94	-33.31	15.57	-82.44	-17.32	-1.80	300.00
19	DL	5.89	8.47	117.49	-5.79	9.21	0.00	300.00

9.3.1.5. Esfuerzos sobre el suelo AB

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Table: Soil Pressures - Enveloping Summary

Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-10.98	Envol.-SRV	Combination	0.00	0.38
1	MinPress	-62.09	Envol.-SRV	Combination	6.25	0.75
2	MaxPress	-9.89	Envol.-SRV	Combination	13.63	0.38
2	MinPress	-61.44	Envol.-SRV	Combination	7.00	0.75

Table: Soil Pressures - Summary

Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-10.98	-62.09	0.00	0.38	6.25	0.75
2	Envol.-SRV	Combination	-9.89	-61.44	13.63	0.38	7.00	0.75

Capacidad admisible de suelo AB, $_{adm}$ = 400 kN/m^2 > Soil Pressures Max/Min => Ok

9.3.1.6. Esfuerzos sobre el suelo CD

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Table: Soil Pressures - Enveloping Summary

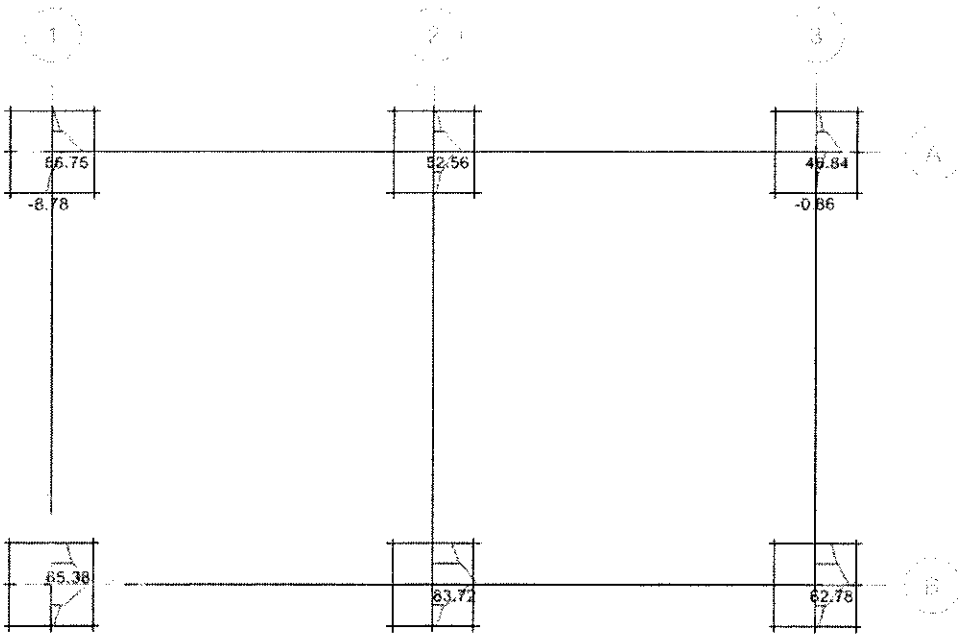
Panel	OutputItem	SurfPress kN/m2	OutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-44.30	Envol.-SRV	Combination	0.38	7.63
1	MinPress	-147.12	Envol.-SRV	Combination	6.63	0.75
2	MaxPress	-40.52	Envol.-SRV	Combination	13.63	7.63
2	MinPress	-147.35	Envol.-SRV	Combination	7.38	0.75

Table: Soil Pressures - Summary

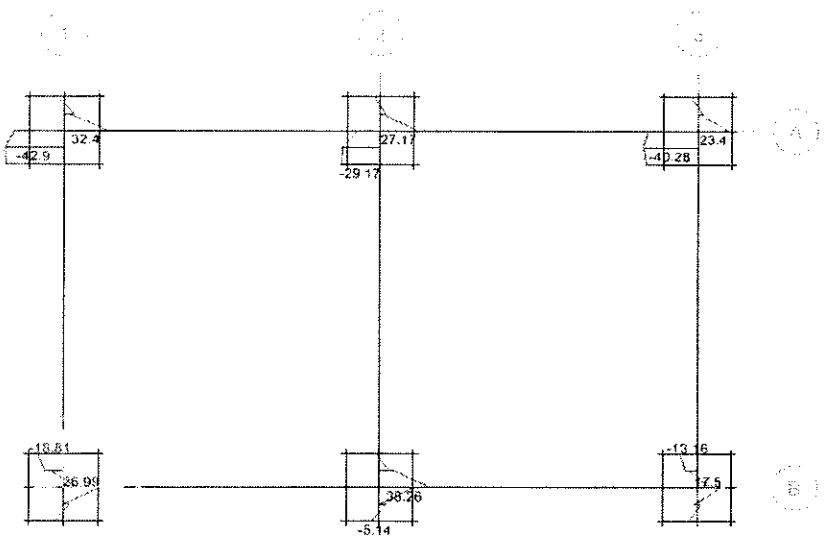
Panel	OutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-44.30	-147.12	0.38	7.63	6.63	0.75
2	Envol.-SRV	Combination	-40.52	-147.35	13.63	7.63	7.38	0.75

Capacidad admisible de suelo AB, $_{adm}$ = 150 kN/m^2 > Soil Pressures Max/Min => Ok

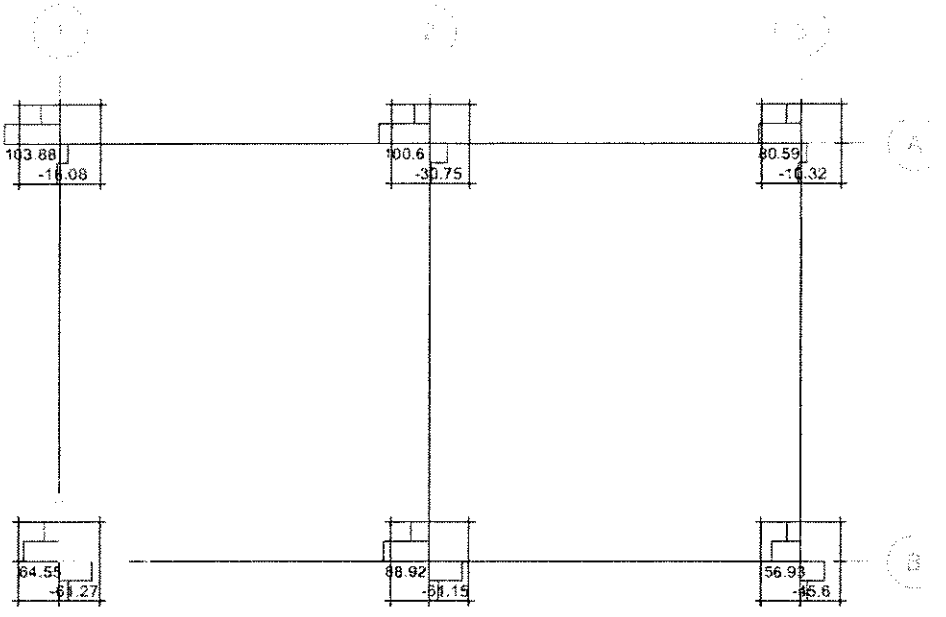
9.3.1.7. Resultados, diseño elementos



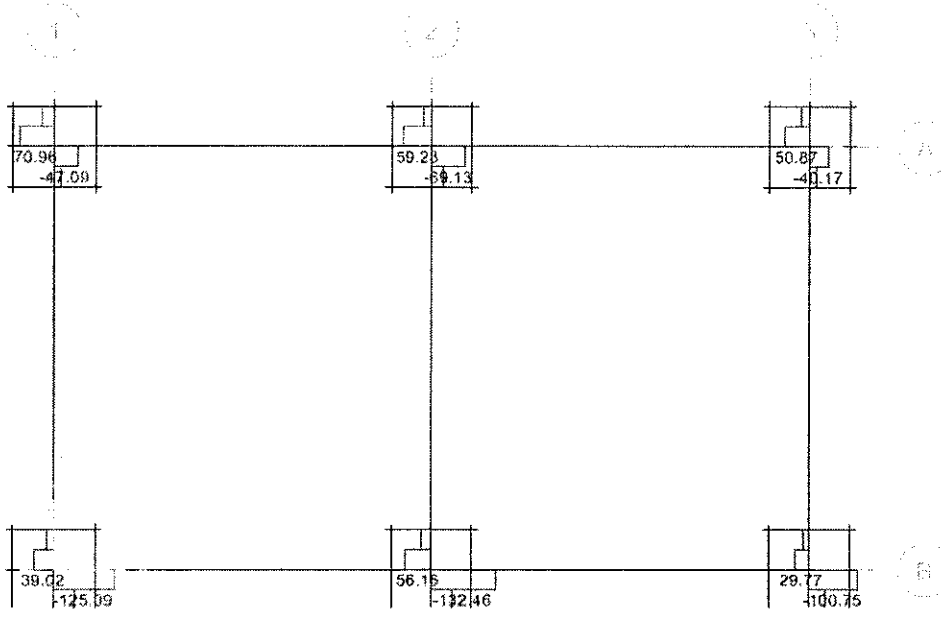
Zapatas - Strip A, Mmax (kN-m)



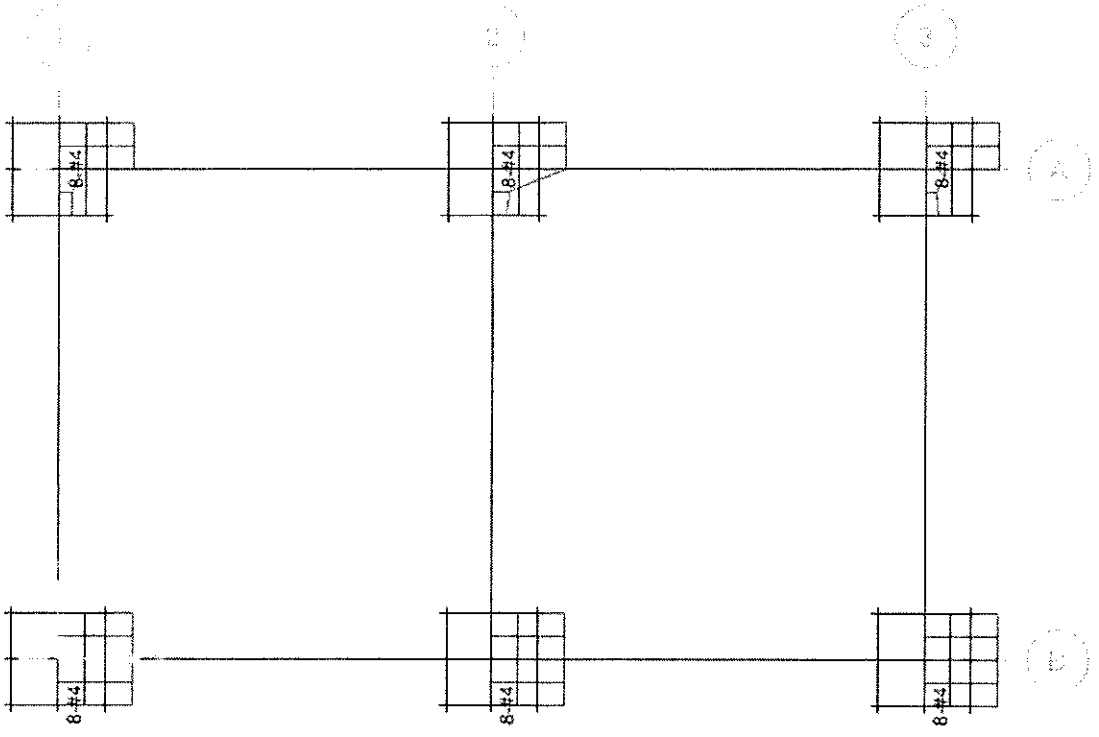
Zapatas - Strip A, Mmin (kN-m)



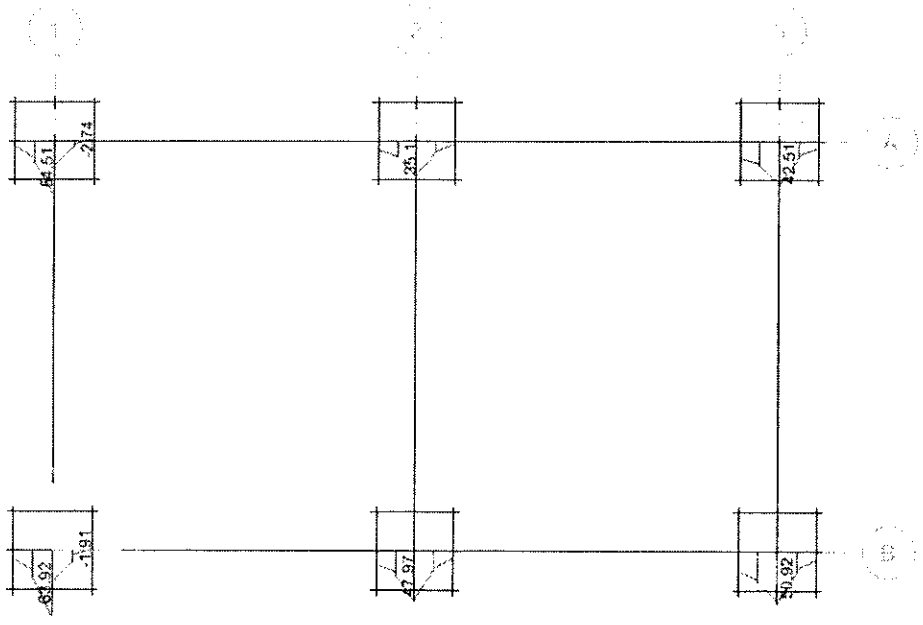
Zapatas - Strip A, Vmax (kN)



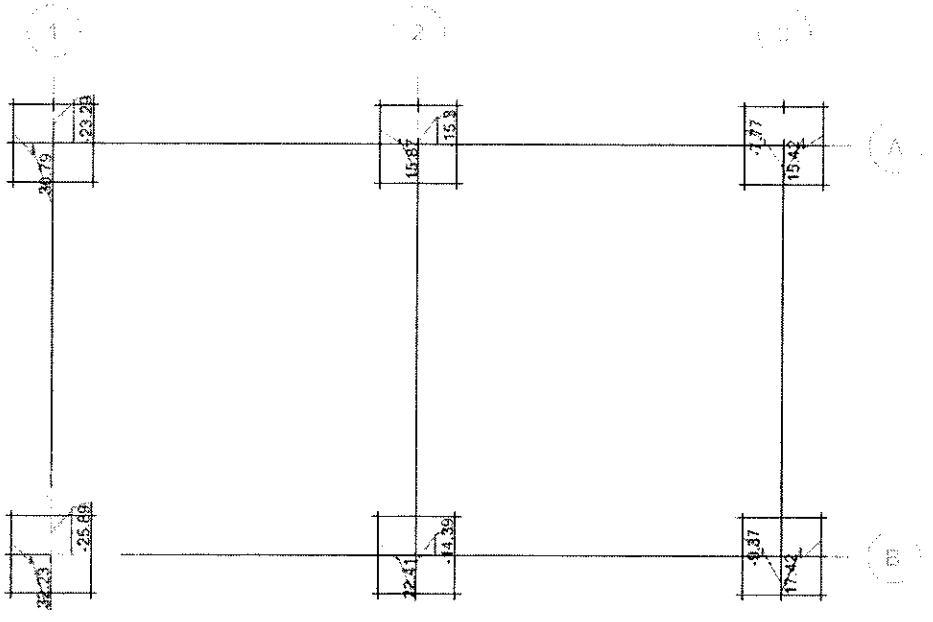
Zapatas - Strip A, Vmin (kN)



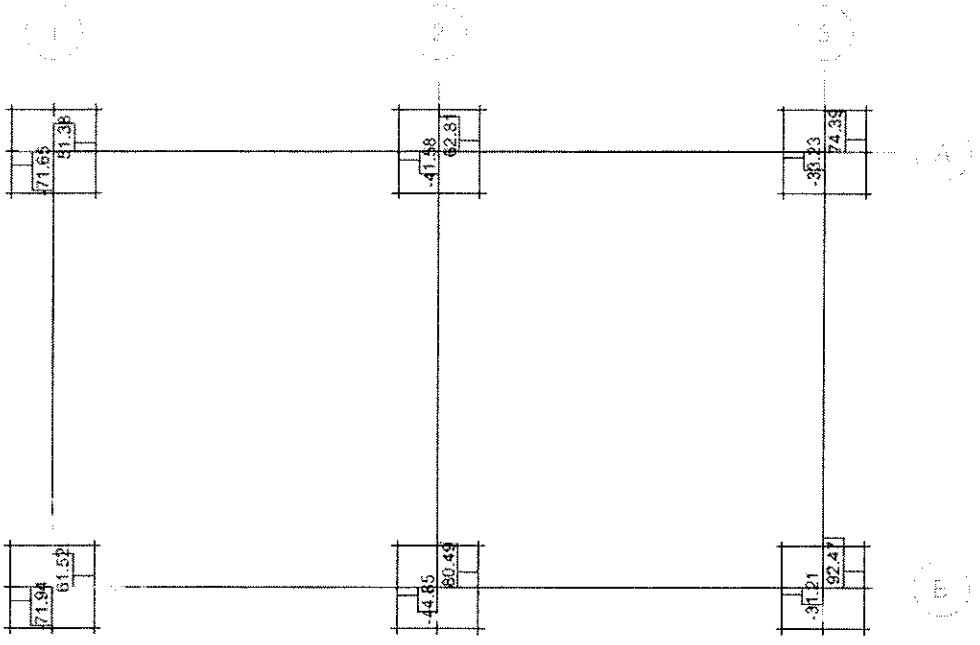
Zapatas - Strip A, Acero de Refuerzo



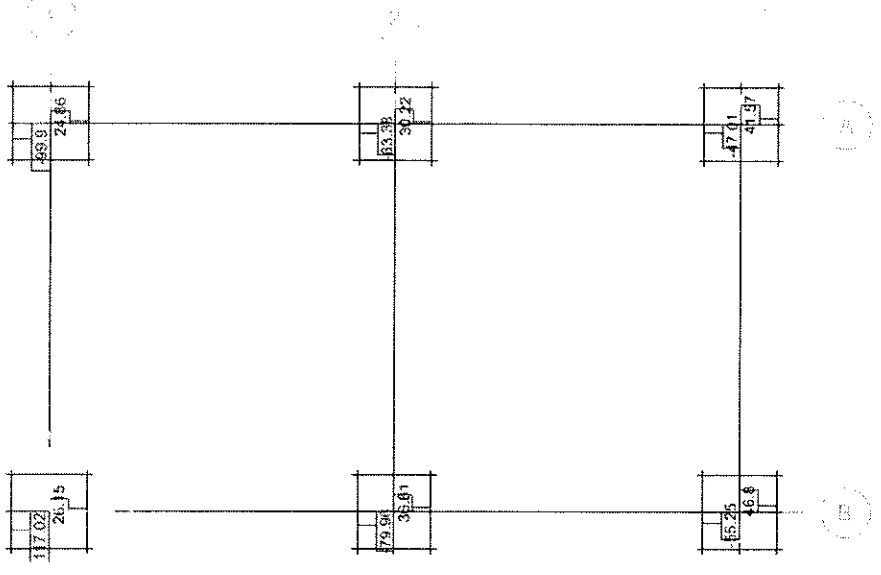
Zapatas - Strip B, Mmax (kN-m)



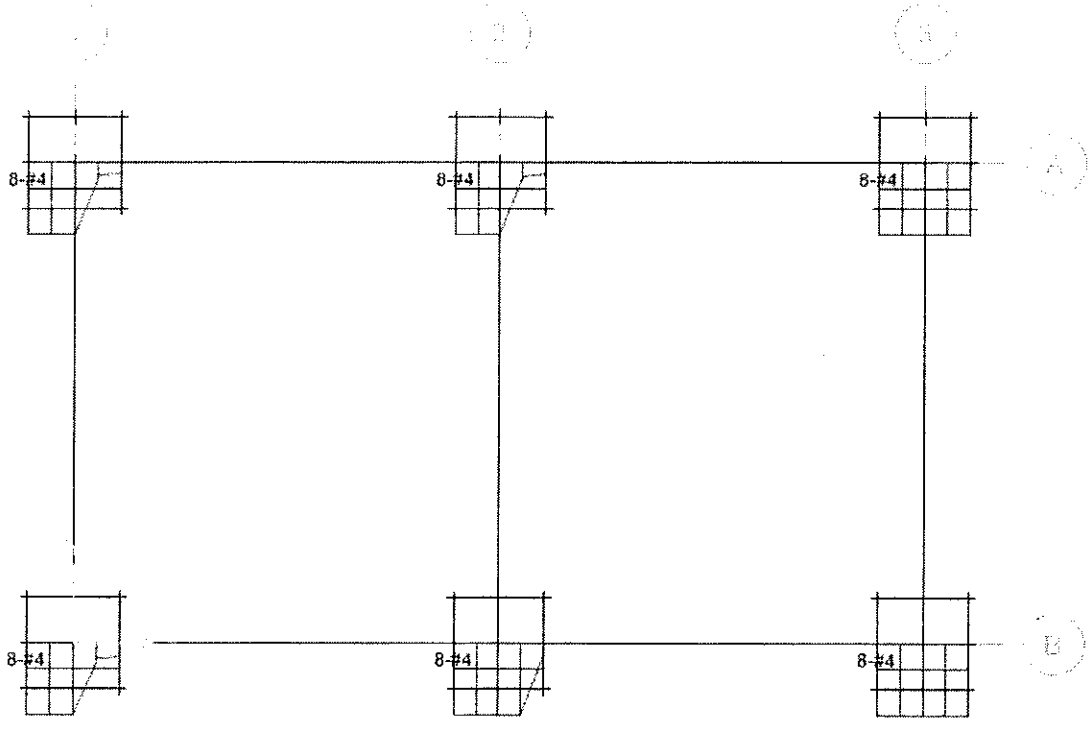
Zapatas - Strip B, Mmin (kN-m)



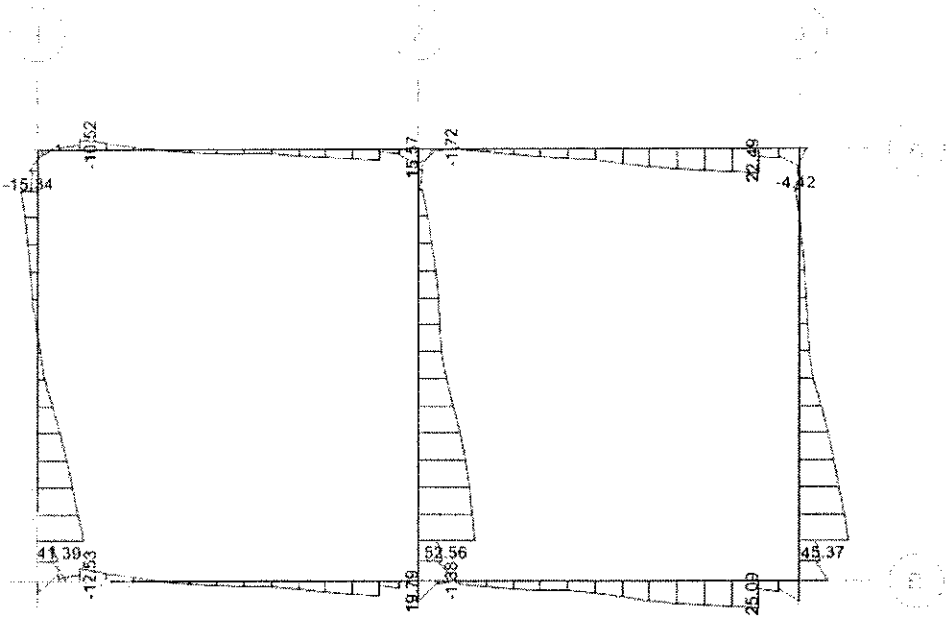
Zapatas - Strip B, Vmax (kN)



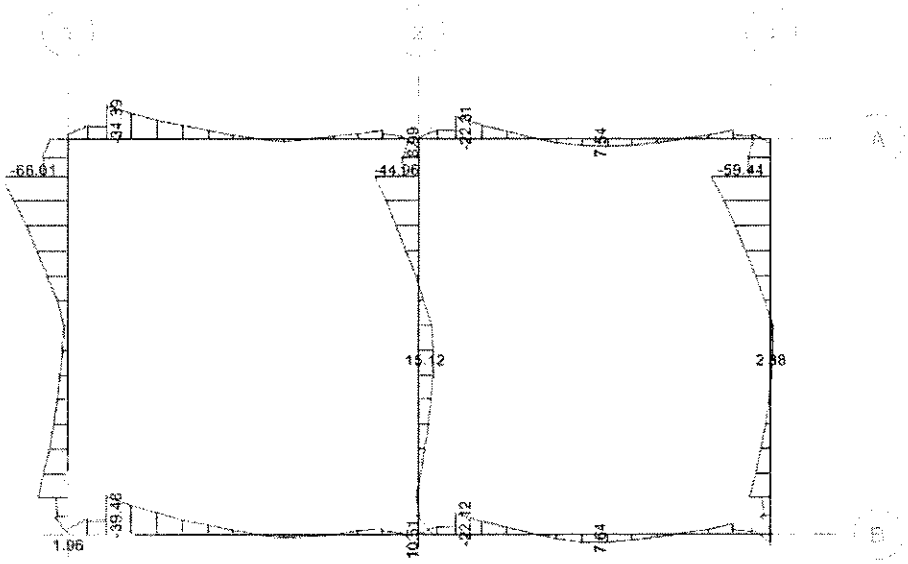
Zapatas - Strip B, Vmin (kN)



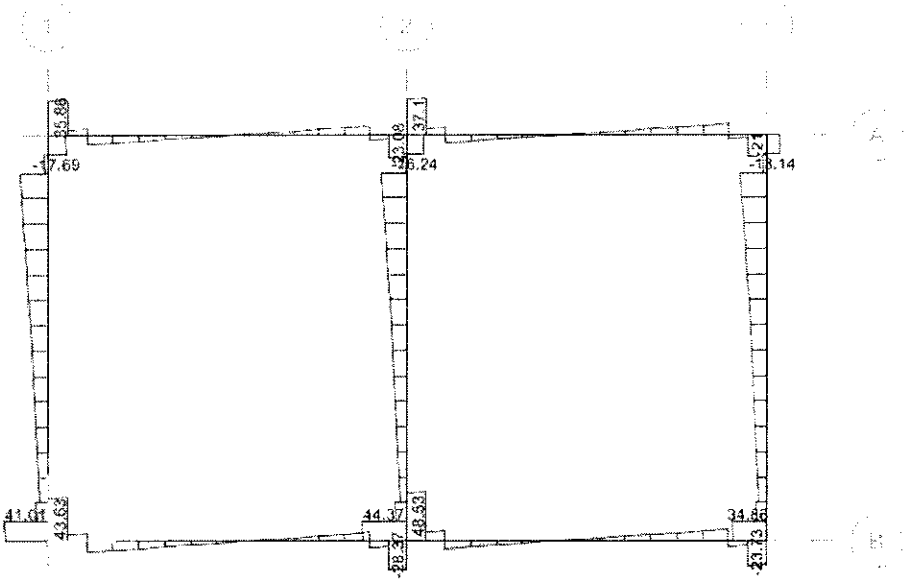
Zapatas SUELO AB/CD - Strip B, Acero de Refuerzo



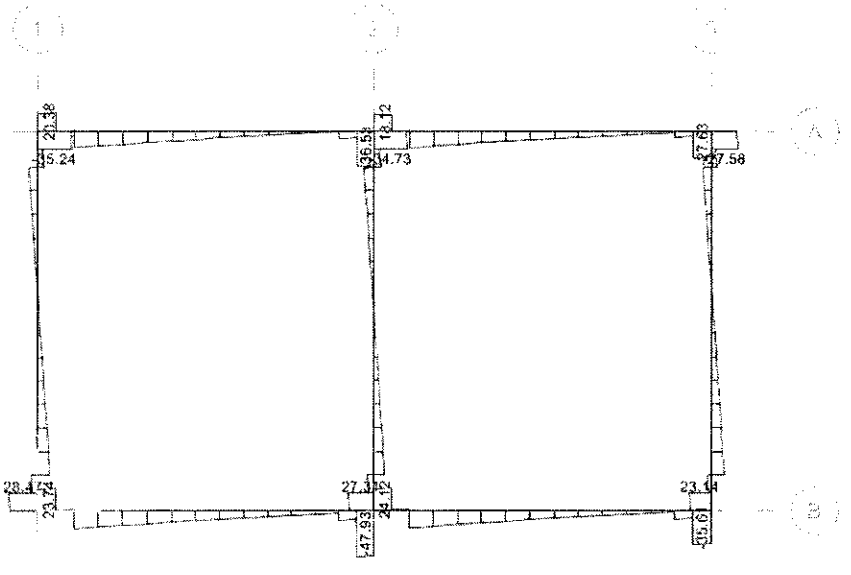
Vigas, Mmax (kN-m)



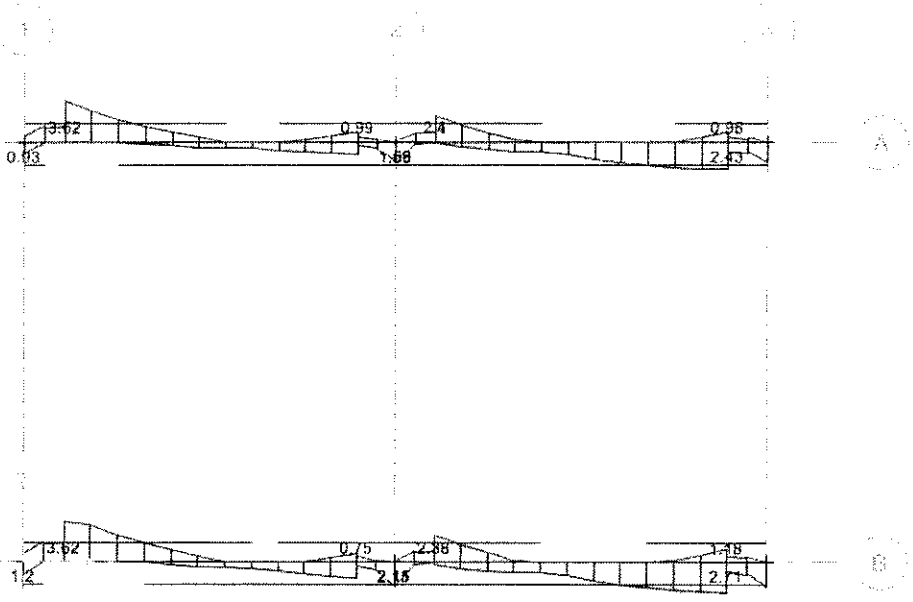
Vigas, Mmin (kN-m)



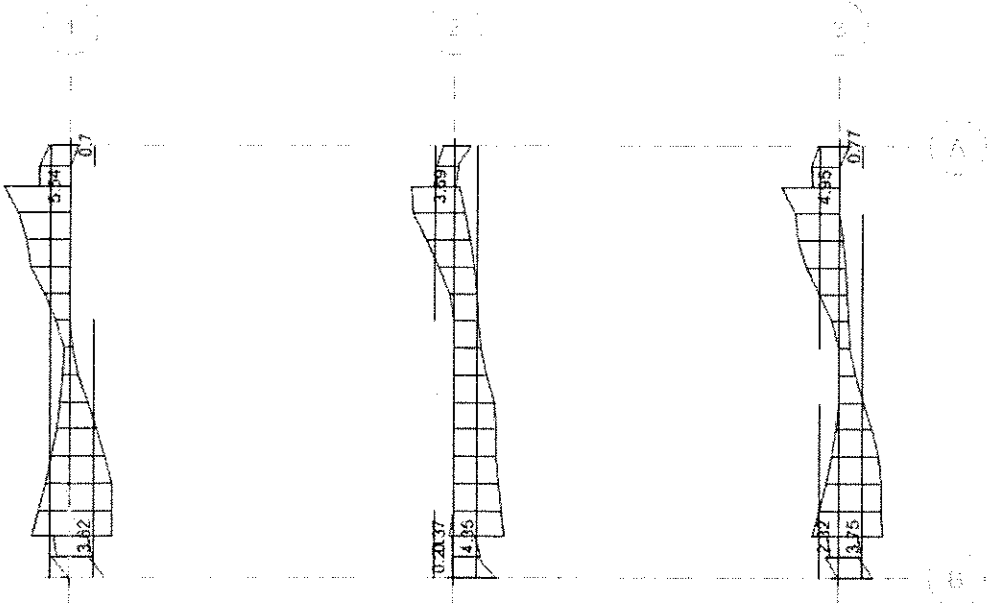
Vigas, Vmax (kN)



Vigas, Vmin (kN)



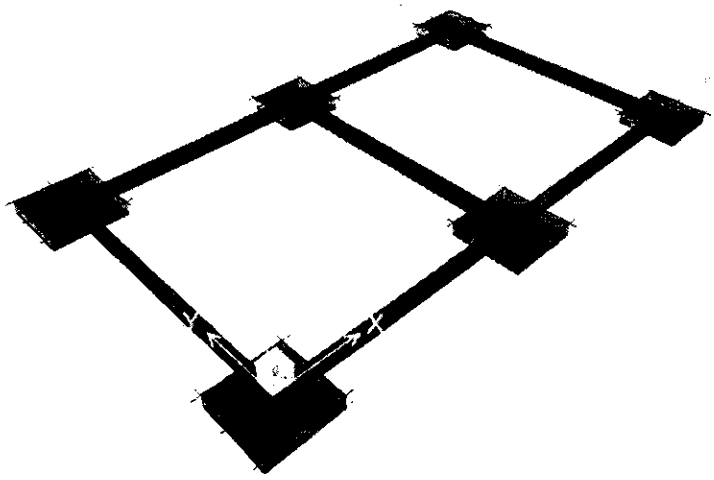
Vigas Long. Suelo AB/CD, Acero de refuerzo a flexion (cm2)



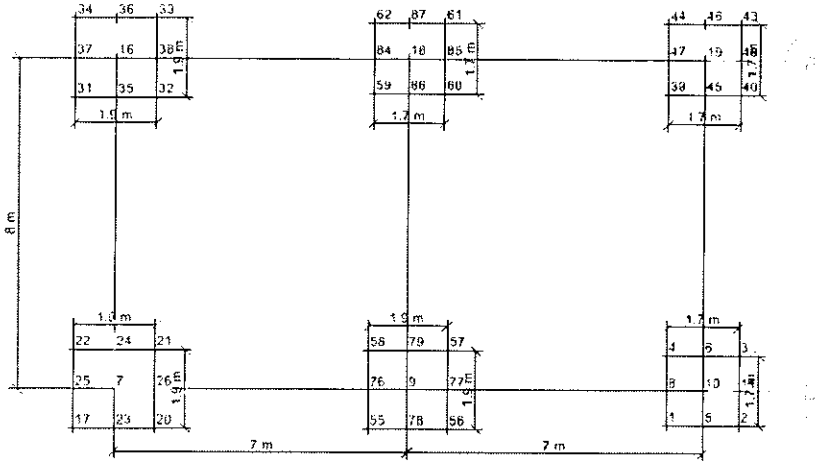
Vigas Transv. Suelo AB/CD, Acero de refuerzo a flexion (cm2)

9.3.2. Suelo Tipo E

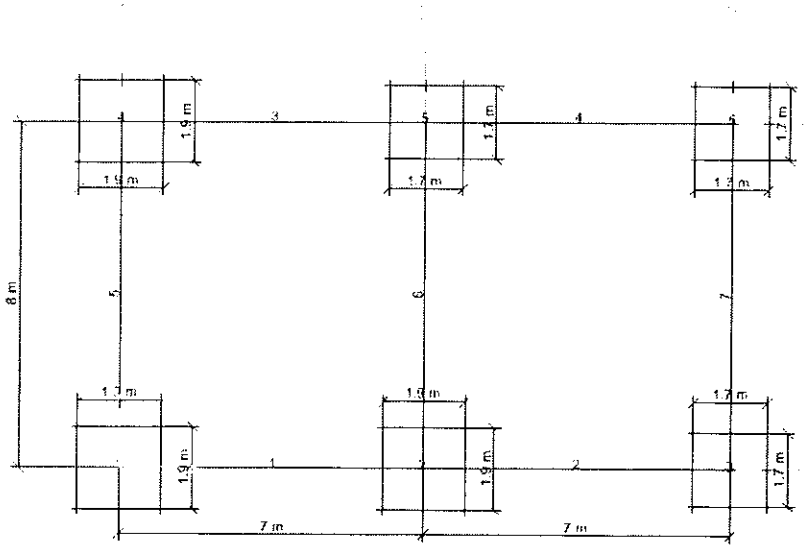
9.3.2.1. Modelo Matemático



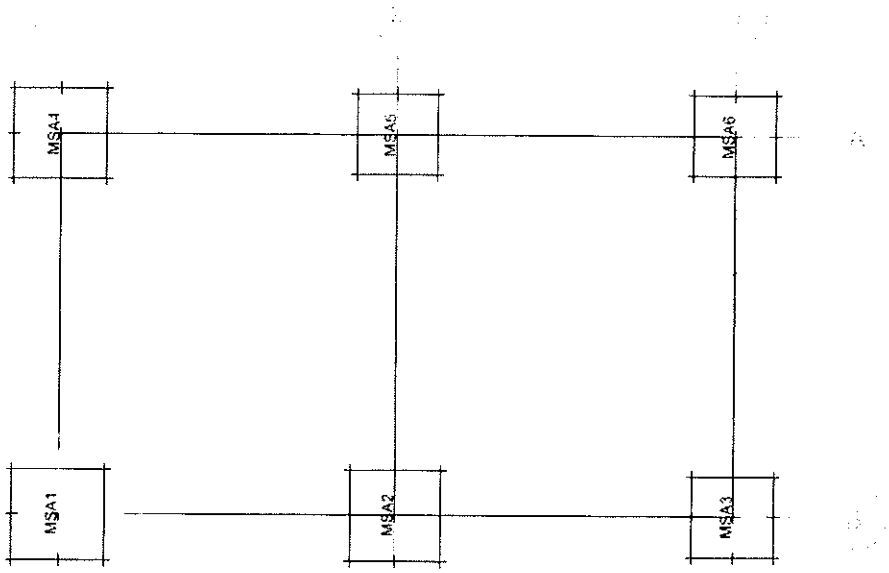
MODELO 3D_SAFE V12.3.2 - Planta Cimentación E



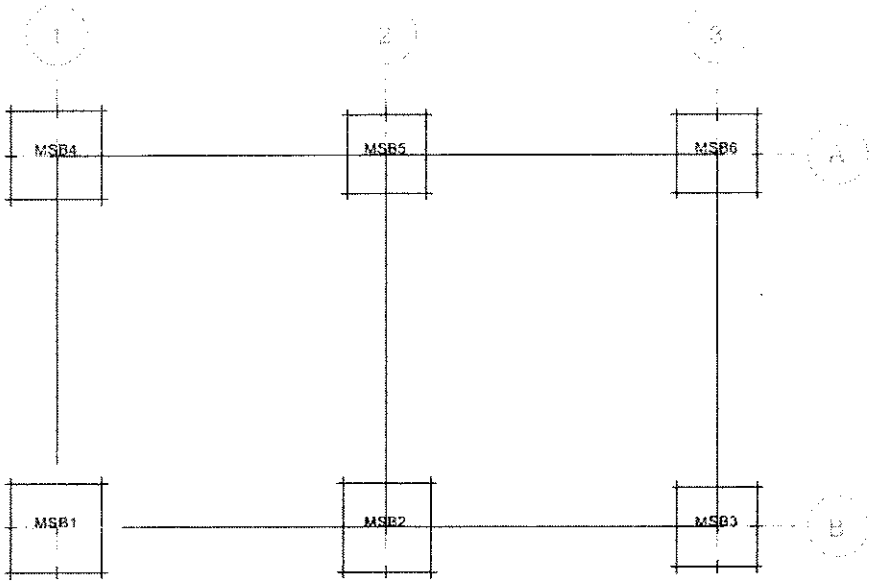
Numeración Nudos



Numeración Elementos



Identificación Strip A



Identificación Strip B

9.3.2.2. Coordenadas, asignaciones

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Table: Coordinate Systems

CoordSys	Type	OriginGx m	OriginGy m	RotAngle Degrees
GLOBAL	Cartesian	0.00	0.00	0.00

Table: Grid Lines

CoordSys	AxisDir	GridID	Ordinate m	Visible	BubbleLoc	GridColor	BubbleSize mm	HideAll
GLOBAL	X	1	0.00	Yes	End	10461087	1000.00	No
GLOBAL	X	2	7.00	Yes	End			
GLOBAL	X	3	14.00	Yes	End			
GLOBAL	Y	B	0.00	Yes	End			
GLOBAL	Y	A	8.00	Yes	End			

Table: Object Geometry - Areas 01 - General, Part 1 of 2

Area	NumPoints	Point1	Point2	Point3	Point4	Auto	TotalArea mm2	AreaType
1	4	17	20	21	22	No	3610000.00	Slab
2	4	55	56	57	58	No	3610000.00	Slab
3	4	1	2	3	4	No	2890000.00	Slab
4	4	31	32	33	34	No	3610000.00	Slab
5	4	59	60	61	62	No	2890000.00	Slab
6	4	39	40	43	44	No	2890000.00	Slab

Table: Object Geometry - Design Strips

Strip	Point	GlobalX m	GlobalY m	WBLeft m	WBRight m	WALeft m	WARight m
MSA1	23	0.00	-0.95			0.95	0.95
MSA1	24	0.00	0.95	0.95	0.95		
MSA2	78	7.00	-0.95			0.95	0.95
MSA2	79	7.00	0.95	0.95	0.95		
MSA3	5	14.00	-0.85			0.85	0.85
MSA3	6	14.00	0.85	0.85	0.85		
MSA4	35	0.00	7.05			0.95	0.95
MSA4	36	0.00	8.95	0.95	0.95		
MSA5	86	7.00	7.15			0.85	0.85
MSA5	87	7.00	8.85	0.85	0.85		
MSA6	45	14.00	7.15			0.85	0.85
MSA6	46	14.00	8.85	0.85	0.85		
MSB1	25	-0.95	0.00			0.95	0.95
MSB1	26	0.95	0.00	0.95	0.95		
MSB2	76	6.05	0.00			0.95	0.95
MSB2	77	7.95	0.00	0.95	0.95		
MSB3	8	13.15	0.00			0.85	0.85
MSB3	11	14.85	0.00	0.85	0.85		
MSB4	37	-0.95	8.00			0.95	0.95
MSB4	38	0.95	8.00	0.95	0.95		
MSB5	84	6.15	8.00			0.85	0.85
MSB5	85	7.85	8.00	0.85	0.85		
MSB6	47	13.15	8.00			0.85	0.85
MSB6	48	14.85	8.00	0.85	0.85		

Table: Object Geometry - Dimension Lines, Part 1 of 2

AlignType	GlobalX1 m	GlobalY1 m	GlobalX2 m	GlobalY2 m	GlobalX3 m	GlobalY3 m	GlobalX4 m	GlobalY4 m
Parallel	0.00	0.00	0.00	8.00	-2.28	0.00	-2.28	8.00
Parallel	0.00	0.00	7.00	0.00	0.00	-1.52	7.00	-1.52
Parallel	7.00	0.00	14.00	0.00	7.00	-1.52	14.00	-1.52
Parallel	0.75	-0.95	0.75	0.95	1.65	-0.95	1.65	0.95
Parallel	0.75	7.05	0.75	8.95	1.65	7.05	1.65	8.95
Parallel	7.75	-0.95	7.75	0.95	8.62	-0.95	8.62	0.95
Parallel	7.75	7.15	7.75	8.85	8.62	7.15	8.62	8.85
Parallel	14.75	-0.85	14.75	0.85	15.33	-0.85	15.33	0.85
Parallel	14.75	7.15	14.75	8.85	15.33	7.15	15.33	8.85
Parallel	-0.95	0.75	0.95	0.75	-0.95	1.55	0.95	1.55
Parallel	6.05	0.75	7.95	0.75	6.05	1.55	7.95	1.55
Parallel	13.15	0.75	14.85	0.75	13.15	1.55	14.85	1.55
Parallel	-0.95	7.25	0.95	7.25	-0.95	6.45	0.95	6.45
Parallel	6.15	7.25	7.85	7.25	6.15	6.45	7.85	6.45
Parallel	13.15	7.25	14.85	7.25	13.15	6.45	14.85	6.45

Table: Object Geometry - Lines 01 - General

Line	PointI	PointJ	LineType	CurveType	Length m
1	7	9	Beam	Straight	7.00
2	9	10	Beam	Straight	7.00
3	16	18	Beam	Straight	7.00
4	18	19	Beam	Straight	7.00
5	7	16	Beam	Straight	8.00
6	9	18	Beam	Straight	8.00
7	10	19	Beam	Straight	8.00

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
1	13.15	-0.85	0.00	No
2	14.85	-0.85	0.00	No
3	14.85	0.85	0.00	No
4	13.15	0.85	0.00	No
5	14.00	-0.85	0.00	No
6	14.00	0.85	0.00	No
7	0.00	0.00	0.00	Yes
8	13.15	0.00	0.00	No
9	7.00	0.00	0.00	Yes
10	14.00	0.00	0.00	Yes
11	14.85	0.00	0.00	No
16	0.00	8.00	0.00	Yes
17	-0.95	-0.95	0.00	No

Table: Object Geometry - Point Coordinates

Point	GlobalX m	GlobalY m	GlobalZ m	SpecialPt
18	7.00	8.00	0.00	Yes
19	14.00	8.00	0.00	Yes
20	0.95	-0.95	0.00	No
21	0.95	0.95	0.00	No
22	-0.95	0.95	0.00	No
23	0.00	-0.95	0.00	No
24	0.00	0.95	0.00	No
25	-0.95	0.00	0.00	No
26	0.95	0.00	0.00	No
31	-0.95	7.05	0.00	No
32	0.95	7.05	0.00	No
33	0.95	8.95	0.00	No
34	-0.95	8.95	0.00	No
35	0.00	7.05	0.00	No
36	0.00	8.95	0.00	No
37	-0.95	8.00	0.00	No
38	0.95	8.00	0.00	No
39	13.15	7.15	0.00	No
40	14.85	7.15	0.00	No
43	14.85	8.85	0.00	No
44	13.15	8.85	0.00	No
45	14.00	7.15	0.00	No
46	14.00	8.85	0.00	No
47	13.15	8.00	0.00	No
48	14.85	8.00	0.00	No
55	6.05	-0.95	0.00	No
56	7.95	-0.95	0.00	No
57	7.95	0.95	0.00	No
58	6.05	0.95	0.00	No
59	6.15	7.15	0.00	No
60	7.85	7.15	0.00	No
61	7.85	8.85	0.00	No
62	6.15	8.85	0.00	No
76	6.05	0.00	0.00	No
77	7.95	0.00	0.00	No
78	7.00	-0.95	0.00	No
79	7.00	0.95	0.00	No
84	6.15	8.00	0.00	No
85	7.85	8.00	0.00	No
86	7.00	7.15	0.00	No
87	7.00	8.85	0.00	No

Table: Beam Property Assignments

Line	BeamProp
1	SC30X40
2	SC30X40
3	SC30X40
4	SC30X40
5	SC30X40
6	SC30X40
7	SC30X40

Table: Slab Property Assignments

Area	SlabProp
1	ZPT
2	ZPT
3	ZPT
4	ZPT
5	ZPT
6	ZPT

Table: Soil Property Assignments

Area	SoilProp
1	SOIL_E
2	SOIL_E
3	SOIL_E
4	SOIL_E
5	SOIL_E
6	SOIL_E

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
1	Yes	Yes	No	No	No	No
2	Yes	Yes	No	No	No	No
3	Yes	Yes	No	No	No	No
4	Yes	Yes	No	No	No	No
17	Yes	Yes	No	No	No	No
20	Yes	Yes	No	No	No	No
21	Yes	Yes	No	No	No	No
22	Yes	Yes	No	No	No	No
31	Yes	Yes	No	No	No	No
32	Yes	Yes	No	No	No	No
33	Yes	Yes	No	No	No	No
34	Yes	Yes	No	No	No	No
39	Yes	Yes	No	No	No	No
40	Yes	Yes	No	No	No	No
43	Yes	Yes	No	No	No	No
44	Yes	Yes	No	No	No	No
55	Yes	Yes	No	No	No	No
56	Yes	Yes	No	No	No	No
57	Yes	Yes	No	No	No	No
58	Yes	Yes	No	No	No	No

Table: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
59	Yes	Yes	No	No	No	No
60	Yes	Yes	No	No	No	No
61	Yes	Yes	No	No	No	No
62	Yes	Yes	No	No	No	No

9.3.2.3. Cargas, asignación de cargas SUELO E

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Table: Load Assignments - Point Loads, Part 1 of 2

Point	LoadPat	Fx kN	Fy kN	Fgrav kN	Mx kN-m	My kN-m	Mz kN-m	Xoim mm
7	LR	-2.60	-6.00	38.04	9.37	-3.35	0.00	300.00
7	G	-2.08	-5.86	35.98	9.18	-2.82	0.00	300.00
7	Ex	-36.66	-20.77	17.81	-50.52	-80.70	-1.41	300.00
7	Ey	-12.41	-58.67	27.78	-144.99	-26.99	-3.13	300.00
7	OL	-9.80	-17.14	183.69	30.23	-13.15	0.00	300.00
9	LR	1.38	-0.84	37.87	2.11	2.32	0.00	300.00
9	G	0.55	-4.76	53.89	7.64	0.93	0.00	300.00
9	Ex	-46.89	-14.73	6.52	-37.65	-95.26	-1.41	300.00
9	Ey	-15.37	-48.76	21.58	-124.63	-31.23	-3.13	300.00
9	DL	3.22	7.28	203.89	-4.14	5.39	0.00	300.00
10	LR	1.23	-2.16	20.94	3.97	2.11	0.00	300.00
10	G	1.53	-4.33	29.14	7.03	2.33	0.00	300.00
10	Ex	-36.65	-19.75	18.09	-48.04	-80.67	-1.41	300.00
10	Ey	-12.44	-58.12	27.25	-143.64	-27.03	-3.13	300.00
10	DL	6.59	-11.07	151.17	21.72	10.20	0.00	300.00
16	LR	-2.31	5.51	32.94	-6.83	-2.92	0.00	300.00
16	G	-1.83	5.33	30.68	-6.58	-2.47	0.00	300.00
16	Ex	-32.00	-19.73	22.31	-49.08	-70.94	-1.41	300.00
16	Ey	-13.95	-58.51	26.93	-144.77	-30.40	-3.13	300.00
16	OL	-9.05	14.55	150.58	-14.39	-12.06	0.00	300.00
18	LR	1.30	1.82	27.75	-1.63	2.22	0.00	300.00
18	G	0.52	5.83	43.91	-7.28	0.89	0.00	300.00
18	Ex	-42.18	-14.71	6.57	-37.62	-85.44	-1.41	300.00
18	Ey	-17.55	-48.69	21.74	-124.53	-35.55	-3.13	300.00
18	OL	3.14	-2.08	152.56	9.05	5.29	0.00	300.00
19	LR	1.00	1.66	15.45	-1.41	1.78	0.00	300.00
19	G	1.31	3.79	23.69	-4.41	2.01	0.00	300.00
19	Ex	-32.02	-18.78	21.82	-46.71	-70.96	-1.41	300.00
19	Ey	-13.91	-57.93	27.09	-143.38	-30.33	-3.13	300.00
19	DL	5.89	8.47	117.49	-5.79	9.21	0.00	300.00

9.3.2.4. Esfuerzos sobre el suelo E

Table: Soil Pressures - Enveloping Summary

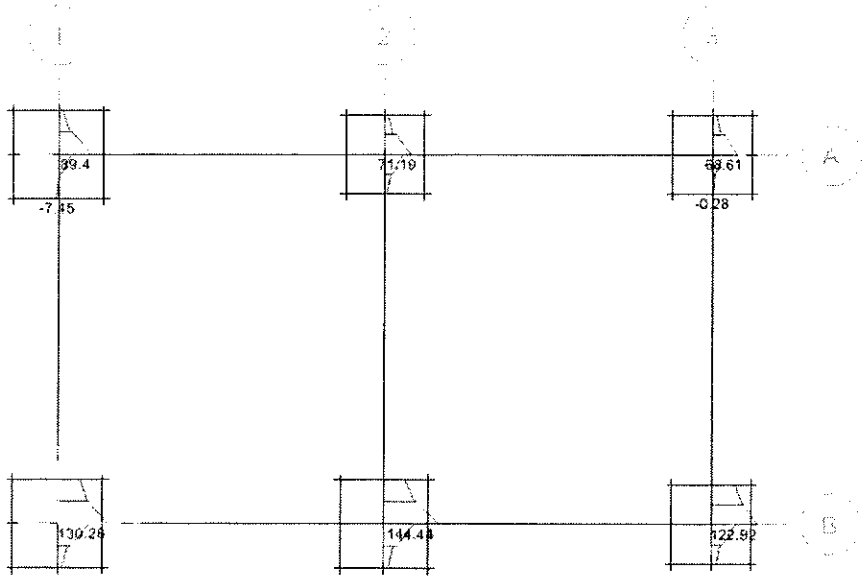
Panel	OutputItem	SurfPress kN/m2	DutputCase	CaseType	GlobalX m	GlobalY m
1	MaxPress	-12.12	Envol.-SRV	Combination	0.48	7.53
1	MinPress	-99.20	Envol.-SRV	Combination	6.53	0.95
2	MaxPress	-19.39	Envol.-SRV	Combination	13.58	7.58
2	MinPress	-100.07	Envol.-SRV	Combination	7.48	0.95

Table: Soil Pressures - Summary

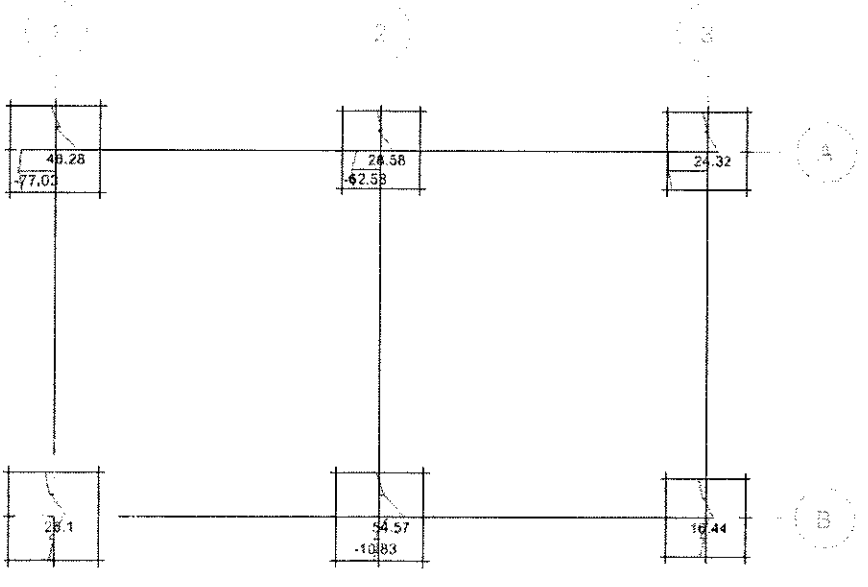
Panel	DutputCase	CaseType	MaxPress kN/m2	MinPress kN/m2	GlobalXMax m	GlobalYMax m	GlobalXMin m	GlobalYMin m
1	Envol.-SRV	Combination	-12.12	-99.20	0.48	7.53	6.53	0.95
2	Envol.-SRV	Combination	-19.39	-100.07	13.58	7.58	7.48	0.95

Capacidad admisible de suelo AB, $_{adm}$ = 100 kN/m^2 > Soil Pressures Max/Min => Ok

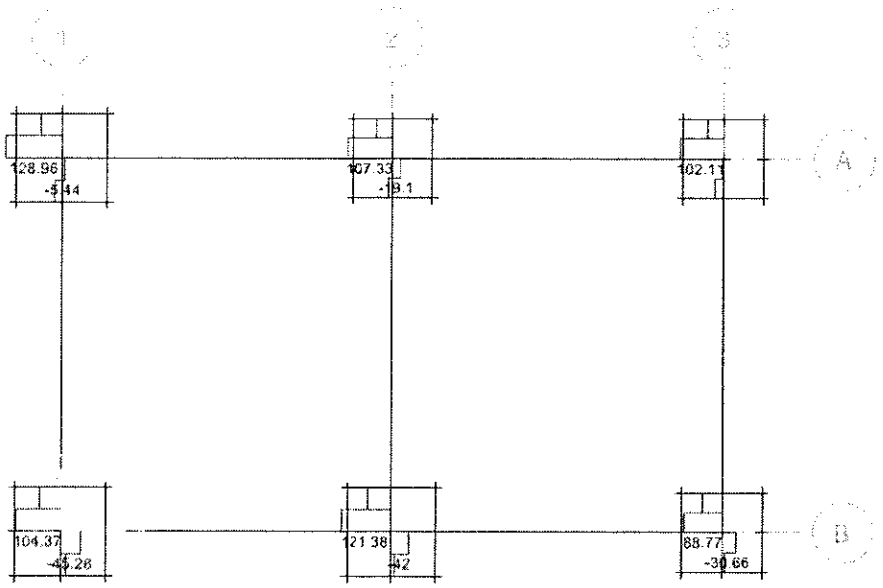
9.3.2.5. Resultados, diseño elementos



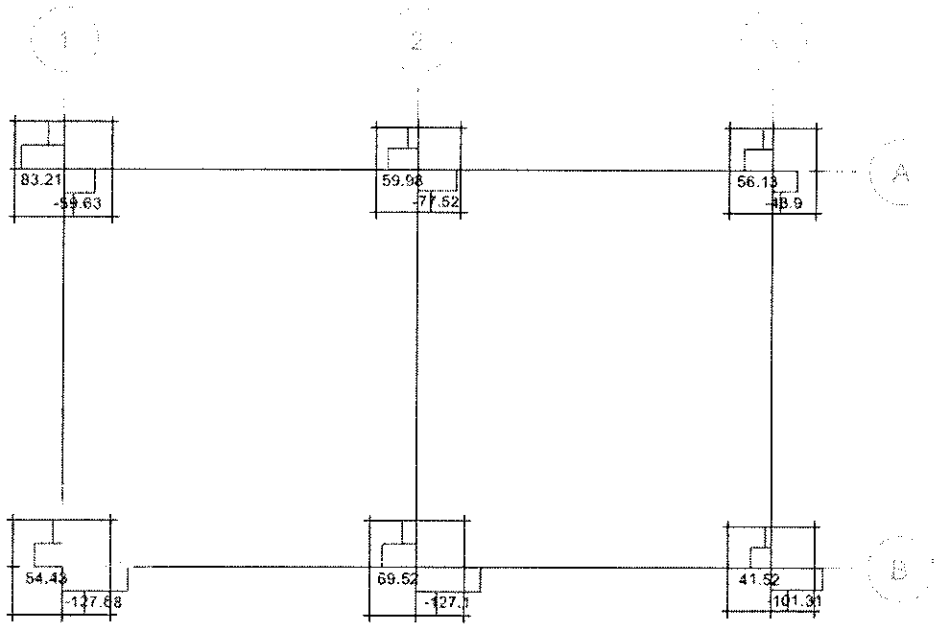
Zapatas - Strip A, Mmax (kN-m)



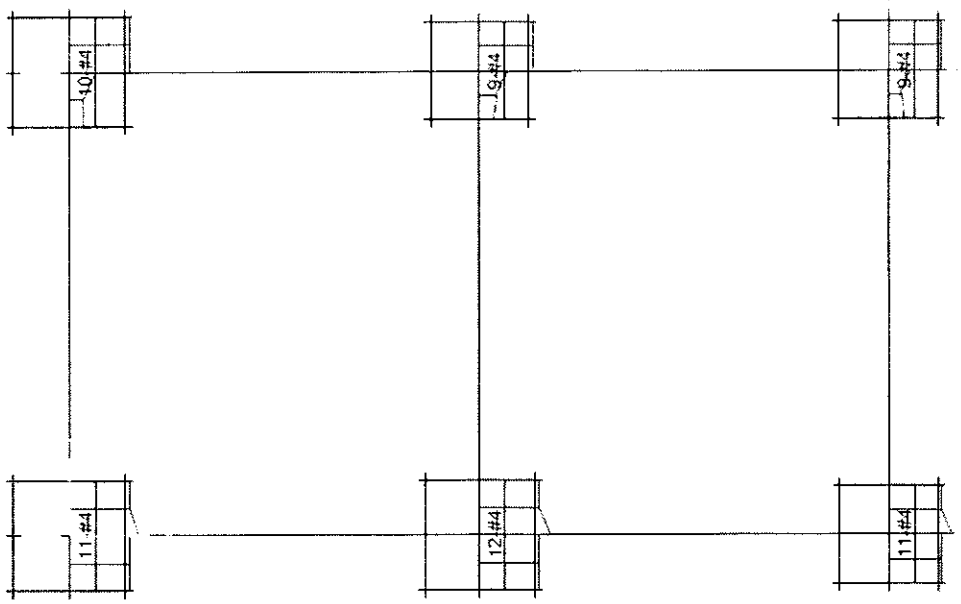
Zapatas - Strip A, Mmin (kN-m)



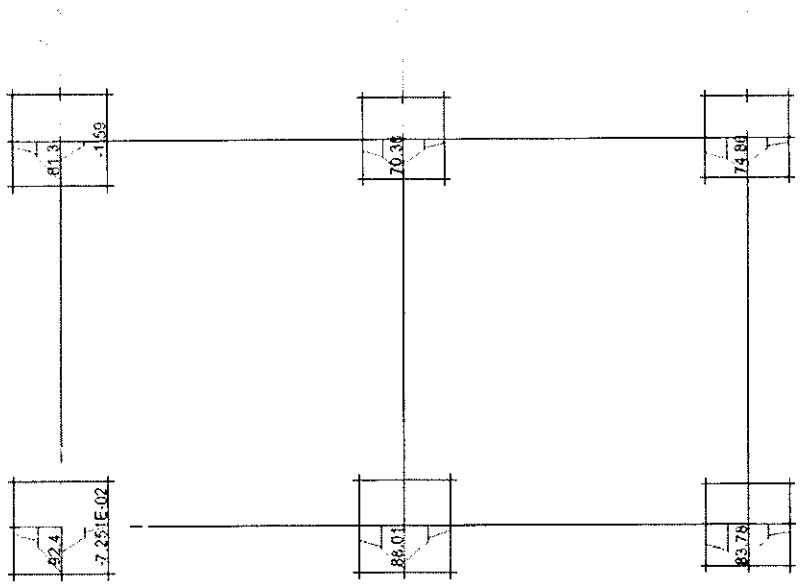
Zapatas - Strip A, Vmax (kN)



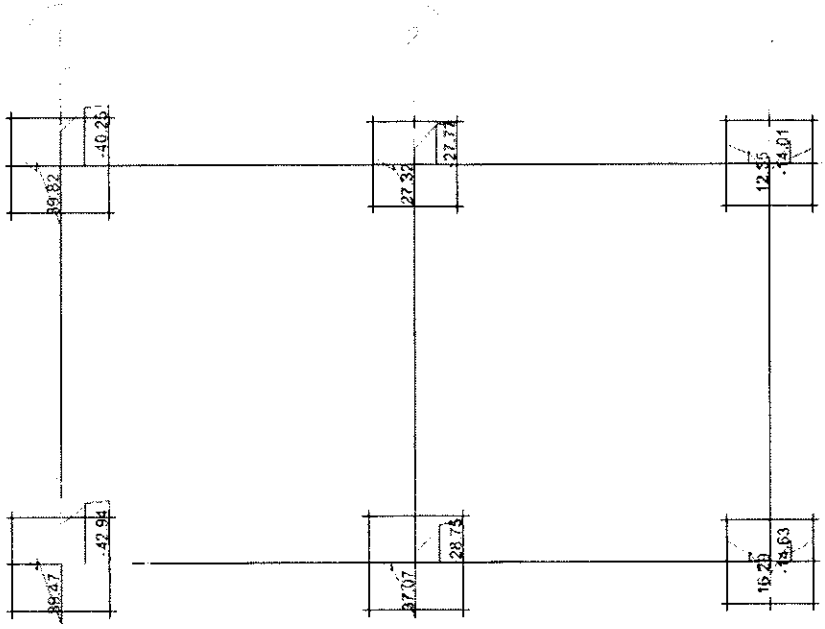
Zapatas - Strip A, Vmin (kN)



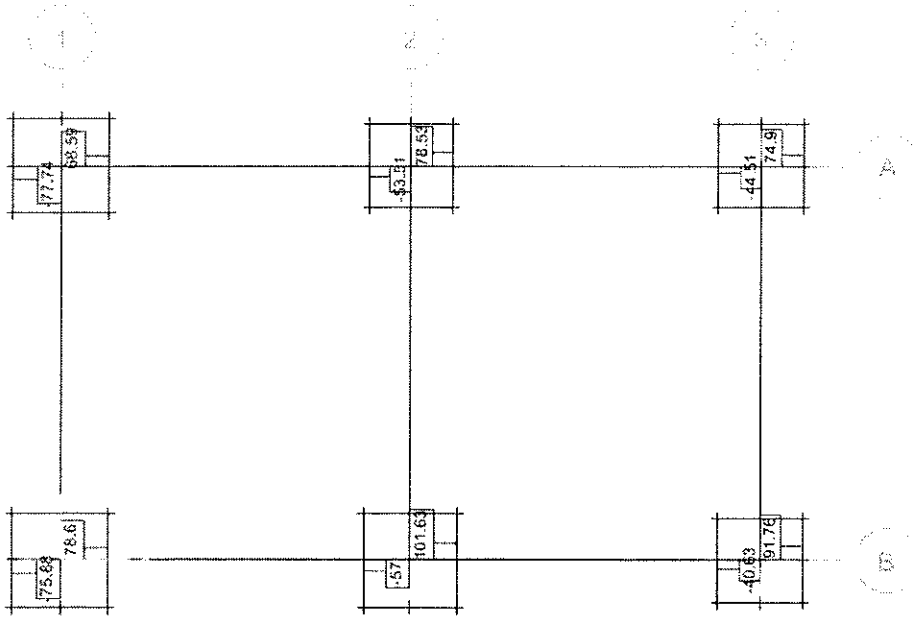
Zapatas SUELO E - Strip A, Acero de Refuerzo



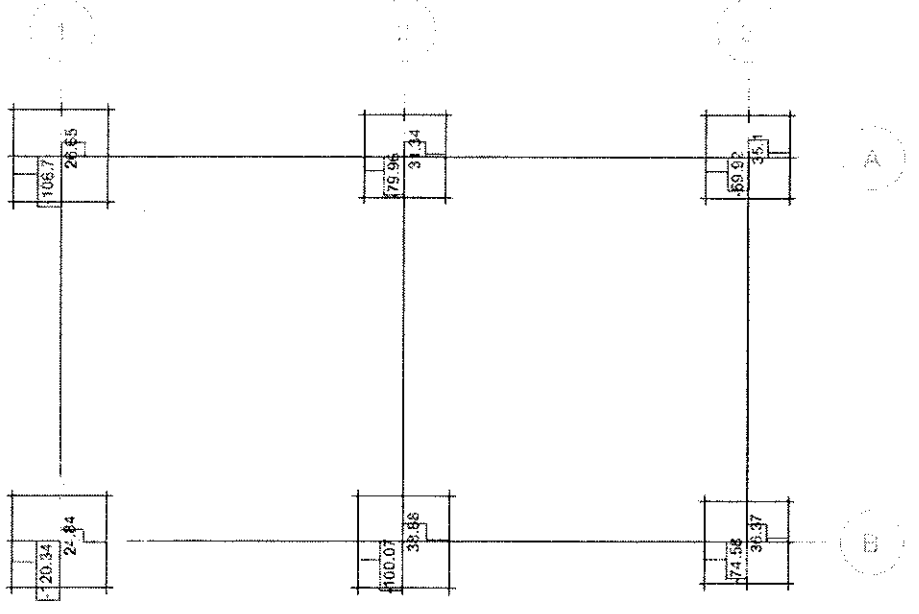
Zapatas - Strip B, Mmax (kN-m)



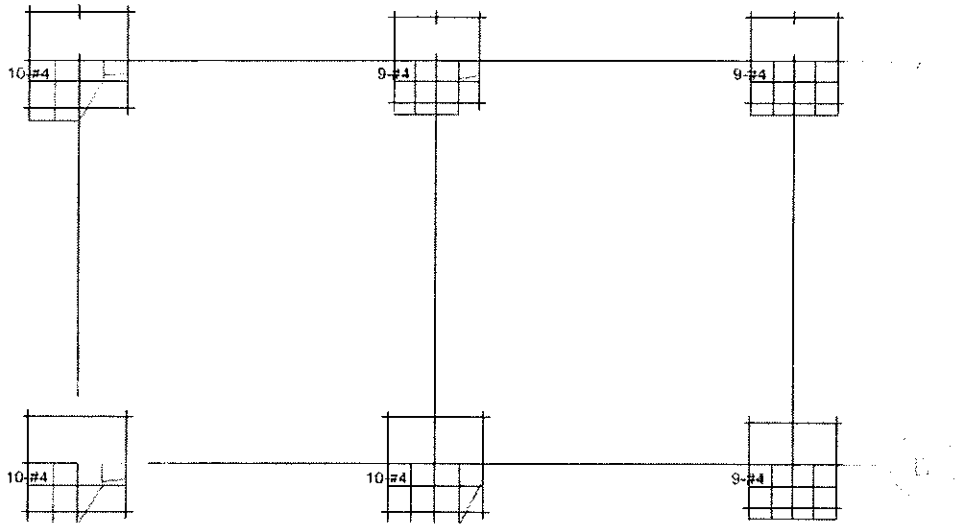
Zapatas - Strip B, Mmin (kN-m)



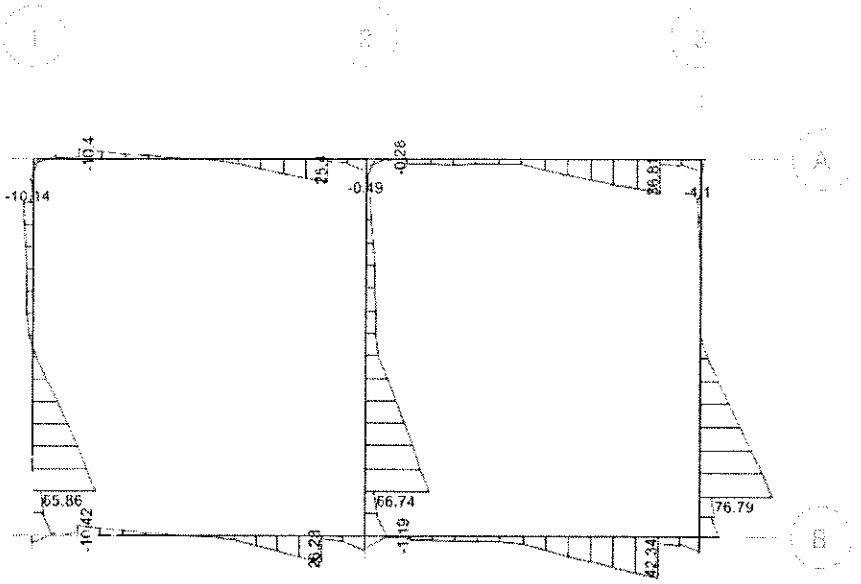
Zapatas - Strip B, Vmax (kN)



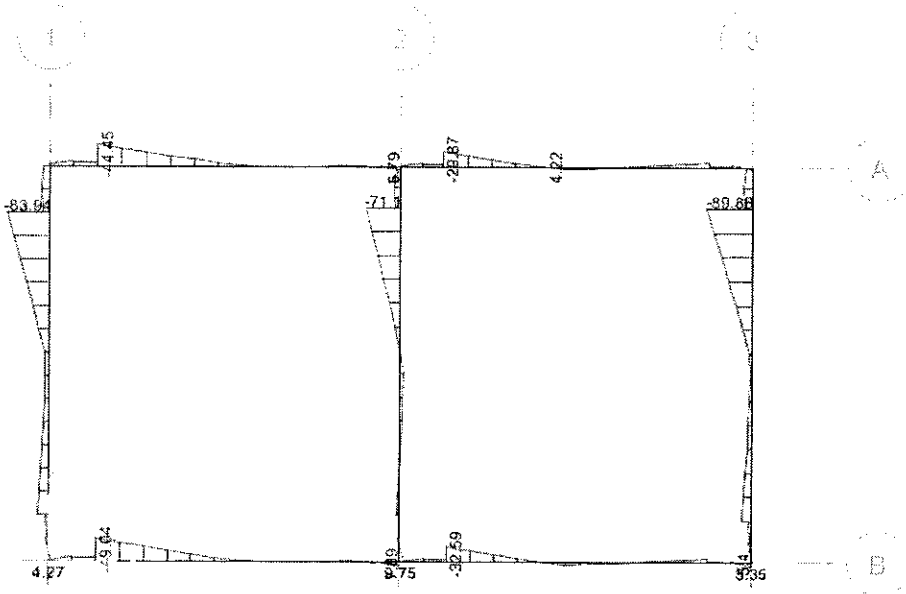
Zapatas - Strip B, Vmin (kN)



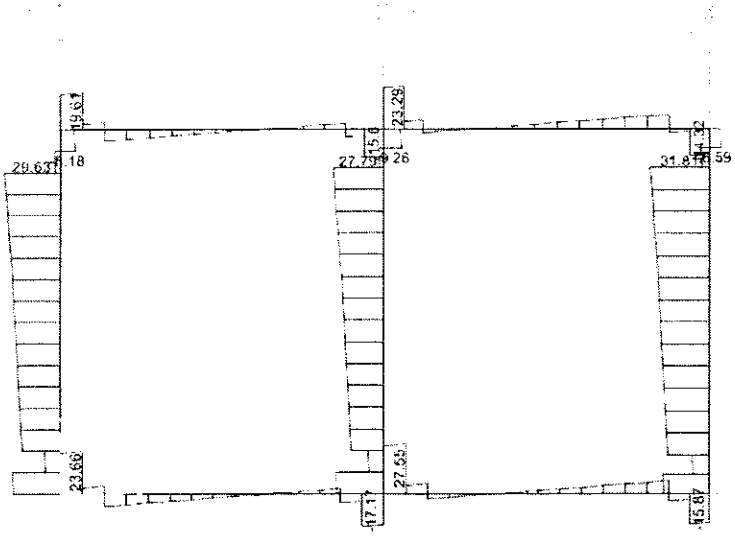
Zapatas SUELO E - Strip B, Acero de Refuerzo



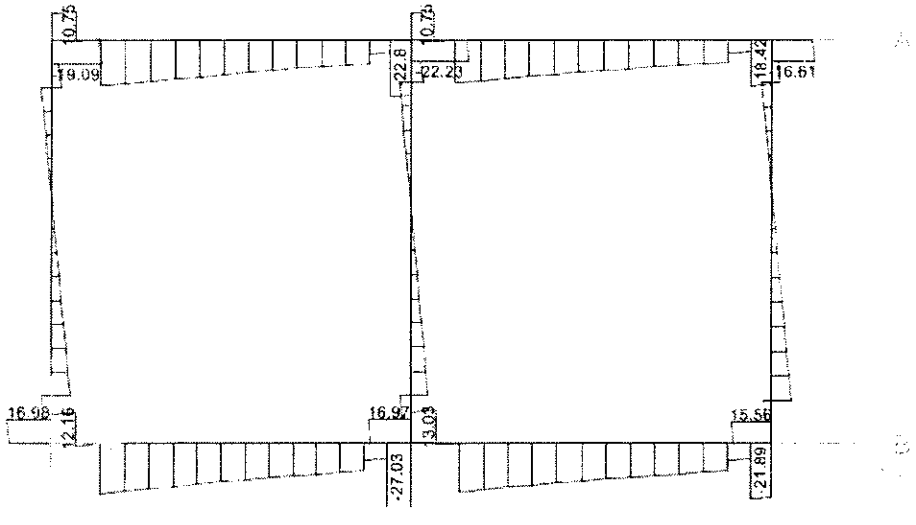
Vigas, Mmax (kN-m)



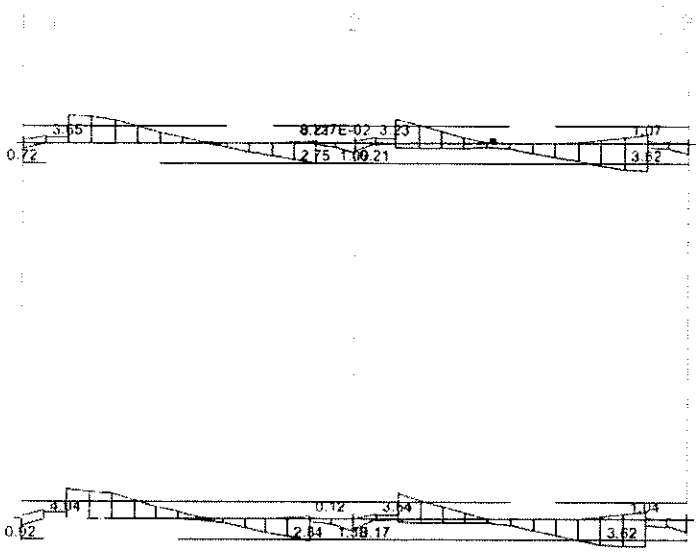
Vigas, Mmin (kN-m)



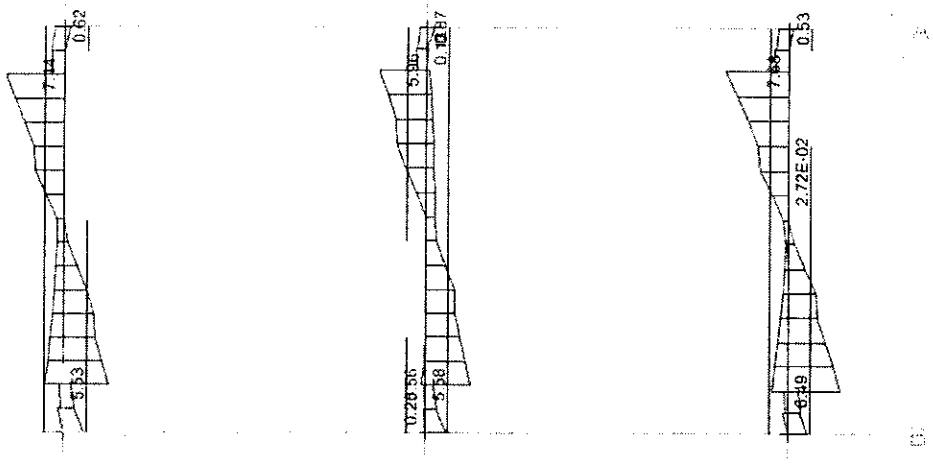
Vigas, Vmax (kN)



Vigas, Vmin (kN)



Vigas Long. Suelo E, Acero de refuerzo a flexion (cm2)



Vigas Transv. Suelo E, Acero de refuerzo a flexion (cm2)